

Impression Management and Self-Reports of Sensitive Behaviours:
Can its Impact be Mitigated?

by

Jennifer Thake

A thesis submitted to

the Faculty of Graduate and Postdoctoral Affairs

in partial fulfillment of the requirements for the degree of

Doctor of Philosophy

In

Psychology

Carleton University

Ottawa, Canada

© 2011 Jennifer Thake



Library and Archives
Canada

Published Heritage
Branch

395 Wellington Street
Ottawa ON K1A 0N4
Canada

Bibliothèque et
Archives Canada

Direction du
Patrimoine de l'édition

395, rue Wellington
Ottawa ON K1A 0N4
Canada

Your file *Votre référence*
ISBN: 978-0-494-83228-8
Our file *Notre référence*
ISBN: 978-0-494-83228-8

NOTICE:

The author has granted a non-exclusive license allowing Library and Archives Canada to reproduce, publish, archive, preserve, conserve, communicate to the public by telecommunication or on the Internet, loan, distribute and sell theses worldwide, for commercial or non-commercial purposes, in microform, paper, electronic and/or any other formats.

The author retains copyright ownership and moral rights in this thesis. Neither the thesis nor substantial extracts from it may be printed or otherwise reproduced without the author's permission.

AVIS:

L'auteur a accordé une licence non exclusive permettant à la Bibliothèque et Archives Canada de reproduire, publier, archiver, sauvegarder, conserver, transmettre au public par télécommunication ou par l'Internet, prêter, distribuer et vendre des thèses partout dans le monde, à des fins commerciales ou autres, sur support microforme, papier, électronique et/ou autres formats.

L'auteur conserve la propriété du droit d'auteur et des droits moraux qui protègent cette thèse. Ni la thèse ni des extraits substantiels de celle-ci ne doivent être imprimés ou autrement reproduits sans son autorisation.

In compliance with the Canadian Privacy Act some supporting forms may have been removed from this thesis.

While these forms may be included in the document page count, their removal does not represent any loss of content from the thesis.

Conformément à la loi canadienne sur la protection de la vie privée, quelques formulaires secondaires ont été enlevés de cette thèse.

Bien que ces formulaires aient inclus dans la pagination, il n'y aura aucun contenu manquant.


Canada

Abstract

People do not always respond accurately when asked questions in surveys. To the extent that people motivated to make a good impression provide inaccurate responses, the validity of self-reports is questionable. The goal of the present research was to mitigate the impact of this bias on self-reports of sensitive behaviours using different approaches. In Study 1, I attempted to reduce the bias by providing respondents with a face-saving preface to personal questions. In Study 2, I assessed the impact of altering the range of response options. In Studies 3 and 4, I attempted to reduce the motivation to present one's self favourably by priming honesty. Results to all experiments revealed that those with a strong general motivation to present one's self favourably (i.e., high impression managers) responded to these manipulations with more conservative behavioural estimates of sensitive behaviours. These results suggest that high impression managers are especially sensitive to threats to their desired self-image and are motivated to protect this image. Counter to expectations, non-impression managers' responses increased when sensitive behaviours appeared more common – suggesting that some degree of social desirable responding is 'normal' when asked about sensitive behaviours. Results are discussed in terms of their implications for how impression management is conceptualized and its impact of the assessment of sensitive behaviours.

Table of Contents

Abstract.....	ii
Table of Contents.....	iii
List of Tables	v
List of Figures.....	vi
List of Appendices.....	vii
Introduction: Impression Management and Self-Reports of Sensitive Behaviours:.....	1
Can its Impact be Mitigated?	1
Study 1: Standard Wording vs. Face-saving Statement.....	31
Method	32
Participants.	32
Procedure.....	32
Measures.....	34
Results.....	36
Discussion	38
Study 2: Low vs. High Frequency Response Scale	41
Methods.....	42
Participants.	42
Procedures	42
Measures.....	43
Results.....	45
Discussion	51

Study 3: ‘Neutral’ vs. Honesty Prime.....53

 Method54

 Participants54

 Procedure.....54

 Materials.....55

 Measures.....56

 Results.....57

 Discussion59

Study 4: Neutral vs. Honesty Prime.....61

 Method61

 Participants61

 Procedure.....61

 Materials.....62

 Measures.....62

 Results.....63

 Discussion65

General Discussion66

 Implications.....72

 Limitations74

 Summary74

References.....77

Appendices.....91

List of Tables

Table 1. Study 2: The Impact of Impression Management and Response Scale on Reports
of Non-sensitive and Sensitive Behaviours48

List of Figures

Figure 1. Hazardous Drinking Scores (AUDIT) for High and Non-Impression Managers by Standard vs. Face-saving Condition38

Figure 2. Perceptions of Peer’s Engagement in Health and Social Behaviours by Low vs. High Frequency Response Scale.....47

Figure 3. Effect of Condition (Low vs. High Frequency Response Scale) on High and Non-Impression Managers Reports of Sensitive and Non-sensitive Behaviours50

Figure 4. Mean Drinking Scores for High and Non-Impression Managers by Neutral vs. Honesty Priming Conditions.....58

Figure 5. Drinking scores for High and Non-Impression Managers by Neutral vs. Honesty Priming Conditions64

List of Appendices

Appendix A: The Alcohol Use Disorders Identification Test (AUDIT)	91
Appendix B: Balanced Inventory of Desirable Responding (BIDR; Version 6).....	95
Appendix C: Health and Social Behaviours Survey (HSBS)	97
Appendix D: Rating the Sensitivity of Question Topics	102
Appendix E: Drinking Behaviours of University Students	104
Appendix F: Priming Manipulations	105

**Impression Management and Self-Reports of Sensitive Behaviours:
Can its Impact be Mitigated?**

Surveys are frequently used to assess whether and the extent to which people engage in sensitive behaviours (e.g., use illicit drugs, consume alcohol in excess, engage in risky sexual practices, or participate in other activities that may be illegal, highly personal or sensitive). This information is routinely used by epidemiologists to assess the links between behaviour (e.g., drinking patterns) and health outcomes (e.g., heart disease, addiction, risk of injury) or by planners and policy-makers to estimate the need for services, or to assess the effectiveness of programs (e.g., outreach or prevention programs). Self-report data on sensitive topics are also used to develop and test theories and hypotheses (e.g., the gateway theory; Kandel, Yamaguchi & Chen, 1992). Thus, the information obtained through self-reports has real world implications.

There is a great deal of skepticism regarding the accuracy of self-reports of sensitive behaviours (e.g., Babor, Brown & Del Boca, 1990; Bradburn, 1983; Edwards, 1953; Evans, Hansen, & Middlemark, 1977; Winters, Stinchfield, Henly, & Schwartz, 1990); some researchers have gone as far to call a moratorium on the use of self-reports when assessing specific sensitive topics (i.e., alcoholism) until the validity of these measures has improved (Watson, Tilleskjoer, Hoodecheck-Schow, Pucel & Jacobs, 1984). Much of this skepticism is based on the assumption that some respondents are unwilling to divulge particular information or do not answer honestly owing to a desire to present

themselves in a favourable light. In fact, there is substantial evidence that self-report data ought not to be trusted for these reasons (e.g., Fuller, 1988; Paulhus & Vazire, 2007; Schwarz & Oyserman, 2001). Due to the likelihood that at least some respondents will answer inaccurately, the predominant concern among researchers using self-reports is whether they can 'trust' what participants report (Holden & Troister, 2009).

Assessing the accuracy of self-reported behaviour is not easy, particularly when the behavior is private and potentially embarrassing. The most obvious strategy to assess whether a respondent is being dishonest or inaccurate is to check self-reports against objective external criteria. Often, however, it is difficult or impossible to obtain verification from other sources (McCrae & Costa, 1983). Aside from actually observing subjects over extended periods of time, or drawing regular blood, urine, and other biomedical samples, it is often not possible to know for certain whether or how much one drinks alcohol, uses drugs, or engages in risky sexual activities. Spousal or peer reports may be helpful as corroborative evidence, but such reports are not necessarily any more accurate than self-reports. With regard to alcohol or tobacco consumption, it is sometimes possible to compare reported consumption (as reported by representative samples) to aggregated sales data within a given population, but such analyses only suggest the extent to which the population is biased in their reports (Embree & Whitehead, 1991; Single & Wortley, 1994; Smith et al., 1990; Stockwell et al., 2004, 2008). Thus, despite its problems, self-report will continue to be the major source of information about human behavior.

Since the accuracy of self-reported data on sensitive topics is a significant concern, a great deal of research has been focused on ways to improve its accuracy. Working from the assumption that higher prevalence rates and reports of more frequent engagement in sensitive behaviours are more accurate than lower prevalence rates and reports of less frequent engagement, researchers have attempted altering modes of questionnaire administration in order to improve the accuracy of responses. Typically this has involved maximizing anonymity/confidentiality or increasing the physical distance between participant and researchers by varying the mode of questioning (e.g., self-administered or online surveys versus face-to-face interviews). This technique is based on the assumption that respondents may be more apt to answer honestly if less concerned about their answers being known and judged. Questionnaires that are self-administered generally yield higher reports of tobacco, alcohol and illicit drug use, as well as sexual behaviours (masturbation, intercourse, number of sexual partners), when compared with face-to-face interviews or telephone surveys (Aquilino, 1994; Aquilino & LoScuito, 1990; Catania, McDermott, & Pollack, 1986; Tourangeau & Yan, 1998). There is also evidence that administration of questions by a computer may yield comparable or higher reports of sensitive behaviours compared to traditional self-administered questionnaires (e.g., paper and pencil; see review by Tourangeau & Yan, 1998; Booth-Kewley et al., 2007). In addition, online surveys have also become increasingly popular, yet there are few studies assessing whether responses using online surveys are comparable to those using other self-administration methods. Research that has been done has not revealed any significant difference in reports of sensitive behaviours (e.g., McCabe, Boyd, Young, Crawford &

Pope, 2005). The bogus pipeline procedure is another administration method suggested to increase reports of sensitive behaviours by decreasing socially desirable responses. However, studies assessing the usefulness of this method have tended to yield mixed results (Adams, Parkinson, Sanson-Fisher, & Walsh, 2008; Aquinis, Pierce & Quigley, 1995; Campanelli, Dielman, & Shope, 1987; Lowe, et al., 1986; Murray, O'Connell, Schmid, & Perry, 1987). These results suggest that slight alterations in questionnaire administration may increase reports of sensitive behaviours. It is important to note, however, that altering administration method to collect data on such topics may not entirely alleviate the problem of inaccurate responding (see e.g., Booth-Kewley et al., 2007).

Concerns with Self-Presentation

Implicit in the various methods used to improve the accuracy of self-report data is the assumption that inaccurate responding is intentional or motivated. According to rational choice theory, there are two (sometimes conflicting) motivations that often come into play as one responds to survey questions: 1) the desire to be truthful, and, 2) the desire to be seen in a favorable light (Stocke & Stark, 2007). Responses will only be affected by the latter when participants perceive that their response will lead others to view them less favourably. When participants experience conflict between the two motives, they are likely to compromise on the first (Schwarz, Groves & Schuman, 1998; Stocke & Stark, 2007).

The editing of one's response is most likely to occur when the questions are perceived as 'threatening'. The notion of threatening (or sensitive) questions presupposes

that respondents 1) believe there are behavioural norms that help define the desired self-image and 2) are concerned about deviating from these norms (Tourangeau, Rips, & Rasinski, 2000). When participants are asked about their own engagement in behaviours they perceive as socially stigmatized and/or negatively sanctioned they are motivated to provide socially normative responses (social desirability theory; Edwards, 1957a; Sudman & Bradburn, 1982). This tendency has been demonstrated by various researchers. For instance, Bradburn, Sudman, Blair and Stocking (1978) demonstrated that the more participants indicated that 'most people' would be uncomfortable answering questions about particular behaviours (e.g., alcohol consumption, drug use, masturbation) the more participants' under-reported their own engagement in those behaviours. A more recent meta-analysis by Wentland and Smith (1993) found that the more one has engaged in illegal behaviours (as obtained from external sources, e.g., criminal records, police reports of infractions), the less likely one is to self-report such behaviour. On the other hand, people do not appear to downplay their engagement in socially acceptable or neutral behaviours. For example, Bradburn, Sudman, and associates (1979) found discrepancies between self-reports and objective sources were low when respondents were asked whether they had a library card, but were considerably higher when respondents were asked about incidences of drunk driving. In sum, this inconsistency in reporting accuracy for sensitive and non-sensitive behaviours suggests a tendency for at least some respondents to edit their answers in an effort to appear socially desirable.

Individual Differences in Social Desirability

From time to time, most people engage in some stretching of the truth, or at least refrain from providing information that makes them 'look bad'. This occurs when a situational press compels one to give an overly positive self-description (e.g., job interview, insurance policy health assessment). These context-specific positive self-descriptions, or *response sets*, are independent of personality and ability, and thus should not generalize to other contexts (Paulhus & Vazire, 2007). However, when the tendency is consistent across time and assessment context, it is considered to be a trait-like characteristic, or a *response style* (Paulhus & Vazire, 2007). Response style is defined as a systematic tendency to respond to a range of questions on some basis other than the content of the question itself (Paulhus, 1991). For instance, the tendency to choose the socially desirable response or the most moderate response across assessment contexts is considered a response style (Paulhus, 2002). In this case, individuals are responding, at least in part, on the basis of an item's social desirability (Paulhus, 2002). Both types of bias, response set and response style, negatively affect the validity of responses by obscuring measurement of the target variable (Paulhus, 1991; 2002).

The measurement of the degree to which an individual is responding in a socially desirable way has been an issue for personality and clinical psychologists for more than 60 years. Concerned about lying and faking on the Minnesota Multiphasic Personality Inventory, Meehl and Hathaway (1946) empirically developed a scale (the L-scale) using items that distinguished individuals with a "tendency to be defensive or to put oneself in too favorable a light" (p. 560). The L-scale consists of true/false statements about attitudes and practices that are socially undesirable but common (e.g., sometimes I feel

like swearing); items answered 'False' are coded as a lie. Soon after development, Meehl and Hathaway concluded that the instrument is too obvious in its approach to assessing socially desirable responding – suggesting that it may work for naïve participants, but not for those who are more sophisticated (see Paulhus, 2002, for review). Later, Edwards created the Social Desirability Scale (Edwards, 1957a) by presenting participants with instructions to judge the degree of social desirability of a variety of items (drawn from subscales of the MMPI); items that the judges unanimously agreed upon as being items high in social desirability (39 items) became the Social Desirability Scale. Edwards (1953, 1957a, 1957b) suggested that measures correlating with high ratings of social desirability are contaminated, and thus, invalid. Crowne and Marlowe (1960) likewise developed a set of items, again using some from the MMPI, to reflect a motivation to respond in a socially desirable way. Those completing the Marlowe-Crowne Social Desirability Scale (M-C SDS) are asked to indicate whether each of a number of statements describing desirable but uncommon behaviours (e.g., admitting mistakes) and undesirable but common behaviours (e.g., gossiping) are self-descriptively true or false. High scores accumulate if one's answers are improbably positive (thought to represent a great need for approval; e.g., "I have never gossiped"). Although designed to be a simple index of response style, the M-C SDS revealed a high degree of stability and a series of behavioural correlates, suggesting that social desirability is a trait in its own right (Paulhus & John, 1998). Respondents who score high on M-C SDS are thought to be of an approval seeking character, who present themselves as conforming and cautious

(Paulhus & John, 1998). These individuals attempt to avoid social disapproval by endorsing self-descriptions that are too good to be true.

The M-C SDS and other earlier social desirability scales have been criticized for their inability to distinguish between distinct social desirability biases. Factor analyses of social desirability instruments consistently reveal more than one primary factor (e.g., Paulhus, 1984; Wiggins, 1964). Sackeim and Gur (1979) attempted to discern these two styles of self-presentation, labeling them other-deception (conscious falsehood or lying) and self-deception (incorrect beliefs about oneself). Their self-deception scale consisted of items that were judged to be universally true but psychologically threatening (i.e., making a fool of oneself, enjoying one's bowel movements; Sackeim & Gur, 1979), while the other-deception questionnaire consisted of items from various other lie scales (e.g., MMPI L-scale). However, the self- and other-deception measures have been criticized for the high intercorrelation (exceeding .5) – negating their advantage over single factor measures (Paulhus, 2002).

Building upon work by Sackeim and Gur, Paulhus (1984) developed an instrument that distinguishes the two social desirability motivations, known as the Balanced Inventory of Desirable Responding (BIDR). The BIDR is a descendent of the self- and other-questionnaire by Sackeim and Gur. However, Paulhus' self-deception subscale was reworked to focus on exaggerated claims of positive cognitive attributes and behaviour (overconfidence in one's judgment and rationality; i.e., ego enhancement), rather than denial of threatening thoughts and feelings (see Paulhus, 1991). The BIDR distinguishes between subjects who report unrealistically positive self-depictions about which they

appear to be convinced (labeled self-deceptive enhancement) from those who consciously and deliberately distort their self-descriptions to fool an audience (labeled impression management). The scoring procedure includes only extreme responses, providing assurance that high scores on the self-deceptive enhancement and impression management subscales indicate exaggeration rather than accurate self-descriptions (Paulhus, 1998).

The BIDR scale has been extensively validated (see Paulhus, 1998). The IM scale (but not SDE) correlates highly with other measures traditionally known as lie scales (e.g., EPI Lie scale, MMPI Lie scale) and role-playing measures (e.g., the Wiggins Sd). The SDE scale (but not IM) taps a tendency to view oneself in an overly favourably light with respect to one's abilities; high scorers on SDE report a lower expectation that they will be in a traffic accident, show more confidence in memory judgments and greater hindsight bias, and claim familiarity with non-existent items (Campbell & Tesser, 1983; Paulhus & Bruce, 1990; Paulhus & Ried, 1991).

The IM scale is sensitive to attempts to impression manage. For instance, mean IM scores (but not SDE scores) are substantially higher under public administration conditions than under private administration conditions (Lautenschlager & Flaherty, 1990; Paulhus, 1984; Paulhus, Bruce & Trapnell, 1995). The IM scale has been shown to be useful for evaluating the susceptibility of a measure to self-presentation. For example, Paulhus et al., (1995) asked participants to complete the IM scale and the Big 5 as part of applying for an unspecified job. Participants were randomly assigned to 1 of 6 self-presentation conditions, ranging from "fake the best candidate" to "fake the worst

candidate” – control participants were asked to respond honestly. The IM scale was very sensitive to changes in self-presentation strategies; participants that were instructed to ‘play up’ the way they present themselves scored significantly higher on the IM measure than those who were instructed to answer honestly. The IM scale also highly correlated with means on the Big 5 in the ‘fake best’ ($r = .60$) and ‘fake worst’ conditions ($r = .50$), but not the honesty condition ($r = .15$), suggesting that the IM scale is sensitive to self-presentation profiles. The SDE measure was not as susceptible to faking (i.e., the scores of those asked to fake good on the SDE measure did not differ from those asked to respond honestly) nor did it discriminate between self-presentation profiles on the Big 5.

The gamut of social desirability measures have been characterized in terms of their relative weighting on these two BIDR factors. For instance, the MMPI L-scale (Meehl & Hathaway, 1946) loads primarily on the impression management factor, while the SD scale (Edwards, 1957a) loads primarily on the self-deception factor; the M-C SDS (Crowne & Marlowe, 1964) loads on both, but to a greater extent on the impression management factor (Paulhus, 1991).

More recent research on impression management and self-deceptive enhancement has generated a clearer picture about the motivations behind these response styles (see Paulhus, 2002). In an attempt to demonstrate that ‘socially desirable’ responding is, in fact, a departure from reality, Paulhus and John (1998) collected self-ratings of personality (Big Five) and intelligence to compare with a more objective criterion (ratings by knowledgeable peers, IQ test). Each self-rating was then regressed on its corresponding criterion to create a residual score representing the departure of the self-

rating from reality. To uncover the structure of the self-favouring bias, a factor analysis of the residuals was conducted. Two biases were observed: one was self-favouring for agreeableness, dutifulness/conscientiousness and nurturance (labeled moralistic bias), while the other self-favoured extraversion, intellect, openness and dominance (labeled egoistic bias). Egoistic bias is described as the self-deceptive tendency to exaggerate one's social and intellectual status. Individuals with such a bias have unrealistically positive self-perceptions on agentic traits like dominance, fearlessness, emotional stability, intellect and creativity. Moralistic bias is a self-deceptive tendency to deny socially deviant impulses and claim sanctimonious, saint-like attributes – this is played out in overly positive self-ratings on communal traits such as agreeableness, dutifulness, and restraint.

Both egoistic and moralistic biases contain a self-deceptive style and an impression management style, yielding 4 types of response styles (Paulhus, 2002). At the impression management level, people may deliberately exaggerate their attainment of both agentic/egoistic traits (e.g., dominance, intellect; labeled agency management) and communal/moralistic traits (e.g., agreeableness, restraint; labeled communal management). At the self-enhancement level, people may truly perceive themselves as possessing unrealistically high social and intellectual competence (an egoistic bias, labeled self-deceptive enhancement) or truly perceive themselves as being highly agreeable, dutiful and constrained (a moralistic bias, labeled self-deceptive denial).

Although, self-deception (both self-deceptive enhancement and self-deceptive denial) is in itself an interesting topic, this paper focuses only on deliberate lying and other-

deception (i.e., impression management) in reports of sensitive behaviours. There is little reason to believe that respondents may under-report objective behaviours, such as number of drinks consumed per week or cigarettes smoked per day, because they perceive themselves as being better behaved than they truly are; rather, it is more likely that under-reporting of sensitive behaviours stems from a desire to be viewed favourably.

As mentioned above, there are two types of impression management: agentic and communal. Currently there is no measure of agentic management (the tendency to exaggerate social, intellectual and physical prowess). Communion management, on the other hand, is best indexed by the Impression Management scale (from the BIDR; Paulhus & Reid, 1991) and the M-C SDS (Marlowe & Crowne, 1964). These communion management scales contains item that are socially desirable but also distinctively conventional. In order to present the image that one is normal and appropriate, dutifully adhering to social norms and avoiding antisocial behaviour, high scorers on these measures both underreport undesirable characteristics and over-report favourable characteristics (Paulhus, 1991, 2002; Paulhus & John, 1998; Paulhus & Reid, 1991).

The present paper focuses on the impact of impression management (specifically communal/moralistic bias) on self-reports of sensitive behaviours. This communal bias is the more likely of the two types of impression management (agentic and communal) to capture the tendency to deny socially-deviant behaviours and to claim “saint-like” attributes. Whereas, a tendency toward agentic management is unlikely to skew reports of sensitive behaviours downwards; these individuals are more concerned with presenting “superhero” or narcissistic qualities, like social prowess, intellectual status, and overall

fearlessness. To illustrate, agentic management is likely to come into play when a male is attempting to impress a dating partner, whereas communal management is likely to come into play when attempting to appear status quo (Paulhus, 2002).

In the present paper, communal management will be, from this point on, referred to as impression management. Although communal management is the 'new' term for referring to someone motivated by moralistic/communal bias, much of the research community continues to refer to this tendency as impression management (IM).

Impression Management and Self-Reports of Sensitive Behaviours

To the extent that impression managers care a great deal about the impression they are making on others, it is likely that they will be motivated to downplay or "low-ball" the extent to which they engage in sensitive behaviours. In an extensive literature review, many studies include measures of IM when assessing sensitive behaviours in order to make sure the survey is free of bias (IM correlated with the variable of interest) or to control for IM when assessing the magnitude of the association between two variables. Few studies have focused solely on the impact of IM scores on reports of sensitive behaviours. Irrespective of the reasoning behind including IM measures in one's research, findings reveal that measures of IM are consistently negatively related to self-reports of sensitive behaviours. For example, individuals scoring high on measures of IM self-report lower alcohol intake or deny consumption of alcohol altogether, fewer social problems in college, fewer instances of engaging in intimate violence, fewer risk taking behaviours among soldiers, less engagement in personal habits that ordinarily are socially disapproved (e.g., nail-biting, nose-picking), lower intake of 'junk' food (snacks and

sweets), less sexual experience or engagement in risky sexual behaviours, and less engagement in workplace bullying and discrimination (Bradburn et al., 1979; Crocker & Luhtanen; 2003; Glickson, Ben-Shalom & Lazar, 2004; Joubert, 1995; Meston et al., 1998; Parkins, Fishbein, & Ritchey, 2006; Sugarman & Hotaling; 1997; Worsley, Baghurst & Leitch, 1984). To illustrate the extent of possible under-reporting among high IM respondents, Davis, Thake and Vilhena (2010) found that high impression managers appear to consistently under-estimate alcohol use, reporting 20 to 33% less consumption, are about 50% less likely to report risky drinking, and report 30 – 50% fewer drinking-related harms compared to non-impression managers. These results suggest that IM bias may have a significant impact on the accuracy of self-reports.

The interpretation of responses by high and normal impression managers rests on the assumption that these respondents do not differ in any substantial way, besides their desire to be viewed favourably. In other words, participants who achieve high scores on measures of IM are assumed to be at least as likely to participate in sensitive behaviours as moderate/low IM scorers (or all other respondents; Bradburn et al., 1979). Yet, there is the possibility that persons scoring high on IM truly are ‘self-controlled’, making their responses simply honest and accurate.

Some have argued that those scoring high on measures of socially desirable responding should be taken at their word (e.g., Block, 1965; McCrae & Costa, 1983; Milholland, 1964; Uziel, 2010). For instance, Bradburn et al. (1979) posited that respondents who score high on measures of IM report less engagement in sensitive behaviours, not because they are manipulating their image, but because persons with high

scores have different life experiences and behave differently from persons with lower scores. In other words, reports of lower engagement in sensitive behaviours may not be artifactual, if indeed, high IM scorers are conscientious, well-adjusted, and the like (Furnham, 1986). Uziel (2010a, 2010b) and others (McCrae & Costa, 1983) posited that measures of IM are tapping a substantive personality trait, much more than a response style. Uziel (2010a) recently proposed the measures of IM are, in fact, tapping ‘interpersonally-oriented self-control’, a trait which encompasses the tendency to demonstrate agreeable, friendly, conscientious and non-impulsive behaviours within interpersonal settings. Here the emphasis is on self-regulation as the core characteristic of the construct rather than on a need for social approval. Therefore, when an individual with a high IM score says that he or she does the appropriate thing in a social context, it is because he or she possesses a self-regulatory capacity that allows him/her to do the right thing (see Uziel, 2010a).

Evidence regarding the accuracy of the claim that those scoring high on measures of impression managers are well-behaved or self-controlled is mixed, at best (Paulhus & John, 1998). There appear to be three main arguments in support of the approach that impression managers truly are good. First, impression managers’ claims that they possess positive traits (emotional stability, agreeableness, conscientiousness) and desirable qualities (happiness) are consistent with knowledgeable other reports (Diener, Sandvik, Pavot & Gallagher, 1991; Kozma & Stones, 1987; McCrae & Costa, 1983). Second, there is evidence that IM has constructive effects in some life domains – suggesting that they are, in fact, well-adjusted or well-behaved; for example, IM predicts getting married,

staying married, and spousal reports of marital satisfaction (Bradburn et al., 1979; Fowers, Lyons, & Montel, 1996). Lastly, recent work suggests that impression managers are interpersonally motivated to act well-adjusted (rather than ‘faking good’) because they revealed greater creativity and pleasantness (operationalized as more creative and pleasant words in a TAT writing task), and self-control (operationalized as persistence on a writing task) in a social setting versus a private setting (Uziel, 2010b). Yet, it may be argued that these findings are no more supportive of the assertion that high impression managers are ‘good’ than the assertion that high impression managers ‘fake good’. For instance, even if impression managers come across as more pleasant, creative and persistent in a social setting compared to a private setting, this does not negate the possibility that high impression managers are, in fact, managing their impressions. With regard to the consistency between self- versus other-reports, researchers have failed to note that although there is consistency between such reports, high impression managers still rate themselves more favourably than others give them credit for – suggesting that IM measures do capture some departure from reality (Paulhus & John, 1998).

There is research to support the view that high scores on measures of IM do not, as Uziel (2010a) suggests, possess an especially high self-regulatory capacity that allows him/her to do the right thing. Davis et al. (2010) controlled for individual differences in constraint/impulsivity when assessing the association between IM and self-reported alcohol consumption. Impulsivity, as a personality trait, is scored along a continuum where the low end of the distribution is referred to as impulse control, constraint, or self-control (for a review, see Carver, 2005). That is, those who score as not impulsive tend to

be (or at least report that they are) inhibited, reflective and deliberate in their behaviour, and demonstrate self-control. Block and Block (2006) refer to these individuals as ego-controlled, suggesting that they are able to curb impulses to act inappropriately and recklessly. We showed that the link between IM and lower reports of alcohol consumption remained significant after controlling for individual differences in impulsivity/constraint (Davis et al., 2010). Similarly, Meston et al. (1998) found that controlling for conservatism did not eliminate the association between higher scores on IM and lower self-reported sexual activity. These findings suggest that high impression managers' denial of engagement in sensitive behaviours does not appear to stem from a high self-regulatory capacity.

The nature of high impression managers' responses on measures of impression management also suggests dishonest responding (a departure from reality). The items included in measures of IM were designed specifically to trigger a different pattern of responses among honest respondents than among respondents motivated to appear favourably. For instance, respondents are asked about their engagement in behaviours (e.g., engaging in gossip, driving over the speed limit, regretting decisions) whose true nature is assessable to the respondent; thus, participants have the choice to respond honestly or not. A high IM score is accumulated by self-descriptions that are not only positive, but improbably positive. Falling into the range of 'high IM' requires the repeated denial of common but socially undesirable behaviours (answering that they 'rarely' or 'never' engage in such behaviours) and/or the repeated assertion that they engage in uncommon but socially desirable behaviours (answering that they 'almost

always' or 'always' engage in such behaviours). For example, using the IM subscale of the BIDR (Paulhus & Reid, 1991), high impression managers must have given improbably positive responses on at least 9 of 20 behaviours.

Validity for Paulhus' measure of IM comes from a recent study of male offenders in Canadian (federal) correction facilities (Davis, Thake, & Weekes, 2011). Davis et al. compared the sentencing offenses of those offenders scoring above the established threshold on IM to those scoring below. If IM reflects social conservatism or impulse control, one would expect (a) relatively low scores among offenders; and (b) even lower scores among those who committed the most antisocial crimes. On the other hand, if the instrument measures a desire to appear desirable, as proposed by Paulhus (1998), then the opposite would be predicted. Consistent with the latter argument, almost half the large sample of offenders scored above the threshold for high IM, and those scoring above threshold were significantly more likely to be convicted of the most antisocial crimes, including homicide, sexual assault, incest, pedophilia, and drug offenses. For example, relative to those scoring low on IM, those scoring high on IM were almost twice as likely to be guilty of incest, 38% more likely to be guilty of pedophilia, 34% more likely to be guilty of other sex crimes, 23% more likely to be guilty of assault, 42% more likely to be guilty of homicide, and 38% more likely to be guilty of a drug offence. They were less likely to be guilty of robbery, and as likely as not to be guilty of a violent crime. Consistent with data from student samples (Davis et al., 2010), offenders scoring above threshold also were less likely to report problems with alcohol and drugs (even after

excluding those who report not using the substances). These findings suggest that not all high impression managers are agreeable, self-controlled, or conscientious people.

Reducing Impression Management Bias in Self-Reported Behaviour

There is debate about whether IM variance should be controlled for statistically when assessing sensitive behaviours. When assessing the magnitude of the correlation between variables when one or both variables are related to IM (e.g., correlating self-reports of alcohol consumption with self-reports of alcohol-related harm), statistically controlling for IM should improve the accuracy of the prediction. However, there is debate about whether controlling for IM should increase or decrease the magnitude of the association between variables contaminated by IM. Some have argued that ‘faking good’ leads to an increase in the correlation between variables – suggesting that controlling for IM would reduce the strength of the correlation (e.g., Dunnet, Koun & Barber, 1981; Johnson, 1991). In contrast, Paulhus et al. (1995) found that self-presentation bias reduces the correlation between variables (since all respondents should be shifting towards the positive pole there will be a restriction in range). This work suggests that controlling for IM could increase the association between variables. Other researchers argue against controlling for IM entirely, stating that this procedure removes not only bias but also true variance (e.g., Mills & Kroner, 2006).

When the goal is to estimate a population parameter (e.g., proportion of problematic drinkers, instances of sexually transmitted diseases), controlling for IM does not increase accuracy; rather, controlling for IM will bring up the estimate for high impression managers but also reduce the estimate for low impression managers.

Another approach to minimizing IM bias is to implement survey methods that are specifically designed to minimize or eliminate IM response bias. In this case, procedures that minimize IM bias are incorporated into the instructions and test battery. This approach attempts to remove barriers that discourage high impression managers from answering honestly when polled about sensitive topics.

Schwarz, Groves and Schuman (1998) suggest that when people respond to a survey question, they first form a private judgment in their minds about their engagement in the behaviour in question. Once this judgment is made they communicate an answer to the researcher. How a person decides to respond is strongly influenced by features of the research instrument, including question wording and response format (for reviews see, Schwarz, 1998; Schwarz et al., 1998; Tourangeau & Smith, 1998). The design of the research instrument itself may help to alleviate some of the uneasiness that participants might experience when responding to questions about sensitive behaviours.

To decrease participants' motivation to appear favourable, researchers have suggested adding a face-saving statement before asking questions about sensitive behaviours. For example, because voting is commonly considered a socially desirable behaviour, not all non-voters will find it easy to answer 'no' when asked if they had voted (Belli et al., 1999). To increase reports of non-voting, Weisberg, Krosnick and Bowen (1996) suggested including the statement, "We often find that a lot of people were not able to vote because they weren't registered, they were sick, or they just didn't have time..." (p. 87) before asking whether respondents voted. Here, it is thought that participants might be more likely to admit to non-voting because they are provided with a

face-saving excuse. In a way, the statement ‘takes the pressure off’ of admitting that one has failed to live up to expectations.

There is evidence that inclusion of a face-saving statement increases reports of other sensitive behaviour. Embree and Whitehead (1991) compared results from 8 self-report measures of alcohol consumption (one question each) with the actual level of alcohol consumption at an isolated military base. The remoteness the site made it possible to estimate quite precisely the average per capita alcohol consumption through officially recorded sales of alcohol. In their research, the most efficacious question for mitigating socially desirable responding was one that included a face-saving vignette. The vignette aimed at decreasing the stigma of heavy drinking before asking the respondent about their own consumption (e.g., “no level of alcohol consumption can be labeled ‘too much’”, “some medical professionals believe the consumption of alcohol can have positive and psychological and physical effects,” and “the relationship between damage and alcohol consumption varies from person to person”). These statements were thought to assuage participants’ concerns about appearing unfavourably by providing them with the excuse that alcohol consumption is ‘not so bad’. Questions prefaced with these statements elicited responses that were more predictive of sales data than any other format, accounting for 66-78% of estimated actual consumption. As a comparison, they note that the standard question format accounted for only 52-61% of actual consumption. Blair, Sudman, Bradburn, and Stocking (1977) also found that the addition of face-saving statements increased self-reports of alcohol use, kissing, intercourse, and masturbation, compared to use of standard questions alone (no face-saving statement). For example,

when asked about annual drinking, participants indicated greater frequency of drinking beer, wine and liquor when first presented with the statement “Occasionally, people drink on an empty stomach or drink a little too much and become intoxicated”. Essentially the statement provided participants with the excuse that ‘others do it too’. In sum, there is evidence to suggest that question wording that attempts to reduce self-presentation concerns about answering honestly (by providing a face-saving excuse) increases self-reports of sensitive behaviours.

Even though the addition of a face-saving statement has been implemented to reduce socially desirable responding, research has not yet tested whether these methods actually do reduce socially desirable responding in those most likely to respond in this manner (i.e., high impression managers). In other words, these methods seem to work on samples in general to increase reports of sensitive behaviors, but it is unknown whether they work particularly well among respondents who score higher on measures of IM.

Another approach to reducing social desirable responding is to alter the response format. One technique is to equate response options in terms of their social desirability as a control feature built into the self-report instrument. This method uses a forced choice format in which the two response options are equated for social desirability. For example, in their measure of narcissism, an attribute commonly thought to be undesirable, Raskin and Terry (1988) provide participants with a questionnaire that asks them to choose between response options A or B where both options are equally desirable/undesirable. This technique, although valuable for assessing some constructs, is often not practical for assessing sensitive behaviours; these question typically ask the

respondent 'how much' or 'how often', requiring a range of responses likely differing in perceived social desirability.

Questions assessing frequency or quantity require either an open-ended response or the provision of a range of response options. Some researchers have argued that participants are more likely to give high estimates of sensitive behaviors when provided with an open-ended format rather than fixed response options. This is based on the hypothesis that respondents are motivated to avoid extreme responses on a list because response options at the extremes are perceived as socially undesirable or atypical (Babor, Brown & Del Boca, 1990). When comparing these response types, Blair et al. (1977) found that open-ended questions provided greater estimates of intoxication than closed-ended questions. However, the open-ended question used in the study was also much longer (35 words versus 17), provided an excuse for becoming intoxicated (i.e., empty stomach), and normalized intoxication by suggesting that others also experience intoxication (i.e., 'sometimes people drink a little too much') – making true comparison impossible. In contrast, when assessing heavy drinking, Ivis, Bondy and Adlaf (1997) used the same question wording for both the open-ended and closed-ended response options. In this case, the closed-ended question provided significantly higher estimates of binge drinking than did the open-ended question. In addition, the open-ended question produced more item-missing data.

Altering response scale length has also been suggested as a way of increasing the accuracy of responses. Even though the response alternatives for a behavioural frequency question may be constructed purely because of ease of coding and statistical analyses,

respondents may assume that they are in some way informative and act upon this information (Wright, Gaskell & O'Muircheartaigh, 1997). Participants tend to assume that the response options reflect the researcher's assumption of the range of responses in the population or the 'real world' (Schwarz, Strack, Muller & Chassein, 1988). From the range of alternatives respondents infer which behaviours are typical/socially desirable and which behaviours are less so (Schwarz et al., 1988). Research suggests that the middle points along frequency scales are perceived as the typical, usual/common or socially desirable responses, whereas scores near the end points are thought to be less typical, less common or less socially desirable (Schwarz et al., 1988). There is evidence that participants' perception of the norm is influenced by the range of possible responses. Schwarz, Hippler, Deutsch and Strack (1985) found that when participants are presented with a low response range, participants estimated that the average citizen watched 2.7 hours of TV per day, whereas respondents in the high response category estimated it to be significantly high (3.2 hours/day).

Wright et al. (1997) proposed that respondents gather the information provided by the survey, i.e., normative information (how most people behave), and this information systematically influences beliefs about one's own behaviours, which in turn affects their response. When a respondent views their own engagement in a sensitive behaviour as falling on the extreme range of the response scale they may edit their response. For example, a person who typically consumes six drinks per typical drinking day may infer that his or her own consumption is high when presented with a lower frequency scale ranging from 0 to 6+, or they perceive their consumption as low when presented with a

frequency scale ranging from 0 to 20+. There is evidence that people will alter their own behavioural reports depending on the response scale. Schwarz et al. (1985) also found in their study of TV watching (mentioned above) that only 16.2% of participants admitted to watching more than 2.5 hours of TV when this category was at the high end of the response scale, whereas 37.5% reported this amount of TV watching when the category was presented at the lower end of the response scale. In addition, Schwarz and Scheuring (1992) asked 60 patients of a German mental health clinic to report the frequency of 17 symptoms. Across 17 symptoms, 62% of the respondents reported average frequencies of more than twice a month when presented with a high frequency scale, whereas only 39% did so when presented with a low frequency scale. With respect to more sensitive behaviours, Tourangeau and Smith (1996) found that the use of broad categories made it easier for women to report more sexual partners. Women reported an average of 2.63 partners in the past 5 years when presented with a low range response scale (0, 1, 2, 3, 4, and 5 or more), compared to 5.33 partners when presented a high frequency response scale (0, 1-4, 5-9, 10-49, 50-99, and 100 or more). Finally, Poikolainen and Karkkainen (1985) compared questionnaires oriented toward light or heavy alcohol consumption in a sample of patients admitted for withdrawal treatment. The former questionnaire included many options for low frequency and light quantities of alcohol intake, while the latter focused on high frequency and heavy intake. Results revealed that the heavy drinking questionnaire yielded consumption estimates twice as high as the lighter drinking questionnaire. The higher reports of consumption were interpreted as more accurate (or valid) because consumption data from the heavy drinking questionnaire correlated better

with a 'crude' measure of tolerance (self-reported number of drinks needed to overcome withdrawal symptoms). In sum, by increasing the response range participants' perceive the sensitive behaviour as being more common. Perceiving the behaviour as more allows participants to admit to greater engagement in these behaviours while still saving-face (in other words, participants can rest assured that they will not appear socially deviant).

Although the above methods are thought to increase honest responding because they serve to decrease social desirability concerns, none of the above research included a measure of impression management (representing a style of responding that aims to downplay or under-estimate what one perceives to be socially deviant behaviour). It is unknown whether manipulating the norm in such a way that the 'typical behaviour' of others is perceived as less saint-like and instead slightly more deviant, would decrease the tendency for high impression managers to edit their responses.

Other researchers have taken a different approach in their attempts to motivate participants to respond more honestly. Rather than alleviating concerns about appearing favourably, these methods attempt to outweigh participants' concerns about self-presentation by increasing their motivation to respond honestly. Some researchers have attempted to increase the accuracy of responses by informing participants that their responses will be confirmed (or disconfirmed) using objective information, such as the bogus pipeline. Using this method researchers communicate to participants that they should answer honestly or they will be 'caught'. The effectiveness of these methods is equivocal (e.g., Adams et al., 2008).

Recent research suggests that implicit goal priming may provide a simple, straightforward method for motivating participants to provide honest responses for self-report measures. There is increasing evidence that goals can be activated outside of awareness, motivating and directing behaviour in the same way as consciously activated goals (e.g., Bargh, 2006; Bargh, Gollwitzer, Lee-Chai, Barndollar, & Troetschel, 2001; Bargh & Morsella, 2008). A review by Bargh (2006) indicated that priming a single concept can have multiple effects across a wide array of psychological systems, such as perception, motivation, behaviour, and evaluation. For example, in an attempt to increase participants' performance on a word search task, Bargh et al. (2001) randomly assigned participants to either a high-performance goal priming condition or a neutral priming condition. The priming manipulation was embedded in an initial word search puzzle, such that those in the high performance goal condition searched for words relevant to high performance (e.g., win, compete, succeed, strive, attain) whereas those in the control condition searched for neutral words. Participants then completed a subsequent word search where they were told the theme of the search but not given the words (e.g., food). The dependent variable was the number of food-related words participants circled in 10 minutes. Bargh et al. (2001) found that when the goal to perform well was activated without their awareness, participant's performance on the second task was better than that of the control group.

Goal priming methodology has been used by Rasinski, Visser, Zagatsky, and Rickett (2005) to increase honest responding. By priming words related to honesty, Rasinski et al. found greater disclosure of sensitive personal information. Rasinski et al.

(2005) discovered that participants who were presented with words related to honesty were more willing to concede that they had engaged in socially undesirable behaviours than were participants who had been exposed to words unrelated to honesty. These studies suggested that implicit goal activation may be an effective method to increase impression managers' motivation to respond honestly. In this case, impression managers may be less likely to under-report sensitive behaviours when they are primed by the concept of honesty.

In sum various methods have been suggested to decrease the influence of social desirability bias on self-reports of sensitive behaviours. Some methods attempt to decrease social desirability responding by providing participants with an opportunity to answer honestly while still saving-face. This is typically achieved by making the sensitive behaviour appear more common (by including a statement in question wording or lengthening the response scale) so that participants perceive their own engagement in the behaviours as normal or at least not socially deviant. Other methods attempt to over-ride participants' desire to be viewed favourably by increasing their motivation to respond honestly. Although there is evidence that these techniques are generally effective at increasing mean scores of sensitive behaviours, it is not known whether these methods increase self-reports among high impression managers.

The Present Studies

The purpose of the present research is to develop a greater understanding of IM by attempting to reduce this bias on surveys of sensitive topics. In the first study, I work from the assumption that impression managers are concerned with appearing

favourable/not appearing socially deviant. I therefore propose that making engagement in sensitive behaviours appear common will lead high impression managers to admit to greater engagement in these behaviours – this way they can respond honestly while still saving-face. In Study 2, I take an implicit approach to increasing reports of various behaviours (some sensitive, some less so). In this study, behaviours are made to appear more common by increasing the range of survey responses. In Studies 3 and 4, I attempt to ‘trump’ impression managers desire to be viewed favourably by implicitly activating the goal of honest responding. I propose that priming the concept of honesty will lead high impression managers to report more hazardous drinking behaviours.

It must be noted that there is a general assumption that higher estimates of sensitive behaviours are more accurate, suggesting that ‘more is better’ (e.g., Blair et al., 1977; Leigh, 2000; Midanik, 1982, 1988, 1989; Rasinski, Visser, Zagatsky, & Rickett, 2005; Verbrugge, 1980). For the most part, studies that compare self-reports of behaviour between conditions (i.e., manipulation of question wording or response alternatives) do not constitute validity studies - given that the results are not compared to a gold standard. Nonetheless, the possibility that the participant may be ‘over-reporting’ undesirable behaviours is often not considered a viable conclusion (Midanik, 1989). For example, there is a common assumption that ‘yes’ answers to drug use questions are more likely to be true than ‘no’ answers because drug use is both illegal and, in many circles, regarded as socially unacceptable (Johnston, Gerstein & Rasinski, 1998). Evidence also supports this assumption; for instance, the belief that alcohol is under-reported stems from the finding that reported consumption is typically much lower than aggregated sales data

within a given population (Embree & Whitehead, 1991; Single & Wortley, 1994; Smith et al., 1990; Stockwell et al., 2004, 2008). Nonetheless, it must be recognized that procedures that result in higher estimates of undesirable behaviour may be due to over-reporting, rather than more accurate responding (Midanik, 1982).

Study 1

There are many reasons why consumers of alcoholic beverages are suspected of underreporting. Because drunkenness is often regarded as irresponsible, a sign of weakness (e.g., “he can’t hold his liquor”), and a health risk, questions about risky drinking patterns may elicit responses from some participants that are not accurate. As suggested above, people are less likely to report engagement in behaviours when they perceive that they are deviating from the norm (Schwarz, 1999). To the extent that persons scoring high on measures of IM are concerned with appearing favourably, high impression managers may be more willing to acknowledge their engagement in sensitive behaviours if they are still able to save-face (i.e., not appear socially deviant).

In this study, I will first assess the influence of IM on self-reports of drinking using a standard, well-established measure of hazardous drinking (the Alcohol Use Disorder Identification Test [AUDIT]; Saunders, Aasland, Babor, de la Fuente, & Grant, 1993). It is hypothesized that IM will be negatively related to reports of hazardous drinking. Second, I will assess whether the influence of IM on reports of drinking can be mitigated by altering the perceived behavioural norm. To test this, I will experimentally manipulate the question wording of the hazardous drinking measure in order to make the behaviour appear more common – this way, high impression managers might admit to greater engagement in the behaviour if they perceive that admitting greater drinking does not reflect badly on them. I therefore hypothesize that the effect of IM on reports of hazardous drinking will be attenuated when hazardous drinking is made to appear more

common. In contrast, because non-impression managers are less motivated to appear favourably – and thus, are likely to respond honestly irrespective of how the question is asked, I expect no difference in non-impression managers' reports of hazardous drinking between conditions.

Method

Participants.

Participants were 185 student volunteers, ranging in age from 16 to 54 ($M_{\text{age}} = 21$, $SD = 4.72$) who completed both the BIDR during mass testing of Introduction to Psychology students in September (mass testing $n = 1292$) and the AUDIT as part of an online survey at a later time ($n = 282$), and reported consuming alcohol in the past year ($n = 251$). Approximately three-quarters of the non-abstaining sample of 185 providing data at both points in time were female (78%, $n = 144$). Respondents who were included in this study (completed the BIDR and the AUDIT) did not differ on IM from the larger sample of students who completed the BIDR at mass testing, but did not complete the later on-line survey.

Procedure.

Students enrolled in first year psychology classes were recruited from the SONA system to complete surveys for the present study ($n = 282$). From the SONA system, participants were directed to a secure website (www.psychdata.com). Once at the site of the survey, they were presented with the informed consent page. Upon agreement to participate, participants were asked to complete a short demographic survey (asking age and gender). Participants were then randomly assigned to the experimental ($n = 140$) or

control condition ($n = 142$). In both conditions, participants received the same survey of drinking behaviour except that in the experimental condition, participants also read a one-sentence statement before each drinking question that gave the impression that the behaviour is more common than one might think. Finally all participants were asked to read a debriefing form (2 parts). The first part of the debriefing form informed participants about the purpose of the present study, where to get more information about the topic, and who to contact if they have ethical concerns about the study. Participants were then directed to the second part of the debriefing form. This section informs all participants that if they or a loved one have experienced some of the consequences asked about in the alcohol survey, they are encouraged to contact a health professional for more information (a list of possible organizations) as these are signs of alcohol abuse and dependency. The debriefing was divided into two parts to emphasize that the drinking behaviours and consequences inquired about in the drinking survey are in fact signs of risky drinking. Participants received 0.25 experiment credit for participation.

In order to minimize any bias that might be introduced by assessing IM and drinking behaviour in the same survey, IM response style was assessed separately as part of Mass Testing. In Mass Testing, all students enrolled in first year psychology classes were invited to complete a series of questionnaires, including the Balanced Inventory of Desirable Responding (BIDR; Paulhus, 1991) for which they could obtain course credit ($n = 1289$).

Because the IM data and the hazardous drinking data were collected on different days, participants were asked to include their student number in order to match the data

sets. Data used in the current study are from participants who completed the IM measure and who reported that they drank alcohol ($n = 185$). These participants were fairly evenly distributed between the control ($n = 105$) and experimental condition ($n = 80$).

Participants were informed that their data would then be kept separate from any identifying information.

Measures.

The Alcohol Use Disorders Identification Test (AUDIT) was used as a measure of risky or hazardous drinking (Saunders et al., 1993). The AUDIT was originally developed as a brief screening tool for use in primary care settings to detect individuals at risk for alcohol abuse. It has since been used, however, in a number of large general population and college student surveys to assess risky or hazardous alcohol use (e.g., Fleming, Barry & MacDonald, 1991; Killis Small, Simons & Sticherz, 2007). The AUDIT includes three questions assessing consumption, three items assessing dependence, and four items assessing consequences. Most researchers report total scores on the AUDIT or the proportion of the sample meeting or exceeding a criterion score of 8 (which is taken as an indication of hazardous drinking; see Berner, Kriston, Bentele & Harter, 2007, for a systematic review), although some factor analytic studies suggest that the instrument represents two dimensions (alcohol consumption and alcohol-related problems; see Doyle, Donovan & Kivlahan, 2007; Shevlin & Smith, 2007). Both the full scale and the two component parts have good internal consistency ($\alpha > 0.80$ for the unidimensional scale, $\alpha > 0.70$ for the two subscales; Shields, Guttmanova & Caruso, 2004; Thomas & McCambridge, 2008), and a great deal of research in clinical, general population, and

college student samples supports its validity (e.g., Babor, Higgins-Biddle, Saunders & Monteiro, 2001; Berner et al., 2007; Kokotailo et al., 2004). The original question wording from this survey was used in the control condition. In the experimental condition, each AUDIT question was preceded by a statement that was designed to increase participants' perception that the particular drinking behaviour is normal/common (e.g., "From time to time, some people find themselves drinking a little too much") (Appendix A). One AUDIT item assessing consequences (the experience of guilt or remorse after use) was mistakenly left out of the survey. In the present study, Cronbach's alpha was 0.74 for the standard wording condition and .82 for the normalizing wording condition.

Impression management was assessed using the Balanced Inventory of Desirable Responding (BIDR-6; Paulhus, 1991; Appendix B). In this instrument, participants are asked to rate the extent to which they agree or disagree (on a 7-point scale) with each of 20 statements, none of which make any reference to alcohol. These items reflect a tendency to put across a good, socially acceptable impression of oneself (half positively-keyed, half negatively-keyed; e.g., "I never take things that don't belong to me" and "I sometimes tell lies if I have to"). Paulhus (1998) recommended dichotomous scoring to guarantee that high scores are attained only by individuals who give exaggerated responses to items that are already highly desirable. Thus, scores on impression management are determined by counting the number of items on which the individual responds in an extreme way (strongly disagree [1 or 2] on negatively-keyed items; strongly agree [6 or 7] on positively-keyed items). Cronbach's alpha for IM was 0.81,

similar to that found in other reports (Davis et al., 2010; Paulhus, 1991). The IM scale has been extensively validated (see Paulhus, 1991, 1995). In the present study, mean IM score was 4.78 (SD = 3.56), which is comparable to what others have found with university student samples (e.g., Paulhus, 1988). IM did not differ by drinking age (underage vs. legal). IM scores differed by gender; females ($M = 5.08$, $SD = 3.58$) scored higher on the IM scale compared to males ($M = 3.75$, $SD = 3.37$), $t(182) = 2.11$, $p < .05$. Paulhus (1991) has indicated that people who score 9 or higher on the IM subscale are high impression managers and has suggested that those scoring in this range are probably not responding honestly. In the present sample, 14% ($n = 26$) of participants scored in this range.

Results

Preliminary analyses.

Participants who were presented with a face-saving statement scored higher on the AUDIT than those in the standard wording condition, $M_{face-saving} = 7.88$, $SD = 5.73$ vs. $M_{standard} = 6.17$, $SE = 4.23$, $t(180) = 5.37$, $p = .02$. The manipulation was more successful for AUDIT items assessing alcohol-related consequences, $t(123.14) = 3.03$, $p < .01$, and dependence, $t(144.24) = 3.95$, $p < .001$, than for the items assessing hazardous consumption, $t(164.57) = 1.10$, $p = .27$. The addition of a face-saving statement resulted in an 8% increase in the percentage of people considered hazardous drinkers (scoring 8+ on the AUDIT), i.e., 36% in the control condition vs. 44% in the face-saving condition.

IM and reports of hazardous drinking.

To replicate earlier research indicating that people who score high on impression management tend to report lower scores on a measure of hazardous drinking (Davis et al., 2010), I correlated impression management scores with AUDIT scores in the standard working condition. The data confirm that higher IM scores were significantly associated with lower AUDIT scores, $r(103) = -.20, p < .05$. To look at this another way, fewer high impression managers were categorized as hazardous drinkers on the AUDIT (23.1% scoring 8+), relative to those scoring in the normal range of the IM subscale (36.7% scoring 8+ on AUDIT).

IM and reports of drinking: Standard wording vs. face-saving statement.

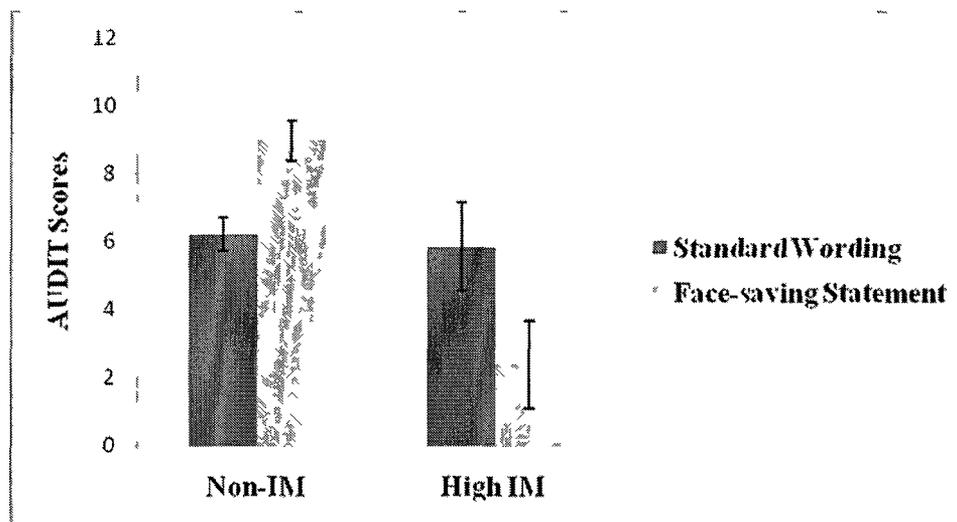
It was hypothesized that high impression managers would report more hazardous drinking in the face-saving condition compared to the control condition, whereas condition was expected to have little effect on the scores of non-impression managers. To test this, a 2 (condition: standard vs. face-saving) x 2 (IM score: high [9+] vs. normal [0-8]) univariate ANOVA, was conducted where AUDIT scores were the dependent variable¹. Results reveal no main effect of condition, $F(1, 178) = .13, n.s.$, a main effect of IM, $F(1, 178) = 12.23, p = .001$, as well as a significant interaction between IM and condition, $F(1, 178) = 9.73, p = .002$. To explore the interaction, the simple effect of condition was assessed for non-impression managers and high impression managers (see

¹ An ANOVA is used for the present analyses (instead of a regression) because the focus is on high versus non-impression managers, instead of the gradation of impression management (leaving IM as a continuum). A slope analyses (regression post-hoc test) would not test the effect of condition among high impression managers.

Figure 1). Among high impression managers, the face-saving statement *reduced* reports of hazardous drinking [$M_{standard} (n = 13) = 5.85, SE = 1.30$, vs. $M_{face-saving} (n = 13) = 2.38, SD = 1.30, F(1, 178) = 3.54, p = .06$]. Among non-impression managers, the face-saving condition *increased* their reports of hazardous drinking on the AUDIT [$M_{standard} (n = 92) = 6.22, SE = .494$ vs. $M_{face saving} (n = 67) = 8.97, SE = .577, F(1, 178) = 13.07, p < .001$]. Adding gender to the model did not change the outcome – no interaction was observed between gender and condition or gender and IM.

Figure 1

Hazardous drinking scores (AUDIT) for High and Non-Impression Managers by Standard vs Face-saving Condition



Note Error bars represent standard error of the mean

Discussion

Similar to our past research (Davis et al., 2010), results from Study 1 demonstrate that participants scoring higher on IM report less hazardous drinking than participants without this particular bias. These results suggest that high impression managers are motivated to under-report involvement in sensitive behaviours in order to appear in a favourable light. In an attempt to reduce this bias, the standard question wording was altered to give the impression that heavy drinking is more common than one may have thought – making it appear that heavier drinking is not so bad. Results revealed that, counter to my expectations, including face-saving statements did not lead high impression managers to admit to more involvement in heavy drinking behaviours; instead, these participants reported even *less* of these behaviours. In contrast, including face-saving statements effectively increased reports of hazardous drinking among those who are not impression managers.

It may be that high impression managers did not report greater engagement in sensitive behaviours when provided with a face-saving excuse (i.e., excessive drinking is common/not abnormal) because they want to appear better than the norm, rather than similar to the norm. By making the socially undesirable behaviours appear more common to these participants, this may have reinforced their desire to impress by indicating how good they are compared to others. In this case, making heavy drinking appear more common may have led high impression managers to distance themselves from this norm in a more socially desirable direction.

Non-impression managers increased their reports of sensitive behaviour when presented with face-saving statements. Although this finding is not what I had predicted,

this result is consistent with past research - on average, participants increase their reports of behaviours when the sensitive behaviour is made to appear more common. I had assumed, incorrectly, that differences found in prior research were largely attributable to high impression managers. The results of Study 1 suggest the opposite: these effects appear to be attributable only to those who are *not* dispositional impression managers. The questions in the present study are personal and it is likely that most people attempt to moderate their responses to some degree. Thus, it is not surprising that non-impression managers provided higher estimates of their drinking behaviour when first presented with a face-saving statement. Although non-impression managers may not be the gold standard for honest responding, it is still assumed that their responses are substantially less biased/more accurate than those of high impression managers.

Results from the present study suggest that high impression managers' response style is not easily mitigated by including a face-saving statement within the question content. However, high impression managers may be more apt to increase reports of behaviours when the manipulation is more implicit.

Study 2

Research suggests that the response range will impact participants' responses when they discover their own behavior/attitudes differ from the norm (middle) in a socially undesirable direction. It has been suggested that those concerned with presenting themselves in a positive light are more likely to edit their responses when they perceive that they are deviating from a perceived norm (i.e., they notice they are scoring on the high or low end of the distribution; e.g., Schwarz et al., 1988). If this is true, then shifting or expanding the response range (which implies a different perceived norm) may be one way to combat biased responding on the part of impression managers. By shifting the behavioural norm upwards, participants may be less likely to view their own behaviour as socially deviant.

The primary goal of Study 2 was to assess whether manipulating the response range would affect high impression managers' self-reported engagement in various behaviours (some sensitive, some less so). To test this idea, I experimentally manipulated the perceived norm by varying the response range presented to participants. Because there is little reason for non-impression managers and high impression managers to moderate their responses to questions about non-sensitive behaviours, I expect that their reports of these behaviours will not differ between conditions. However when asked about sensitive behaviours, I hypothesized that high impression managers would admit to greater engagement when presented with a high frequency response scale compared to a low frequency response scale. As for non-impression managers' reports of sensitive

behaviours, I predicted that they would be less influenced by the response range manipulation compared to high impression managers as they are less motivated to appear favourably.

Methods

Participants.

Data used in the current study are from 404 participants, ranging in age from 16 to 54 ($M_{\text{age}} = 20.4$, $SD = 4.33$), who had completed the BIDR as part of mass testing of Introductory Psychology and the independently administered Health and Social Behaviour Survey (HSBS). Approximately two-thirds were female (65%, $n = 261$). Respondents who were included in this study (completed the BIDR and the HSBS) scored marginally higher on IM than those not included in the study (completed only the BIDR), $t(713.28) = 1.85$, $p = .06$.

Procedures.

Similar to Study 1, all students enrolled in first year psychology classes were invited to complete the Balanced Inventory of Desirable Responding (BIDR; Paulhus, 1991) as part of mass testing ($n = 1292$).

Subsequently, 547 students enrolled in first year psychology classes were recruited (using the computerized SONA management system) to complete a survey titled 'Health and Social Behaviours of University Students'. Participants were directed to a secure website (www.psychdata.com) where they were presented with the informed consent page. Those who agreed to participate completed a short demographic survey assessing

age and gender. Participants were then randomly assigned to a low or high frequency response scale condition. In both conditions, participants were asked about their own as well as their peers' engagement in 18 health and social behaviours, except that in the high response range condition, participants received a broader response scale for each question. In order to avoid order effects, half of the participants were first asked about their own engagement in these behaviours, followed by their perception of their peers' engagement, whereas the other half were first asked about their peer's engagement in these behaviours, followed by their own engagement. Participants received 0.25 experiment credit for completing the HSBS survey.

Because the IM data and the health and social behaviours data were collected on different days, participants were asked to include their student number in order to match the data sets. Participants who were included in the present study (completed IM and HSBS, $n = 404$) were fairly evenly distributed between the control ($n = 195$) and experimental condition ($n = 209$).

Measures.

The Balanced Inventory of Desirable Responding (BIDR; Paulhus, 1991; Appendix B) was used to assess IM (see Study 1 for a more detailed description). Cronbach's alpha for IM scale was 0.82, similar to alphas established by other researchers (e.g., Davis et al., 2010; Paulhus, 1991). In the present study, mean IM score was 5.24 ($SD = 3.77$), which is comparable to what others have found with university student samples (e.g., Paulhus, 1998). IM did not differ by gender or drinking age (underage vs. legal age). As suggested by Paulhus (1998), participants scoring 9 or higher on the IM subscale were

categorized as high impression managers. In the present sample, 24% ($n = 96$) of participants were high impression managers.

The Health and Social Behaviour Survey (HSBS; Appendix D) comprised 18 questions derived from the following Canadian national surveys: Canadian Community Health Survey (Statistics Canada, 2000-2001), Canadian Addictions Survey (Canadian Center on Substance Abuse, 2004) and the Canadian Tobacco Use Monitoring Survey (Statistics Canada, 2009), and the Canadian Alcohol and Drug Use Monitoring Survey (Health Canada, 2008). Questions included in the current study asked participants how often they engage in a range of health and social behaviours, some considered to be sensitive, other less so¹. The survey asked respondents to report, 1) how frequently they engage in various health and social behaviours, and, 2) how frequently they believe their peers (defined as ‘the typical Carleton University student’) engage in these same behaviours. To control for order effects, half of the participants in each condition estimated their own behaviour before their peers, and half of participants estimated their peers’ behaviour before their own.

¹ To confirm which health and social behaviours are considered socially undesirable by university students, I recruited 195 first-year students to complete a brief questionnaire assessing the perceived social desirability of these behaviours. In this questionnaire, participants were asked their opinion on the degree of unease they believe ‘most people’ would experience when asked about each of the 18 health and social behaviours on a 4-point scale where 1 = not at all uneasy and 4 = very uneasy. I conducted a one sample t-test on each of the 18 behaviours, comparing sample mean unease rating against a test value of ‘slightly uneasy’ (corresponding to a score of 2 on the 4 point scale). The 7 items that I considered to be non-sensitive (e.g., hours spend reading for pleasure per week) all were significantly lower than the test value. In contrast, the 11 items considered sensitive (e.g., hangovers per month) were significantly higher than the test value of 2 indicating that the participants viewed these items as more than ‘slightly uneasy’.

Participants were randomly assigned to one of two versions of the HSBS. Within each condition participants received the same survey in terms of question wording; however, participants in one condition were presented with a low frequency response range whereas participants in the other conditions were presented with a high response range. For example, when asked, “How many alcoholic drinks do you consume on a typical drinking day?”, participants in the low response range were presented with options ranging from ‘0’ to ‘4 or more’ (i.e., 0, 1, 2, 3, 4 or more), whereas participants in the high response range were presented with response options ranging from ‘0’ to ‘20 or more’ (e.g., 0, 1, 2, 3, ... 18, 19, 20 or more). For the majority of questions the low response range was ‘0’ to ‘4 or more’; however, two questions included in the HSBS used a slightly smaller response range (‘0’ to ‘3 or more’ for hangovers per month, sodas per day) or a slightly higher response range (‘0’ to ‘5 or more’ for alcoholic drinks consumed on a typical day, cigarettes per day; and ‘0’ to ‘6 or more’ for drinks consumed per week). In order to compare results across condition, scores in the high frequency response scale condition were truncated to map on to scores in the low frequency response scale condition. For instance, the response of ‘4 or more’ in the low frequency condition was coded as 4, while responses of 4 or more in the high frequency scale condition (i.e., 5, 6, 7, 8, ..., 20+) were also recoded as 4. Questions with response ranges ending in ‘3 or more’ or ‘5 or more’ or ‘6 or more’ were recoded in a similar fashion.

Results

For clarity's sake, when presenting results assessing the impact of IM on participants' reports of their involvement in the various sensitive and non-sensitive behaviours, these behaviours were aggregated (rather than presented individually). Due to the high number of participants ($\geq 90\%$) who reported not having driven after recently consuming alcohol (90.6%), no internet gambling (96.6%), and no non-internet gambling (93.2%), these 3 topics were not included when assessing self-reports of one's own involvement in sensitive behaviours. Because the ratings on these items for peers were not so rare, these items were included when examining reports of peer's behaviours. Indices were created for average self-reported involvement in the socially neutral behaviours and also for the less socially desirable behaviours.

Manipulating perceptions of the norm: Low versus high frequency scale.

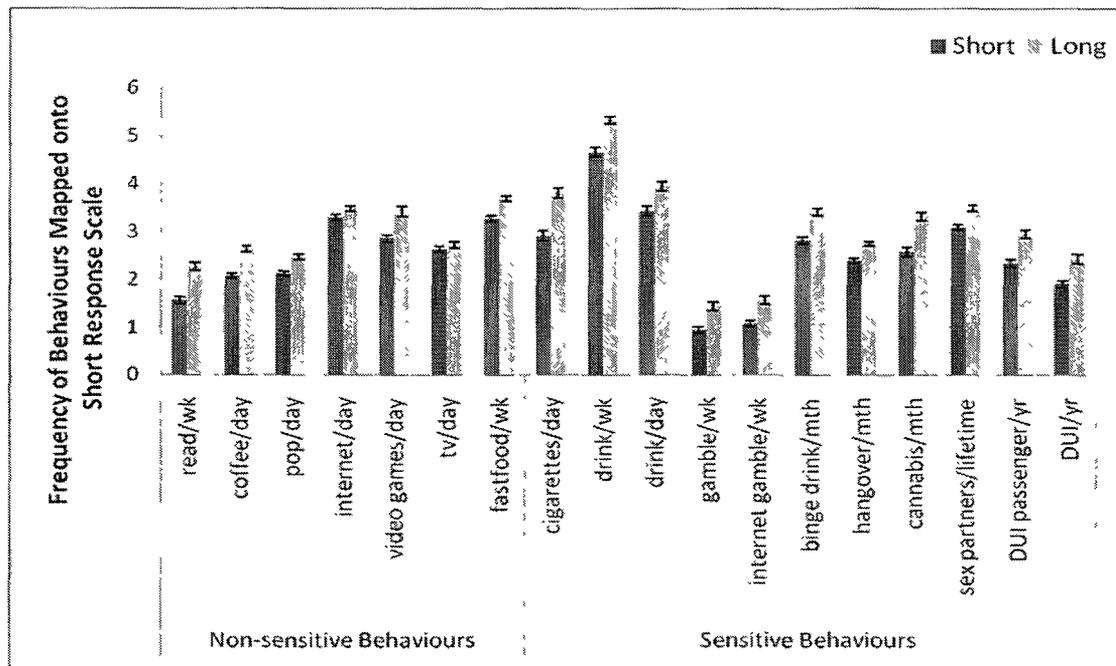
To assess whether the manipulation of response scale length had an effect on the perceived norms for behaviours, a MANOVA was conducted on participants' estimates of how often they believed their *peers* engaged in the 18 behaviours assessed in the survey. The MANOVA revealed a significant multivariate main effect of group, Wilks' $\lambda = .79$, $F(18, 333) = 4.93$, $p < .001$, partial eta squared = .21, indicating that participants in the high frequency response scale condition perceived their peers as engaging in significantly more of the health and social behaviours relative to those in the low frequency response scale condition. It should be noted that for the sake of the comparison, the responses to the high frequency response scale were truncated at the same level as the low frequency scale for each item. For example, for an item with a low frequency response range of 0 to 4+, any high frequency scale response of more than 4

was truncated to 4. No main effect was observed for IM, $\lambda = .94$, $F(18, 333) = 1.24$, $p = .225$, and no interaction was observed between IM and condition, $\lambda = .96$, $F(18, 333) = 0.73$, $p = .777$. Thus, non-impression managers and high impression managers did not differ in their predictions about the degree to which their peers engage the health and social behaviours in either condition (i.e., low or high frequency response range)

Following up the omnibus test, I examined the univariate results for the condition effect. Significant univariate effects of condition were observed for the health and social behaviours ($ps < .05$; see Figure 2).

Figure 2:

Perceptions of Peer's Engagement in Health and Social Behaviours by Low vs. High Frequency Response Scale



Note. Error bars represent standard error of the mean. DUI = drive under the influence of alcohol. DUI Passenger = passenger in car driven by a person under the influence of alcohol.

Impression management and reports of health and social behaviours.

From the perspective that high impression managers are concerned with appearing favourably, it was expected that they would be more willing to admit to greater engagement in sensitive behaviour when presented with a high frequency response scale because the behaviour will appear more common, and thus, ‘not so bad’ (compared to when they are presented with a low frequency response scale. On the other hand, high impression managers have no reasons to downplay their engagement in non-sensitive behaviours; thus, it was expected that their responses would not differ between the low and high response scale conditions. To test this, a 2 (IM: high vs. normal) X 2 (condition: low vs. high response scale) X 2 (index: non-sensitive behaviours vs. sensitive behaviours) mixed ANOVA was conducted (see Table 1). The ANOVA revealed main effects of sensitive/non-sensitive index, condition, and IM, and an interaction between IM and behaviour. Results did not change significantly when adding gender to the model.

Table 1.

The Impact of Impression Management and Response Scale on Reports of Non-sensitive and Sensitive Behaviours

Variable	F	df	p
Sensitive/Non-sensitive Behaviour	39.82	1, 399	<.001
Condition (low/high freq. scale)	8.23	1, 399	.004
IM (high/normal)	23.75	1, 399	<.001
Behaviour X Condition	.29	1, 399	.588
Behaviour X IM	10.61	1, 399	.001

Condition X IM	.520	1, 399	.471
Behaviour X Condition X IM	1.24	1, 399	.266

Overall, the scale manipulation was successful (main effect of condition); participants reported engaging in the behaviours (sensitive and non-sensitive) more often on the high frequency response scale than the low frequency scale.

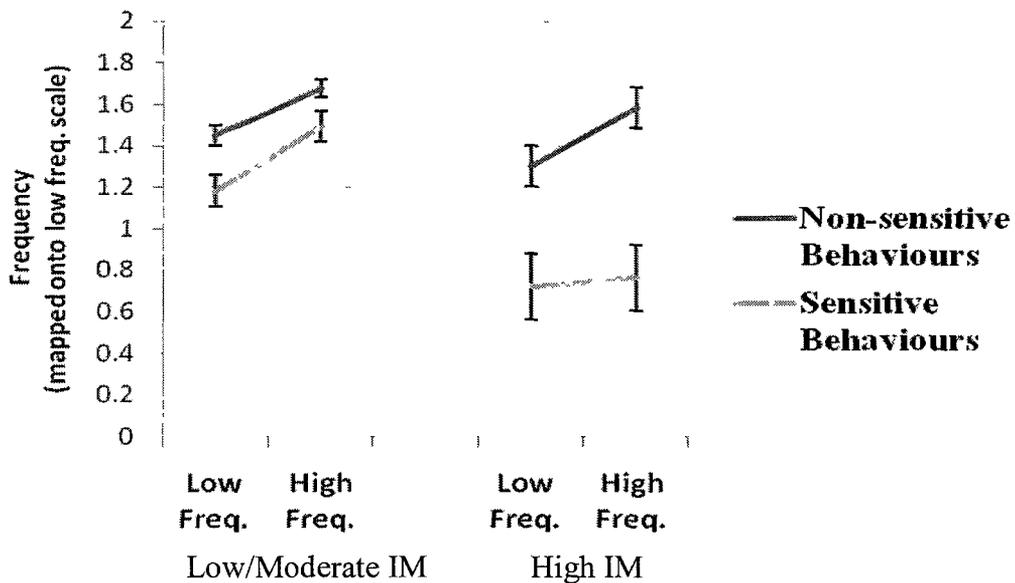
The ANOVA also revealed a main effect of IM, such that high impression managers reported less involvement in the health and social behaviours than non-impression managers. However, this main effect was qualified by a significant IM by behaviour (sensitive/non-sensitive) interaction. The interaction reveals that, collapsing across conditions (low vs. high frequency response scales), high impression managers are less likely to report sensitive behaviours than non-impression managers; however, this difference is negligible for non-sensitive behaviours. In other words, high impression managers are willing to admit to engaging in non-sensitive behaviours (although slightly less than those who are not impression managers), but will admit to very little engagement in the sensitive behaviours.

Despite a non-significant 3-way interaction (behaviour X condition X IM), I tested my *a priori* hypothesis that presenting high impression managers with a high frequency response scale would result in reports of more involvement in sensitive behaviours but not non-sensitive behaviours, compared to when presented with a low frequency response scale. The simple effect of condition (low vs. high frequency response scale) for high and non-impression managers was assessed using a 2 (condition: high vs. low frequency scale) X 2 (behaviour: non-sensitive vs. sensitive) ANOVA. Results revealed that non-

impression managers reported significantly more non-sensitive and sensitive behaviours in the high frequency condition ($n = 164$) compared to the low frequency condition ($n = 144$) [non-sensitive behaviours: $M_{low} = 1.45$, $SE = .047$ vs. $M_{high} = 1.68$, $SE = .045$, $F(1, 399) = 12.05$, $p = .001$; sensitive behaviours: $M_{low} = 1.18$, $SE = .076$ vs. $M_{high} = 1.49$, $SE = .073$, $F(1, 399) = 8.62$, $p < .01$]. Results indicate that non-impression managers were willing to report more of all behaviours (non-sensitive and sensitive) when presented with a high frequency response scale, compared to when presented with a low frequency response scale (see left side of Figure 3).

Figure 3

Effect of Condition (Low vs. High Frequency Response Scale) on High and Non-Impression Managers Reports of Sensitive and Non-sensitive Behaviours



Note. Error bars represent standard error of the mean

On the other hand, high impression managers were willing to admit to greater engagement in non-sensitive behaviours when presented with a higher frequency scale ($n = 45$) compared to the low frequency scale ($n = 51$) [$M_{\text{low}} = 1.30$, $SE = .099$ vs. $M_{\text{high}} = 1.59$, $SE = .099$, $F(1, 399) = 4.14$, $p < .05$]; however, they did not admit to greater engagement in sensitive behaviours in the higher frequency condition [$M_{\text{low}} = .72$, $SE = .16$ vs. $M_{\text{high}} = .76$, $SE = .16$, $F(1, 399) = .032$, $n.s.$; see right side of Figure 3).

Discussion

Study 2 demonstrated that high impression managers report less involvement in both non-sensitive and sensitive behaviours than those who are non-impression managers. However, the discrepancy in self-reports of sensitive behaviours between high and non-impression managers was much more pronounced, indicating that high impression managers are particularly motivated to under-report behaviours that are less socially desirable. Results suggest that increasing the behavioural norm by lengthening the response scale leads to a slight increase in high impression managers' reports of non-sensitive behaviours, but failed to increase their reports of sensitive behaviours. These results are consistent with study 1, suggesting that, when it comes to sensitive behaviours, high impression managers are unwilling to admit to engaging in these behaviour even when attempts are made to make the behaviour appear more common or normal. It appears that high impression manager want to appear well-behaved regardless of the social norm.

Results from studies 1 and 2 reveal that non-impression managers increase their reports of sensitive behaviours when they perceive the behaviour as being more common. In study 1, I had suggested that even though non-impression managers give more accurate responses than high impression managers, they may still be motivated by some degree to edit their responses (considering the personal nature of the questions). From this perspective, non-impression managers may have felt more comfortable responding honestly to questions about sensitive behaviours when given a face-saving opportunity. However, results from study 2 reveal that non-impression managers report greater engagement in both sensitive and non-sensitive behaviour when presented with a higher frequency response scale. This result suggests that this increase in reported behaviours is unlikely due to reduced self-presentation concerns because non-impression managers also amplify their engagement in non-sensitive behaviours. Rather, it is more likely that non-impression managers use the implied social norm in order to gauge their own engagement in behaviours.

Studies 1 and 2 suggest that high impression managers are concerned with appearing well-behaved regardless of whether a face-saving opportunity is provided. Thus, they are highly motivated to appear in a favourably light. However, high impression managers might admit to greater engagement in sensitive behaviours when their motivation to respond honestly is increased, outweighing their motivation to appear favourably.

Study 3

As mentioned earlier, when responding to a survey, participants have two (sometimes conflicting) motivations: 1) to provide an accurate response, 2) to appear in a favourable light. Study 1 and 2 suggest that high impression managers are more likely to be motivated by the latter when responding to questions about socially undesirable behaviours.

Research aimed at increasing the accuracy of responses to sensitive questions has typically attempted to allay participants' concerns about self-presentation. Although these methods do lead most participants to increase reports of sensitive behaviours, these methods are not effective at increasing reports by high impression managers.

Other methods have been suggested that attempt to increase participants' motivation to respond honestly (rather than alleviating concerns about appearing favourably). These methods, in a way, attempt to outweigh participants' concerns about self-presentation by increasing their motivation to respond honestly. Recent research suggests that implicit goal priming may provide a simple, straightforward method for motivating participants to provide honest responses for self-report measures. Results from this research reveal that implicitly activating the goal of honest responding can increase self-reports of sensitive behaviours (e.g., Rasinski et al., 2005).

Although it has not yet been established, priming the concept of honesty may increase high impression managers' motivation to respond honestly on self-reports of sensitive behaviours. To test this, I presented half of participants with a vocabulary task

containing an honesty priming manipulation before they completed a survey containing a series of questions about their alcohol use; the other half of participants were primed with a neutral concept. I hypothesized that impression managers would report greater involvement in sensitive behaviours (suggesting more accurate responding) if they had first been exposed to words related to honesty than when not exposed to honesty-related words. This prediction is based on the assumption that the honesty prime will be sufficient to over-ride impression managers' motivation to respond in a socially desirable manner. In contrast, reports of sensitive behaviours among those who are not impression managers should be less affected by the manipulation.

Method

Participants.

Three hundred and seventeen first-year psychology students completed the current study. Nineteen students were excluded because they were non-drinkers. Analyses are based on the 298 students who indicated consuming alcohol in the past 3 months ($M_{age} = 19.7$, $SD = 2.90$; 69% female, $n = 206$).

Procedure.

Similar to Study 1 and 2, all students enrolled in first year psychology classes were invited to complete the Balanced Inventory of Desirable Responding (BIDR; Paulhus, 1991) as part of mass testing ($n = 1486$).

Subsequently, participants who had completed the BIDR during mass testing were recruited via the SONA system to participate in a study titled 'Personal Perceptions

Study' ($n = 317$). An inclusion criterion for the study was that the participant must have consumed alcohol at least once in the past 3 months (19 non-drinkers mistakenly completed the study – their data was excluded, $n = 298$). Participants were informed that the study consists of two short, but separate studies developed by different researchers (only one survey each) that were combined into one study for efficiency sake. Participants were informed that their responses would be confidential and after assigning credit for participating, their names would no longer be linked with their data. Participants self-administered the surveys in the research lab (a separate room from the researcher). Those who agreed to participate completed a short demographic survey assessing age and gender. All participants then completed the goal-priming manipulation (Rasinski et al., 2005) titled 'Study 1: Individual Differences in the Meaning of Words', in which participants were randomly assigned to complete a vocabulary task involving either non-honesty related words (control condition) or words related to the goal of being honest (experimental condition). After completing the vocabulary task, all participants then completed a survey assessing their alcohol-related behaviours titled: 'Study 2: Drinking Behaviours of University Students'. After completing the final survey, all participants were debriefed. Participants received 0.25 experiment credit for completing the two short surveys.

Because the IM data and alcohol consumption/behaviour data were collected on different days, data sets were match by student number. Participants were evenly distributed between the control (47%; $n = 139$) and honesty condition (53%; $n = 159$).

Materials.

The goal-priming manipulation (based on Rasinski et al., 2005) consists of a simple vocabulary task. Participants were informed that they would be presented with a series of words, and that each word would be followed by three other words that are similar in meaning to the first word. Participants were told that their task was to read each word carefully and indicate which of the three subsequent words is most similar in meaning to the first word. In the experimental condition (honest-priming condition), participants were presented with 6 target words, four of which were related to the goal of being honest (e.g., honest, genuine). After each word they were presented with 3 synonyms of the target word (e.g., sincere, open, truthful) and asked which of the latter words is most similar to the first. Participants in the control condition were presented with 6 target words that are unrelated to the goal of honest responding (e.g., suspicious, cautious), along with three synonyms for each word. The manipulation has been shown to be effective within a university student sample; Rasinski et al (2005) found that participants who were exposed to the honestly-related words admitted to having engaged in more socially sensitive behaviours than participants exposed to the non-honesty words.

Measures.

The Balanced Inventory of Desirable Responding (BIDR; Paulhus, 1991; Appendix B) was used to assess IM biases (see Study 1 for a more detailed description). In the present study, mean IM score was 3.2 (SD = 3.4), which is slightly lower than what others have found with university student samples (e.g., Paulhus, 1998). Cronbach alpha for IM was 0.74. IM scores did not differ by drinking age (under-age vs. legal) or gender.

In the present sample, 7.7% ($n = 23$) of participants were considered high impression managers (scoring 9+).

The Drinking Behaviours of University Students questionnaire (Appendix E) comprised 6 questions (Cronbach's $\alpha = .72$) assessing alcohol consumption and alcohol-related harms [standard drinks consumed per week, binge drinking occasions per month (4+ for females, 5+ for males), standard drinks per typical drinking day, occasions driving after 2+ drinks in the past year, occasions as a passenger in a car after driver consumed 2+ drinks in the past year, hangovers per month). For each item, participants responded using a high-frequency response scale (0 to 20+). A composite measure of the alcohol-related behaviours was created by averaging the responses of the six items.

Results

Impression management and reports of alcohol-related behaviours.

Consistent with previous findings, IM scores were significantly correlated with reports of drinking behaviours in the control condition, $r(159) = -.16, p = .05$.

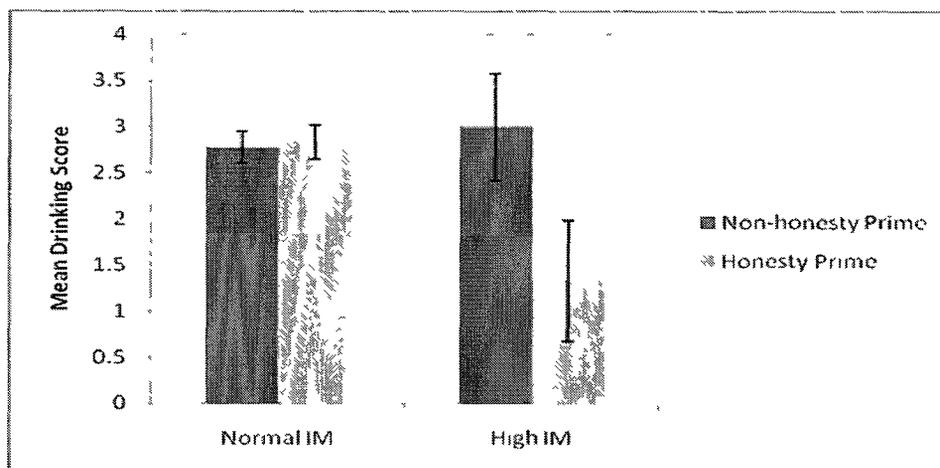
High IM and alcohol-related behaviours: Neutral vs. honesty prime.

It was hypothesized that high impression managers would report more drinking behaviours when first exposed to an honesty prime compared to when exposed to a neutral prime, whereas condition (honesty/neutral prime) was expected to have little effect on non-impression managers. To test this, a 2 (condition: neutral vs. honesty prime) x 2 (IM score: high [9+] vs. normal [0-8]) univariate ANOVA was conducted where drinking scores were the dependent variable.

Although the main effect of IM was not significant (likely due to low n for high impression managers), high impression managers reported somewhat lower drinking scores than normal-range impression managers ($M_{high\ IM} = 2.17$, $SD = .44$ vs. $M_{low\ IM} = 2.81$, $SD = .13$, $F(1, 294) = 2.02$, $p = .156$). A moderate effect of condition was found, yet in the opposite direction expected; participants reported higher mean drinking scores in the non-honesty condition compared to the honesty condition ($M_{non-honesty/neutral\ prime} = 2.89$, $SD = .30$ vs. $M_{honesty\ prime} = 2.09$, $SD = .34$, $F(1, 294) = 3.12$, $p = .078$). These main effects, however, were qualified by a marginally significant IM by condition interaction, $F(1, 294) = 3.60$, $p = .059$.

Figure 4

Mean Drinking Scores for High and Non-Impression Managers by Neutral vs. Honesty Priming Conditions



Note. Error bars represent standard error of the mean

To explore this interaction, the simple effects of condition were assessed for normal and high impression managers (see Figure 4). Among high impression managers, the

honesty prime actually *reduced* reported drinking behaviours [$M_{non-honesty\ prime} (n = 13) = 3.00, SE = .576$ vs. $M_{honesty\ prime} (n = 10) = 1.33, SE = .657, F(1, 294) = 3.63, p = .058$]. Among non-impression managers there was no effect of condition, [$M_{non-honesty\ prime} (n = 146) = 2.78, SE = .172$ vs. $M_{honesty\ prime} (n = 129) = 2.84, SE = .183, F(1, 294) = .06, n.s.$]. Adding gender to the model as a covariate did not change the outcome – there was still a (moderately) significant interaction between IM and condition, $F(1, 293) = 3.35, p = .07$.

Discussion

In this third study, I attempted to improve the accuracy of impression managers' reports of drinking behaviour by making honesty salient. That is, unlike the first two studies, where the goal was to increase reports of sensitive behaviours by allowing participants to save-face, in this study I attempted to 'trump' high impression managers' desire to be perceived as well-behaved by priming the motivation to reply honestly. Although the approach to increasing reports of sensitive behaviours differed, results from study 3 were consistent with that of study 1 and 2: high impression managers did not admit to more drinking when exposed to a manipulation thought to boost the accuracy of self-reports – instead, they admitted to even less drinking! Unlike studies 1 and 2 where the social norm was manipulated, non-impression managers in this study were unaffected by the manipulation; their reports of drinking behaviours remained the same across the non-honesty and honesty priming conditions.

If high impression managers were, in fact, being honest in their reports of drinking behaviours, no difference in self-reports should be observed between the non-honesty and honesty priming conditions. Yet, similar to results in study 1, high impression managers actually reported fewer sensitive behaviours in the honesty condition compared to the non-honesty condition. This pattern of results suggests that high impression managers may be particularly sensitive to attempts to persuade them to answer more honestly, resulting in increasingly conservative reports of sensitive behaviours.

Although it is likely that high impression managers reported fewer sensitive behaviours in the honesty condition (and more sensitive behaviours in the neutral condition) because they are sensitive to attempts to mitigate this tendency, there is the possibility that the nature of the ‘neutral’ prime may have led high impression managers to be more honest in their responses (more than in the honesty condition itself). At close inspection, the neutral prime used in this study (and by Rasinski et al., 2005) may not have been entirely neutral. This condition contained target words that might be considered antonyms of honesty-related words such as “suspicious,” “secret,” and “threatened.” High impression managers may have been more inclined to admit to drinking behaviours in such a condition because they might have been motivated to avoid being ‘caught’ being untruthful; words like ‘suspicious’ might give the impression that any denial of sensitive behaviours will not be trusted. To test this possible interpretation of the results, I conducted a fourth study where I substituted the (non)-neutral prime with a true neutral prime.

Study 4

To address the possibility that high impression managers reported significantly more sensitive behaviours in the neutral condition (compared to the honesty condition) because the neutral vocabulary task contained words that may actually have motivated an accurate response, Study 3 was re-run using a true neutral prime. In addition, the higher frequency response scale used in Study 3 was replaced with a low frequency response scale, which is more typical of drinking surveys. Again, it was predicted that high impression managers would report greater engagement in drinking behaviors in the honesty condition than in the neutral condition. In contrast, it is predicted that non-impression managers would not differ in their reports of drinking behaviors across conditions.

Method

Participants.

One hundred and fifty three first-year psychology students completed the current study. Eleven non-drinkers who mistakenly completed the study were excluded (total $n = 142$, $M_{\text{age}} = 19.8$, $SD = 3.28$; 74% female).

Procedure.

Participants who had completed the Balanced Inventory of Desirable Responding (BIDR; Paulhus, 1991; $n = 1486$) during mass testing were recruited via the SONA system. In addition, to increase the percentage of high impression managers who

completed the study (compared to study 3), participants who scored 9 or higher on the IM survey (considered high impression managers; Paulhus, 1998), were also contacted by email and invited to sign up for the current study on the SONA system. To participate, participants must have consumed alcohol within the past 3 months. Similar to study 3, participants were informed that the study consists of two short, but separate studies developed by different researchers (only one survey each) that were combined into one study for efficiency sake. Those who agreed to participate were asked to complete a short demographic survey, and then directed to the goal-priming manipulation. Participants were randomly assigned to complete a vocabulary task involving either neutral words (using different words than Study 3) or words related to the goal of being honest (using the same words as Study 3). Sixty participants (42.3%) were assigned at random to the control group; 82 (57.7%) were assigned to the honesty condition. After completing the vocabulary task, all participants then completed a survey assessing their alcohol-related behaviours. Participants were then debriefed and given 0.25 experiment credit.

Materials.

As in Study 3, the goal-priming manipulation (based on Rasinski et al., 2005) consists of a vocabulary task. However, in the current study, participants assigned to the neutral condition were presented with 6 target words that were deemed to be truly neutral (present, plain, acquaint, common, plain, group, and standard). Synonyms of the neutral target words were derived from a thesaurus.

Measures.

The Balanced Inventory of Desirable Responding (BIDR; Paulhus, 1991; Appendix B) was used to assess IM style (see Study 1 for a more detailed description). In the present study, mean IM score was 5.13 (SD = 4.02), which is comparable to what I found in the prior studies. Mean IM score was slightly higher when including the 11 non-drinkers ($M = 5.51$, $SD = 4.24$). Cronbach alpha for IM was 0.81. IM scores did not differ by drinking age (underage vs. legal) or gender. In the present sample, 23.9% ($n = 34$) of participants were considered high impression managers (scoring 9+).

The Drinking Behaviours of University Students questionnaire (Appendix E) was the same as that described in Study 3 (Cronbach's alpha for the current study = .68); however, participants were presented with a lower frequency response scale (0 to 5+), rather than a high frequency response scale (0 to 20+). Again, a composite measure of the alcohol-related behaviours was created by averaging the responses of the six items.

Results

Impression management and reports of alcohol-related behaviours.

Consistent with previous findings, IM scores were correlated (moderately) with reports of drinking behaviours in the control condition, $r(59) = -.27$, $p = .039$.

High IM and drinking score: True neutral vs. honesty prime.

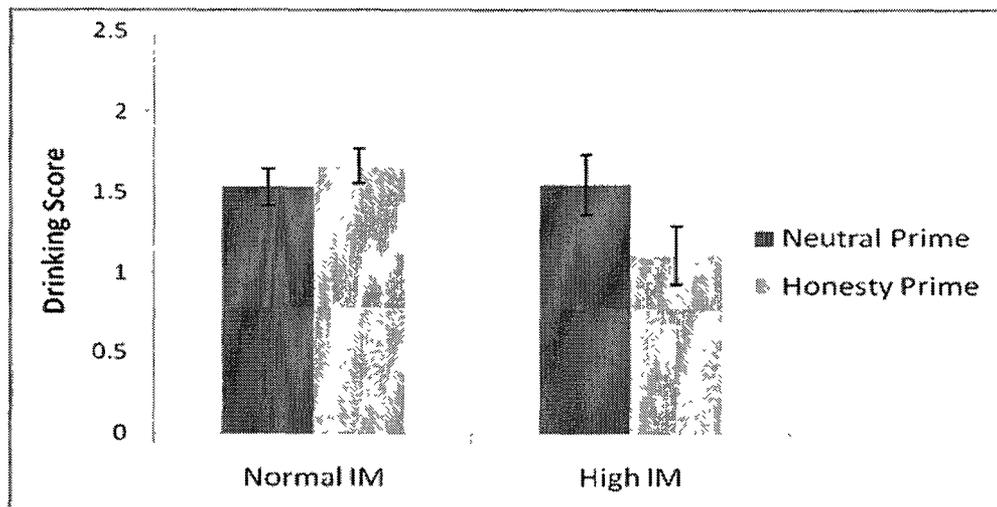
It was hypothesized that high impression managers would report more drinking behaviours when first exposed to an honesty prime compared to when exposed to a neutral prime. The prime (honesty or neutral prime) was expected to have little effect on non-impression managers. To test this, a 2 (condition: neutral vs. honesty prime) x 2 (IM

score: high [9+] vs. normal [0-8]) univariate ANOVA, was conducted where drinking scores were the dependent variable.

Results revealed a main effect of IM; high impression managers reported fewer alcohol-related behaviours than non-impression managers, $M_{high\ IM} = 1.35$, $SE = .14$ vs. $M_{low\ IM} = 1.80$, $SE = .08$, $F(1, 137) = 7.99$, $p = .005$. No significant main effect of condition was observed, $F(1, 137) = 1.63$, $p = .20$. Results revealed a (moderately) significant interaction between IM and condition when predicting drinking scores, $F(1, 137) = 2.72$, $p = .10$.

Figure 5

Drinking scores for High and Non-Impression Managers by Neutral vs. Honesty Priming Conditions



Note. Error bars represent standard error of the mean

To explore this interaction, the simple effects of condition were assessed for non-impression managers and high impression managers (see Figure 5). With respect to high

impression managers, these participants reported *fewer* drinking behaviours in the honesty condition ($n = 18$) than in the neutral condition ($n = 16$) [$M_{neutral\ prime} = 1.58$, $SE = .199$ vs. $M_{honesty\ prime} = 1.12$, $SE = .188$, $F(1, 137) = 2.85$, $p = .09$]. Condition had no effect on normal-range impression managers' reports of drinking [$M_{neutral\ prime} (n = 43) = 1.77$, $SE = .122$ vs. $M_{honesty\ prime} (n = 64) = 1.83$, $SE = .10$, $F(1, 137) = .14$, *n.s.*]. The interaction remained significant when gender was added to the model, $F(1, 136) = 3.65$, $p = .058$.

Discussion

Consistent with the results of Study 3, the present study revealed that high impression managers reported *less* drinking when exposed to an implicit honesty prime compared to a neutral prime. Results from the current study lend additional support to the earlier finding (study 1 and 3) that high impression managers are especially sensitive to attempts to increase self-reports of sensitive behaviours and react with more conservative estimates when an attempt is made to mitigate the bias!

Unlike high impression managers, the honesty prime had no effect on non-impression managers' reports of sensitive behaviours. This result suggests that of the two motives of wanting to be truthful and wanting to appear favourable, for non-impression managers responding truthfully appears to take precedence.

General Discussion

Much of what we know about health behaviour is based on self-reports, and yet these data are often perceived by the research community as inaccurate (e.g., Stockwell et al., 2004). Impression management response bias (or the desire to be viewed favourably) is thought by some to be a major threat to the validity of self-reports; but little is known about mitigating the effect of this bias.

In attempting to discern the true nature of impression management and its effects on self-reports, Uziel (2010a) suggested that researchers take Kurt Lewin's famous advice: to better understand a particular behaviour (in this case, IM), try to change it. The purpose of the present research was to do just that. There is a great deal of evidence indicating that people scoring high on measures of IM report less consumption of alcohol and drugs, report fewer sex partners and less risky sexual activity, and report gambling less often (e.g., Bradburn et al., 1979; Davis et al., 2010; Meston et al., 1998). These findings have generally been taken to mean that impression managers routinely downplay or understate their involvement in these activities because they want to be viewed favourably. Although a great deal of research has attempted to decrease socially desirable responding by manipulating survey methods (e.g., suggesting a bogus pipeline, increasing perceived distance from researcher, priming honest responding, or providing a face-saving excuse), these studies did not assess whether the methods improved response accuracy of those most likely to manipulate their responses to be viewed favourably (that is, high impression managers).

In this dissertation, I attempted to decrease the impact of individual differences in IM on self-reports of sensitive behaviours using two different approaches. Both approaches tap impression managers' desire to be viewed favourably, but do so from different angles. Working from the premise that high impression managers are particularly likely to distort their answers when they believe their answers are perceived to be diagnostic, I attempted to remove the diagnostic utility in Study 1 by offering face-saving statements to sensitive questions and in Study 2 by disguising the norm implicit in the response scale. Although I had some success with these approaches for those not scoring high on impression management, I found evidence that those who scored high on impression management become even less willing to report sensitive behaviour.

I tried a different approach for Studies 3 and 4. Coming from a motivational perspective in Studies 3 and 4, I attempted to increase high impression managers' reports of their drinking by subtly making salient the concept of honesty. Results from these studies were also consistent: The honesty prime in both studies resulted in *lower* reports of drinking relative to the control condition.

In sum, manipulations designed to overcome social desirability concerns did not lead high impression managers to admit to greater involvement in sensitive behaviours. Indeed, in studies 1, 3 and 4 impression managers moved in the other direction: high impression managers in these studies were more likely to understate their engagement in sensitive behaviours when attempts were made to alleviate their concerns about social desirability. It may be that high impression managers did not report less engagement in sensitive behaviours in Study 2 (when the response range was expanded) because this

manipulation was too subtle; high impression managers likely did not ‘pick up’ on the implicit attempt to increase their reports of undesirable behaviours as they did in Studies 1, 3, and 4.

Although high impression managers did not admit to greater engagement in sensitive behaviours in the experimental conditions, it would be mistaken to claim that these findings support the idea that high impression managers are simply honest, well-behaving people (cf. Uziel, 2010a,b). For one, if high impression managers are, in fact, well-behaved, then I should have found that their responses to be identical across control and experimental conditions. Instead, in 3 of the 4 studies high impression managers reported *less* engagement in sensitive behaviours when an attempt was made to increase the accuracy of their responses. These findings indicate that high impression managers are particularly sensitive to manipulations that attempt to ease their self-presentation concerns. Their ability to recognize attempts to encourage honesty responding, followed by their stronger denial of engagement in sensitive behaviours, lends support to the viewpoint that high impression managers are highly motivated to protect their image of being well-behaved. Second, results from study 2 suggest that high impression managers’ response style involves a deliberate and calculated attempt to manage the way they are perceived by others. In this study, high impression managers did not admit to greater involvement in sensitive behaviours when given a longer response scale, yet they were willing to inflate their involvement in behaviours that do not conflict with their desired self-image or make them seem better behaved (e.g., hours spent watching TV, on the internet, or reading). Again, this finding suggests that high impression managers are

motivated to present a better behaved image of themselves when given the opportunity (in this case, a longer response scale). In sum, these results reveal that high impression managers' responses are unlikely to be true representations of their actual behaviour. Rather, the data suggest that high impression managers are sensitive to threats to their desired self-image of being well-behaved and are highly motivated to maintain this image.

The present research also lends greater insight to the motivation behind high impression managers' response style. Although not distinguished in past literature, formulations of high IM appear to provide two views of why high impression managers respond as they do – both are based on the assumption that impression managers want to be viewed favourably. One potential view of high impression managers is that they are concerned with appearing 'normal', 'non-deviant', and 'agreeable', suggesting that they are motivated to appear consistent with (or slightly better than) the social norm. From this perspective, high impression managers would be expected to report greater engagement in sensitive behaviours when the social norm is shifted upwards so that they appear 'normal'. Another view of IM is that they are motivated to appear 'constrained', 'dutiful', and 'saint-like', suggesting that they are motivated to appear *unusually* well-behaved regardless of the social norm. Findings from study 1 and 2 corroborate the latter view – manipulating the social norm did not motivate high impression managers to provide responses that were more consistent with the social norm. Instead, high impression managers remained stalwart about their good behaviour or exaggerated it when given the chance.

If high impression managers are highly motivated to appear constrained, dutiful, and saintly, a few implications follow. First, the concept of high IM should be further refined to exclude descriptors that imply that high impression managers are motivated to appear 'normal' or consistent with the social norm. Second, this finding also reveals that attempts to alter the social norm – even though they increase reports of sensitive behaviours made by participants as a whole – do not similarly influence high impression managers' responses. Perhaps future attempts to increase the accuracy of high impression managers' reports of sensitive behaviours might attempt to alter their impression of what constitutes an 'ideal' and 'well-behaved' participant, emphasizing that good behaviour is demonstrated through honesty responding.

The 'reactance' observed in high impression managers' responses when attempts were made to increase the accuracy of their responses is at the same time both fascinating and disheartening. With the exception of study 2 (in which the response range was manipulated), high impression managers consistently seem to have 'picked up' on attempts to increase the accuracy of their responses and reacted by presenting themselves as even better behaved¹. Thus, methods that have been suggested in past research to decrease social desirability bias among 'normal' participants are likely to be ineffective -- and perhaps counterproductive -- when presented to high impression managers. Results

¹ Although it appears that high impression managers may have 'picked up' on attempts to increase their reports of sensitive behaviours, none of the participants explicitly stated that they recognized this attempt when asked during debriefing.

from study 2 suggest that the most implicit attempts to increase accurate responding may not be met with reactance; however, high impression managers did not admit to greater engagement in sensitive behaviours when the response scale was lengthened. Findings from the current research reveal that it may be even more dangerous to accept high impression managers' responses at face value when attempts that are more 'obvious' in nature (normalizing statements, priming with honesty related words) are made to increase the validity of their response.

Very little is said in the IM literature about the nature of non-impression managers (those who score in the normal range of IM). The present research shed some light on the motivations of non-impression managers. When health behaviours are made to appear more common, non-impression managers admit to significantly greater engagement in both sensitive and non-sensitive behaviours. This maps onto previous work by Schwarz et al. (1985) who found that shifting the social norm upwards resulted in an overall mean increase in self-reports of sensitive behaviours. These results suggest that non-impression managers may not be motivated to impress, but they nonetheless still use the perceived social norm as a way to gauge their own engagement in behaviours. Simply put, they want to appear 'normal'. When the social norm is not manipulated, like in the honestly priming studies (studies 3 and 4), the manipulation had no effect on non-impression managers responses. Results from the priming studies suggest that non-impression managers are more motivated to respond honestly than to appear favourably (otherwise, it is likely that non-impression managers would have reported greater engagement in sensitive behaviours when honesty was primed, compared to the neutral priming

condition). Overall, results from the above studies suggest that non-impression managers may not be the gold standard for accurate reports of sensitive behaviours. Their responses do appear to be affected by the social norm. However, unlike high impression managers, it does not appear that they deliberately manipulate their responses to appear favourably.

Implications

In the present studies, there was little motivation for participants to respond inaccurately. For instance, anonymity was assured and surveys were self-administered. Participants were university students who were asked about typical student behaviours. Thus self-report of excessive drinking, for example, would be neither shocking nor met with great disapproval. Regardless, high impression managers consistently reported fewer of all sensitive behaviours than non-impression managers. This finding is especially concerning because assessments of sensitive behaviours do not typically take place in settings with low demand characteristics. Most often, self-reports of sensitive behaviours are collected in settings that are likely to have a much higher demand and subsequent 'pay-off' for desirable responding. National surveys and opinion polls, for instance, are typically conducted by phone (e.g., Canadian Centre on Substance Abuse, 2004). Correctional institutions frequently make use of self-report instruments when recommending rehabilitation programming or determining risk of recidivism. In these settings, responses from high impression managers are likely invalid.

Furthermore, as alluded to above, the responses gained from self-reports of sensitive behaviours have real world implications. Policymakers, program directors, researchers and health care professionals use data on the prevalence of these behaviours

to monitor trends, set program goals, identify target populations, seek funding, advocate for support, and build theories. Decisions informed by these data are only as helpful as the data are accurate. The present research reveals that the responses of high (and sometimes non-) impression managers are biased and the extent of this bias is amplified depending on how the questions are asked.

The possibility that some respondents are especially motivated to under-report their engagement in sensitive behaviours has not gone unnoticed (e.g., Davis et al., 2010; Meston et al., 1998). However, up until now there has been little consideration of ways to reduce response bias among those most likely to tailor their responses to appear favourably (i.e., high impression managers). The results of this research reveal an unfortunate irony in attempts to decrease IM bias: these attempts (except for the very subtle attempt in study 2) appear to be recognized and reacted to in the opposite way desired by those deemed to be impression managers. Findings suggest that researchers should take great care in interpreting self-reports of sensitive behaviours – especially when attempts are made to mitigate IM bias.

On a more positive note, the present research does lend increasing support to the argument that the responses of high impression managers should not be taken at face-value – high impression managers are unlikely to be as well behaved as they say they are. Instead, those scoring on the high end of the IM spectrum appear to deliberately manipulate their responses in order to give the impression they are well-behaved. Findings from the current study indicate that IM is a substantial threat to the validity of responses.

Limitations

Methods which result in greater reports of engagement in sensitive behaviours are typically interpreted as being more valid. Results from the current study reveal that this may not always be a valid assumption. The present research revealed that low impression managers, who are thought to answer honestly regardless of the methods used, actually inflated their responses when their perception of the social norm was shifted upwards. Because this result occurred only when the social norm was manipulated and not in the honesty priming studies, it is likely that the inflated reports of sensitive behaviours were less accurate (i.e., the increase was due to a desire to appear 'normal'). However, due to the lack of objective external criteria with which to confirm the accuracy of self-reports, it is unknown whether low impression managers' increased reports of sensitive behaviours should be assumed to be accurate. On the other hand, high impression managers actually reported less engagement in sensitive behaviours in the experimental conditions (compared to the control conditions). Although it is likely that high impression managers' decreased reports of sensitive behaviours in the experimental conditions were due to 'reactivity', and thus, are not to be trusted, without objective criteria it is unknown which set of responses are more accurate. Thus, researchers should be encouraged, when possible, to gather other sources of information which may help to confirm or deny both low and high impression managers' reported behaviour.

Summary

Findings from this and other research (e.g., Davis et al., 2011) suggest that it is unwise to accept high impression managers' responses at face value. IM appears to have a major impact on self-reports of sensitive behaviours, resulting in the under-reporting of such behaviour among those scoring high. The present research examined possible solutions to decreasing the impact of this bias. Although the manipulations used here did not increase high impression managers' reports of sensitive behaviour, the results observed did shed more light on the concept of IM (for both non- and high impression managers). Results reveal that providing high impression managers with the opportunity to respond honestly while still saving-face did not increase their reports of sensitive behaviour. The current studies (with the exception of study 2) also showed that any threat to their desired self-image (i.e., attempts to boost their reports of sensitive behaviours) is met with a heightened attempt to protect their self-image, leading them to admit to even less engagement in sensitive behaviours. In addition, the self-image they want to present is well-tailored – high impression managers are willing to admit to engagement in socially accepted or neutral behaviours but will deny socially deviant behaviours - suggesting that their pattern of response is more calculated than honest. On the other hand, non-impression managers, although not motivated by a desire to be viewed favourably, are responsive to changes in the perceived social norm. When the social norm was not manipulated (in the priming studies), non-impression managers were consistent in their self-reports, suggesting they are more motivated to respond honestly than to appear favourably. In sum, although measures of IM are often included in research on sensitive topics, this response style is not well understood, nor easily mitigated. Results

from the current studies reveal that IM bias represents a true threat to the validity of self-reported sensitive behaviours – especially when attempts are made to decrease this tendency. Future research should continue to pursue a better understanding of this bias as well as explore ways in which its impact might be decreased.

References

- Adams, J., Parkinson, L., Sanson-Fisher, R. W., & Walsh, R. A. (2008). Enhancing self-report of adolescent smoking: The effects of bogus pipeline and anonymity. *Addictive Behaviors, 33*, 1291-1296.
- Aquilino, W. S. (1994). Interview mode effects in surveys of drug and alcohol use: A field experiment. *Public Opinion Quarterly, 58*, 210-240.
- Aquilino, W. S., & LoSciuto, L. A. (1990) Interview mode effects in drug use surveys. *Public Opinion Quarterly, 54*, 362-395.
- Aquinis, H., Pierce, C. A., & Quigley, B. M. (1995). Enhancing the validity of self-reported alcohol and marijuana consumption using a bogus pipeline procedure: A meta-analytic review. *Basic and Applied Social Psychology, 16*, 515-527.
- Babor, T. F., Brown, J., & Del Boca, F. K. (1990). Validity of self-reports in applied research on addictive behaviors: fact or fiction? *Behavioral Assessment, 12*, 5-12.
- Babor, T. F., Higgins-Biddle, J. C., Saunders, J. B., & Monteiro, M. G. (2001). *The Alcohol Use Disorders Identification Test: Guidelines for use in primary care* (2nd Ed.). Geneva: World Health Organization.
- Bargh, J. A. (2006). What have we been priming all these years? On the development, mechanisms, and ecology of nonconscious social behavior. *European Journal of Social Psychology, 36*, 147-168

Bargh, J. A., Gollwitzer, P. M., Lee-Chai, A. Y., Barndollar, K., & Troetschel, R. (2001).

The automated will: Nonconscious activation and pursuit of behavioral goals.

Journal of Personality and Social Psychology, 81, 1014-1027.

Bargh, J. A., & Morsella, E. (2008). The unconscious mind. *Perspectives on*

Psychological Science, 3, 73-79.

Belli, R. F., Traugott, M. W., Young, M., & McGonagle, K. A. (1999). Reducing vote

overreporting in surveys: Social desirability, memory failure, and source

monitoring. *Public Opinion Quarterly*, 63, 90-108.

Berner, M. M., Kriston, L., Bentele, M., & Harter, M. (2007). The Alcohol Use Disorders

Identification Test for detecting at-risk drinking: A systematic review and meta-

analysis. *Journal of Studies on Alcohol and Drugs*, 68, 461-473.

Blair, E., Sudman, S., Bradburn, N. M., & Stocking, C. (1977). How to ask questions

about drinking and sex: Response effects in measuring consumer behavior. *Journal*

of Marketing Research, 14, 316-321.

Block, J. (1965). *The challenge of response sets*. New York: Appleton-Century-Crofts.

Block, J., & Block, J. H. (2006). Venturing a 30-year longitudinal study. *American*

Psychologist, 61, 315-327.

Bradburn, N. M. (1983). Response effects. In Rossi, P.H., Wright, J.D. and Anderson,

A.B. (Eds). *Handbook of survey research*. New York: Academic Press.

Bradburn, N. M., Sudman, S., & Associates (1979). *Improving method and questionnaire*

design. San Francisco: Jossey-Bass.

- Bradburn, N. M., Sudman, D., Blair, E., & Stocking, C. (1978). Question threat and response bias. *Public Opinion Quarterly*, 42, 221-234.
- Booth-Kewley, S., Edwards, J. E., & Rosenfeld, P. (1992). Impression management, social desirability, and computer administration of attitude questionnaires: Does the computer make a difference? *Journal of Applied Psychology*, 77, 562-566.
- Booth-Kewley, S., Larson, G. E., & Miyoshi, D. K. (2007). Social desirability effects on computerized and paper-and-pencil questionnaires. *Computers in Human Behaviour*, 23, 463-477.
- Campanelli, P. C., Dielman, T. E., & Shope, J. T. (1987). Validity of adolescents' self-reports of alcohol use and misuse using a bogus pipeline procedure. *Adolescence*, 22, 7-22.
- Canadian Center on Substance Abuse (2004). *2004 Canadian Addictions Survey*. Retrieved from <http://www.ccsa.ca/eng/priorities/research/CanadianAddiction/Pages/default.aspx>.
- Carver, C. S. (2005). Impulse and constraint: Perspectives from personality psychology, convergence with theory in other areas, and potential for integration. *Personality and Social Psychology Review*, 9, 312-333.
- Catania, J., McDermott, L., & Pollack, L. (1986). Questionnaire response bias and face-to-face interview sample bias in sexuality research. *Journal of Sex Research*, 22, 52-72.

- Crocker, J. & Luhtanen, R. K. (2003). Level of self-esteem and contingencies of self-worth: Unique effects on academic, social, and financial problems in college students. *Personality and Social Psychology Bulletin*, 29, 701-712.
- Crowne, D. P., & Marlowe, D. (1960). A new scale of social desirability independent of psychopathology. *Journal of Consulting Psychology*, 24, 349-354.
- Davis, C. G., Thake, J., & Vilhena, N. (2010). Social desirability biases in self-reported alcohol consumption and harms. *Addictive Behaviors*, 35, 302-311.
- Davis, C. G., Thake, J., & Weekes, J. (2011). *Impression managers: Nice guys or homicidal maniacs?* Unpublished manuscript, Carleton University.
- Diener, E., Sandvik, E., Pavot, W., & Gallagher, D. (1991). Response artifacts in the measurement of subjective well-being. *Social Indicators Research*, 24, 35-56.
- Doyle, S. R., Donovan, D. M., & Kivlahan, D. R. (2007). The factor structure of the Alcohol Use Disorders Identification Test (AUDIT). *Journal of Studies on Alcohol and Drugs*, 68, 474-479.
- Edwards, A. L. (1953). The relationship between the judged desirability of a trait and the probability that trait will be endorsed. *Journal of Applied Psychology*, 37, 90-93.
- Edwards, A. L. (1957a). *The social desirability variable in personality assessment and research*. New York: The Dryden Press.
- Edwards, A. L. (1957b). Social desirability and probability of endorsement of items in the interpersonal check list. *The Journal of Abnormal and Social Psychology*, 55, 394-396

- Embree, B. G., & Whitehead, P. C. (1991). Validity and reliability of self-reported drinking behaviour: Dealing with the problem of response bias. *Journal of Studies on Alcohol, 54*, 334-344.
- Evans, R., Hansen, W. B., & Middlemark, M. B. (1977). Increasing the validity of self-reports of behavior in a smoking in children investigation. *Journal of Applied Psychology, 62*, 521-523.
- Fleming, M. F., Barry, K. L., & MacDonald, R. (1991). The Alcohol Use Disorders Identification Test (AUDIT) in a college sample. *International Journal of the Addictions, 26*, 1173-1185.
- Fowers, B. J., Lyons, E. M., & Montel, K. H. (1996). Positive marital illusions: Self-enhancement or relationship enhancement? *Journal of Family Psychology, 10*, 192-208.
- Fuller, R. K. (1988). Can treatment outcome research rely on alcoholics' self-reports? *Alcohol Health and Research World, 12*, 181-186.
- Furnham, A. (1986). Response bias, social desirability and dissimulation. *Personality and Individual Differences, 7*, 385-400.
- Glicksohn, J., Ben-Shalom, U. & Lazar, M. (2004). Elements of unacceptable risk taking in combat units: An exercise in offender profiling. *Journal of Research in Personality, 38*, 203-215.
- Harrell, A.V. (1985). Validation of self-report: The research record. *National Institute of Drug Abuse Research Monograph, 57*, 12-22.

Health Canada (2008). *2008 Canadian Alcohol and Drug Use Monitoring Survey*.

Retrieved from http://www.hc-sc.gc.ca/hc-ps/drugs-drogues/stat/_2008/summary-sommaire-eng.php#ref.

Holden, R. R. & Troister, T. (2009). Developments in the self-report assessment of personality and psychology in adults. *Canadian Psychology, 50*, 120-130.

Ivis, F. J., Bondy, S. J., & Adlaf, E. M. (1997). The effect of question structure on self-reports of heavy drinking: Closed-ended versus open-ended questions. *Journal of Studies on Alcohol, 58*, 622-624.

Johnson, R., Gerstein, D., & Rasinski, K. (1998). Adjusting survey estimates for response bias. *Public Opinion Quarterly, 62*, 354-377.

Joubert, C. E. (1995). Associations of social personality factors with personal habits. *Psychological Reports, 76*, 1315-1321.

Kandel, D. B., Yamaguchi, K. & Chen, K. (1992). Stages of progression in drug involvement from adolescence to adulthood: Further evidence for the gateway theory. *Journal of Studies on Alcohol, 53*, 447-457.

Kills Small, N. J., Simons, J. S., & Stricherz, M. (2007). Assessing criterion validity of the Simple Screening Instrument for Alcohol and Other Drug Abuse (SSI-AOD) in a college population. *Addictive Behaviors, 32*, 2425-2431.

Kokotailo, P.K., Egan, J., Gangnon, R., Brown, D., Mundt, M., & Fleming, M. (2004). Validity of the Alcohol Use Disorders Identification Test in college students. *Alcoholism: Clinical and Experimental Research, 28*, 914-920.

- Kozma, A. & Stones, M. J. (1987). Social desirability in measures of subjective well-being: A systematic evaluation. *Journal of Gerontology, 42*, 56-59.
- Lautenschlager, G. I. & Flaherty, V. L. (1990). Computer administration of questions: More desirable or more social desirability? *Journal of Applied Psychology, 75*, 310-314.
- Leigh, B. C. (2000). Using daily reports to measure drinking and drinking patterns. *Journal of Substance Abuse, 12*, 51-65.
- Lowe, J. B., Windsor, R. A., Adams, B., Morris, J., & Reece, Y. (1986). Use of a bogus pipeline method to increase accuracy of self-reported alcohol consumption among pregnant women. *Journal of Studies on Alcohol, 47*, 173-175.
- McCabe, S. E., Boyd, C. J., Young, A., Crawford, S., & Pope, D. (2005). Mode effects for collecting alcohol and tobacco data among 3rd and 4th grade students: a randomized pilot study of web-form versus paper-form surveys. *Addictive Behavior, 30*, 663-671.
- McCrae, R. R., & Costa, P. T. (1983). Social desirability scales: More substance than style. *Journal of Consulting and Clinical Psychology, 51*, 882-888.
- Meehl, P. E. & Hathaway, S. R. (1946). The K factor as a suppressor variable in the Minnesota Multiphasic Personality Inventory. *Journal of Applied Psychology, 30*, 525-564.
- Meston, C. M., Heiman, J. R., Trapnell, P. D., & Paulhus, D. L. (1998). Socially desirable responding and sexuality self-reports. *Journal of Sex Research, 35*, 148-157.

- Midanik, L. T. (1982). Over-reports of recent alcohol consumption in a clinical population: A validity study. *Drug and Alcohol Dependence, 9*, 101-110.
- Midanik, L. T. (1988). Validity of self-reported alcohol use: a literature review and assessment. *British Journal of Addiction, 83*, 1019-1029.
- Midanik, L. T. (1989). Perspectives on the validity of self-reported alcohol use. *British Journal of Addiction, 84*, 1419 -1423.
- Milholland, J. E. (1964). Theory and techniques of assessment. *Annual Review of Psychology, 15*, 311-346.
- Mills, J. F. & Kroner, D. G. (2006). Impression management and self-report among violent offenders. *Journal of Interpersonal Violence, 21*, 178-192.
- Murray, D. M., O'Connell, C. M., Schmid, L. A., & Perry, C. L. (1987). The validity of smoking self-reports by adolescents: A re-examination of the bogus pipeline procedure. *Addictive Behaviors, 12*, 7-15.
- Parkins, I. S., Fishbein, H. D. & Ritchey, P. N. (2006). The influence of personality on workplace bullying and discrimination. *Journal of Applied Social Psychology, 36*, 2554-2577.
- Paulhus, D. L. (1984). Two-component models of socially desirable responding. *Journal of Personality and Social Psychology, 46*, 598-609.
- Paulhus, D. L. (1991). Measurement and control of response bias. In J. P. Robinson, P. R. Shaver, & L. S. Wrightsman (Eds.), *Measures of personality and social psychological attitudes* (pp.17-59). New York: Academic Press.

- Paulhus, D. L. (1998). *Manual for the Paulhus Deception Scales: BIDR Version 7*. Toronto: Multi-Health Systems.
- Paulhus, D. L. (2002). Socially desirable responding: The evolution of a construct. In H. I. Braun, D. N. Jackson, & D. E. Wiley (Eds.), *The role of constructs in psychological and educational measurement* (pp. 46-69). Mahwah, NJ: Lawrence Erlbaum Associates.
- Paulhus, D. L. & John, O. P. (1998). Egoistic and moralistic biases in self-perception: The interplay of self-deceptive styles with basic traits and motives. *Journal of Personality. Special Issue: Defense mechanisms in contemporary personality research*, 66, 1025-1060.
- Paulhus, D. L., & Reid, D. B. (1991). Enhancement and denial in socially desirable responding. *Journal of Personality and Social Psychology*, 60, 307-317.
- Paulhus, D. L. & Vazire, S. (2007). The self-report method. In R. W. Robbins, R. C. Fraley, & R. F. Krueger (Eds.), *Handbook of research methods in personality psychology*. New York: Guilford.
- Poikolainen, K., & Karkkainen, P. (1985). Nature of questionnaire options affects estimates of alcohol intake. *Journal of Studies on Alcohol*, 46, 219-222.
- Rasinski, K. A., Visser, P. S., Zagatsky, M. & Rickett, E. M. (2005). Using implicit goal priming to improve the quality of self-report data. *Journal of Experimental Social Psychology*, 41, 321-327.

Raskin, R. & Terry, H. (1988). A principal-components analysis of the Narcissistic Personality Inventory and further evidence of its construct validity. *Journal of Personality and Social Psychology*, 54, 890-902.

Sackeim, H. A. & Gur, R. C. (1979). Self-deception, other-deception, and self-reported psychopathology. *Journal of Consulting and Clinical Psychology*, 47, 213-215.

Saunders, J. B., Aasland, O. G., Babor, T. F., de la Fuente, J. R. & Grant, M. (1993). Development of the Alcohol Use Disorders Identification Test (AUDIT): WHO collaborative project on early detection of persons with harmful alcohol consumption. *Addiction*, 88, 791-804.

Schwarz, N. (1999). Self-reports: How the questions shape the answers. *American Psychologist*, 54, 93-105.

Schwarz, N., Hippler, H. J., Deutsch, B., & Strack, F. (1985). Response scale: Effects of category range on reported behavior and comparative judgments. *Public Opinion Quarterly*, 49, 388-395.

Schwarz, N., & Oyserman, D. (2001). Asking questions about behavior: Cognition, communication, and questionnaire construction. *American Journal of Evaluation*, 22, 127-160.

Schwarz, N. & Scheuring, B. (1988). Judgments of relationship satisfaction: Inter- and intraindividual comparison strategies as a function of questionnaire structure. *European Journal of Social Psychology*, 18, 485-496.

- Schwarz, N., Strack, F., Muller, G., & Chassein, B. (1988). The range of response alternatives may determine the meaning of the question: Further evidence on informative functions of response alternatives. *Social Cognition, 6*, 107-117.
- Shields, A. L., Guttmanova, K., & Caruso, J. C. (2004). An examination of the factor structure of the Alcohol Use Disorders Identification Test in two high-risk samples. *Substance Use & Misuse, 39*, 1161-1182.
- Shevlin, M., & Smith, G. W. (2007). The factor structure and concurrent validity of the Alcohol Use Disorder Identification Test based on a nationally representative UK sample. *Alcohol & Alcoholism, 42*, 582-587.
- Single, E., & Wortley, S. (1994). A comparison of alternative measures of alcohol consumption in the Canadian National Survey of alcohol and drug use. *Addiction, 89*, 395-399.
- Smith, P. F., Remington, P. L., Williamson, D. F., & Anda, R. F. (1990). A comparison of alcohol sales data with survey data on self reported alcohol use in 21 states. *American Journal of Public Health, 80*, 309-312.
- Statistics Canada (2001). *2000-2001 Canadian Community Health Survey*. Retrieved from http://www.statcan.gc.ca/imdb-bmdi/instrument/3226_Q1_V1-eng.pdf
- Statistic Canada (2009). *2009 Canadian Tobacco Use Monitoring Survey*. Retrieved from <http://www.statcan.gc.ca/cgi-bin/imdb/p2SV.pl?Function=getSurvey&SDDS=4440&lang=en&db=imdb&adm=8&dis=2>.

- Stocké, V., & Stark, T. (2007). Political involvement and memory failure as interdependent determinants of vote overreporting. *Applied Cognitive Psychology. Special Issue: Cognitive psychology and survey methodology: Nurturing the continuing dialogue between disciplines*, 21, 239-257.
- Stockwell, T., Donath, S., Cooper-Stanbury, M., Chikritzhs, T., Catalano, P., & Mateo, C. (2004). Under-reporting of alcohol consumption in household surveys: A comparison of quantity-frequency, graduated-frequency, and recent recall. *Addiction*, 99, 1024-1033.
- Stockwell, T., Zhao, J., Chikritzhs, T., & Greenfield, T. K. (2008). What did you drink yesterday? Public health relevance of a recent recall method used in the 2004 Australian National Drug Strategy Household Survey. *Addiction*, 103, 919-928.
- Sudman, S. & Bradburn, N. M. (1982). *Asking questions. A practical guide to questionnaire design*. San Francisco: Jossey-Bass.
- Sugarman, D. B. & Hotaling, G. T. (1997). Intimate violence and social desirability. *Journal of Interpersonal Violence*, 12, 275-290.
- Thomas, B. A., & McCambridge, J. (2008). Comparative psychometric study of a range of hazardous drinking measures online in a youth population. *Drug and Alcohol Dependence*, 96, 121-127.
- Tourangeau, R., Rips, L. J., & Rasinski, K. (2000). *The psychology of the survey response*. Cambridge: Cambridge University Press.

- Tourangeau, R., & Smith, T. W. (1996). Asking sensitive questions. The impact of data collection, mode, question format, and question content. *Public Opinion Quarterly*, *60*, 275-304.
- Tourangeau, R. & Yan, T. (2007). Sensitive questions in surveys. *Psychological Bulletin*, *133*, 859-883.
- Uziel, L. (2010a). Rethinking social desirability scales: From impression management to interpersonally oriented self-control. *Perspectives on Psychological Science*, *5*, 243-262.
- Uziel, L. (2010b). Look at me, I'm happy and creative: The effect of impression management on behavior in social presence. *Personality and Social Psychology Bulletin*, *36*, 1592-1602.
- Watson, C. G., Tilleskjor, C., Hoodecheck-Schow, E. A., Pucel, J., & Jacobs, L. (1984). Do alcoholics give valid self-reports? *Journal of Studies on Alcohol*, *45*, 344-348.
- Weisberg, H. F., Krosnick, J. A., & Bowen, B. D. (1996). *An introduction to survey research, polling, and data analysis* (3rd ed.). London: Sage Publications Inc.
- Wentland, E. J., & Smith, K. W. (1993). *Survey responses: An evaluation of their validity*. New York: Academic Press, Inc.
- Wiggins, J. S. (1964). Convergences among stylistic response measures from objective personality tests. *Educational and Psychological Measurement*, *24*, 551-562.
- Winters, K. C., Stinchfield, R. D., Henly, G. A. & Schwartz, R. H. (1990). Validity of adolescent self-report of alcohol and other drug involvement. *International Journal*

of the Addictions. Special Issue: Nonexperimental methods for studying addictions, 25, 1379-1395.

Worsley, A., Baghurst, K. I., Leitch, D. R. (1984). Social desirability responses bias and dietary inventory response. *Human Nutrition: Applied Nutrition, 38, 29-35.*

Wright, D. B., Gaskell, G. D., & O'Muircheartaigh, C. A. (1997). How response alternatives affect different kinds of behavioural frequency questions. *British Journal of Social Psychology, 36, 443-456.*

Appendices

Appendix A: The Alcohol Use Disorders Identification Test (AUDIT)

Question 1

Standard question wording: How often do you have a drink containing alcohol?

Face-saving statement: Drinking is a common practice in today’s society, especially among university students. How often do you have a drink containing alcohol?

Response scale	Never	Monthly or less	2-4 times per month	2-3 times per week	4 or more times per week
Score	0	1	2	3	4

Question 2

Standard question wording: How many drinks containing alcohol do you have on a typical day when you are drinking?

Face-saving statement: Some people have built up a tolerance to alcohol so need more drinks to feel its effects. How many drinks containing alcohol do you have on a typical day when you are drinking?

Response scale	1 or 2	3 or 4	5 or 6	7, 8 or 9	10 or more
Score	0	1	2	3	4

Question 3

Standard question wording: How often do you have 5 or more drinks on one occasion?

Face-saving statement: Even the most responsible people will drink more than they originally planned. How often do you have 5 or more drinks on one occasion?

Response scale	Never	Less than monthly	Monthly	Weekly	Daily or almost daily
Score	0	1	2	3	4

Question 4

Standard question wording: How often during the last year have you found that you were not able to stop drinking once you had started?

Face-saving statement: Sometimes people find that they have difficulty stopping drinking, especially when they are having a lot of fun. How often during the last year have you found that you were not able to stop drinking once you had started?

Response scale	Never	Less than monthly	Monthly	Weekly	Daily or almost daily
Score	0	1	2	3	4

Question 5

Standard question wording: How often during the last year have you failed to do what was normally expected of you because of drinking?

Face-saving statement: It is not always easy to do what is normally expected after a night of drinking – maybe due to staying up late, or feeling a little hung-over. How often during the last year have you failed to do what was normally expected of you because of drinking?

Response scale	Never	Less than monthly	Monthly	Weekly	Daily or almost daily
Score	0	1	2	3	4

Question 6

Standard question wording: How often during that past year have you needed a first drink in the morning to get yourself going after a heavy drinking session?

Face-saving statement: From time to time some people might find they need a drink in the morning to help them get going after a big drinking session the night before. How often during that past year have you needed a first drink in the morning to get yourself going after a heavy drinking session?

Response scale	Never	Less than monthly	Monthly	Weekly	Daily or almost daily
Score	0	1	2	3	4

Question 7

Standard question wording: How often during the last year have you had a feeling of guilt or remorse after drinking?

Face-saving statement: The next day after drinking people might feel some guilt about things that they said or did. How often during the last year have you had a feeling of guilt or remorse after drinking?

Response scale	Never	Less than monthly	Monthly	Weekly	Daily or almost daily
Score	0	1	2	3	4

Question 8

Standard question wording: How often during the last year have you been unable to remember what happened the night before because of your drinking?

Face-saving statement: Sometimes, if we drank a little too much, we can't remember everything that happened the night before. How often during the last year have you been unable to remember what happened the night before because of your drinking?

Response scale	Never	Less than monthly	Monthly	Weekly	Daily or almost daily
Score	0	1	2	3	4

Question 9

Standard question wording: Have you or someone else been injured because of your drinking?

Face-saving statement: When people are drinking they sometimes hurt themselves or others. This could be due to getting in a fight or just being clumsy. Have you or someone else been injured because of your drinking?

Response scale	No	Yes, but not in the last year	Yes, in the last year
Score	0	2	4

Question 10

Standard question wording: Has a relative, friend, doctor, or other health care worker been concerned about your drinking or suggested you cut down?

Face-saving statement: Although we might not necessarily agree with them, sometimes people in our lives might express concern about how much we drink or suggest we cut-down. Has a relative, friend, doctor, or other health care worker been concerned about your drinking or suggested you cut down?

Response scale	No	Yes, but not in the last year	Yes, in the last year
Score	0	2	4

Appendix B: Balanced Inventory of Desirable Responding (BIDR; Version 6)

Scoring Impression Management: Items 1-20 assess Self-deceptive Enhancement; items 21-40 assess Impression Management. One point is added for each extreme response (6 or 7). * = Reverse score

Instructions: Using the scale below as a guide, write a number beside each statement to indicate how true it is.

1	2	3	4	5	6	7
Not true			Somewhat			Very true

- ___ 1. My first impressions of people usually turn out to be right.
- ___ 2. It would be hard for me to break any of my bad habits.*
- ___ 3. I don't care to know what other people really think of me.
- ___ 4. I have not always been honest with myself.*
- ___ 5. I always know why I like things.
- ___ 6. When my emotions are aroused, it biases my thinking.*
- ___ 7. Once I've made up my mind, other people can seldom change my opinion.
- ___ 8. I am not a safe driver when I exceed the speed limit.*
- ___ 9. I am fully in control of my own fate.
- ___ 10. It's hard for me to shut off a disturbing thought.*
- ___ 11. I never regret my decisions.
- ___ 12. I sometimes lose out on things because I can't make up my mind soon enough.*
- ___ 13. The reason I vote is because my vote can make a difference.
- ___ 14. My parents were not always fair when they punished me.*
- ___ 15. I am a completely rational person.
- ___ 16. I rarely appreciate criticism.*

- ___ 17. I am very confident of my judgments
- ___ 18. I have sometimes doubted my ability as a lover.*
- ___ 19. It's all right with me if some people happen to dislike me.
- ___ 20. I don't always know the reasons why I do the things I do.*
- ___ 21. I sometimes tell lies if I have to.*
- ___ 22. I never cover up my mistakes.
- ___ 23. There have been occasions when I have taken advantage of someone.*
- ___ 24. I never swear.
- ___ 25. I sometimes try to get even rather than forgive and forget.*
- ___ 26. I always obey laws, even if I'm unlikely to get caught.
- ___ 27. I have said something bad about a friend behind his/her back.*
- ___ 28. When I hear people talking privately, I avoid listening.
- ___ 29. I have received too much change from a salesperson without telling him or her.*
- ___ 30. I always declare everything at customs.
- ___ 31. When I was young I sometimes stole things.*
- ___ 32. I have never dropped litter on the street.
- ___ 33. I sometimes drive faster than the speed limit.*
- ___ 34. I never read sexy books or magazines.
- ___ 35. I have done things that I don't tell other people about.*
- ___ 36. I never take things that don't belong to me.
- ___ 37. I have taken sick-leave from work or school even though I wasn't really sick.*

___ 38. I have never damaged a library book or store merchandise without reporting it.

___ 39. I have some pretty awful habits.*

___ 40. I don't gossip about other people's business.

Appendix C: Health and Social Behaviours Survey (HSBS)

Note: Participants completed 2 versions of the HSBS. In one version they were asked about their own behaviours (shown here), in the other version they were asked about their peer’s behaviours. In both versions, participants were presented with the same response scale. For example, if a participant was randomly assigned to the low frequency response scale condition, they received a low frequency response scale to estimate their own behaviours and their peer’s behaviours. Both sets of instructions (own behaviours and peer behaviours) are below.

Instructions (own behaviours): Please answer the following 18 questions regarding YOUR health and social behaviours.

Instructions (peer’s behaviors): Please answer the following 18 questions regarding YOUR PEERS health and social behaviours. Think of ‘peers’ as other students your age.

1) Approximately how many cups of caffeinated coffee and/or tea do YOU drink/day?

Low frequency scale condition:

0	1	2	3	4+
---	---	---	---	----

High frequency scale condition:

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20+
---	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	-----

2) Approximately how many bottles of caffeinated soft drinks do YOU have *per day* (including diet soda and energy drinks)?

0	1	2	3+
---	---	---	----

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20+
---	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	-----

3) On average, approximately how many times per week do YOU eat at a “fast food” restaurant (including breakfast, lunch, dinner and snacks)?

0	1	2	3	4+
---	---	---	---	----

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20+
---	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	-----

4) Approximately how many *hours per day* do YOU watch TV?

0	1	2	3	4+
---	---	---	---	----

0	1	2	3	4	5	6	7	8+
---	---	---	---	---	---	---	---	----

5) Approximately how many *hours per day* do YOU spend on the internet (not including time spent for work or school)?

0	1	2	3+
---	---	---	----

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14+
---	---	---	---	---	---	---	---	---	---	----	----	----	----	-----

6) Approximately how many hours per week do you spend gambling on internet sites (e.g., poker)?

0	1	2	3	4+
---	---	---	---	----

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14+
---	---	---	---	---	---	---	---	---	---	----	----	----	----	-----

7) Approximately how many hours do you spend per week playing video games and/or computer games (e.g., xbox, wii, world of warcraft) - not including gambling?

0	1	2	3	4+
---	---	---	---	----

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20+
---	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	-----

8) On average, approximately how many hours per week do YOU spend reading for enjoyment?

0	1	2	3	4+
---	---	---	---	----

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14+
---	---	---	---	---	---	---	---	---	---	----	----	----	----	-----

9) Approximately how many drinks containing alcohol do YOU have *per week*?

0	1	2	3	4	5	6+
---	---	---	---	---	---	----

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20+
---	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	-----

10) Approximately *how many times per month* do YOU have 5 or more drinks in one sitting?

0	1	2	3	4+
---	---	---	---	----

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20+
---	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	-----

11) On a *typical day* when drinking, how many drinks containing alcohol do YOU have?

0	1	2	3	4	5+
---	---	---	---	---	----

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20+
---	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	-----

12) During the *past month*, on how many days did YOU experience a hangover after drinking?

0	1	2	3+
---	---	---	----

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14+
---	---	---	---	---	---	---	---	---	---	----	----	----	----	-----

13) On average, how many cigarettes do YOU smoke per day?

0	1	2	3	4	5+
---	---	---	---	---	----

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20+
---	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	-----

14) On average, on how many days per month do YOU use cannabis (e.g., marijuana, hashish)?

0	1	2	3	4+
---	---	---	---	----

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20+
---	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	-----

15) How many sexual partners have YOU had in your *lifetime*?

0	1	2	3	4+
---	---	---	---	----

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20+
---	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	-----

16) How many sexual partners have YOU had in your *lifetime*?

0	1	2	3	4+
---	---	---	---	----

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20+
---	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	-----

17) Approximately how many times in the *past year* have YOU driven when you had two or more drinks in the previous hour?

0	1	2	3	4+
---	---	---	---	----

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20+
---	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	-----

18) Approximately how many times in the *past year* did YOU ride in a car when the driver had two or more drinks in the previous hour?

0	1	2	3	4+
---	---	---	---	----

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20+
---	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	-----

Appendix D: Rating the Sensitivity of Question Topics

Instructions: Questions sometimes have different kinds of effects on people. We'd like your opinions about some of the different questions that we asked you in this survey. Please indicate the extent to which you think people are uneasy responding to these types of questions:

Participants were provided with the following response scale:

0	1	2	3
Not at all uneasy	Slightly uneasy	Moderately uneasy	Very uneasy

- 1) Number of caffeinated coffee or tea one consumes per day?
- 2) Number of pop or soda one consumes per day?
- 3) Times one eats fast food per week
- 4) Hours one watches TV per day
- 5) Hours one spends on the internet per day (not including hours for work/school)
- 6) Hours one spends gambling on the internet per week
- 7) Hours one spends gambling (other than online, e.g., at a casino)
- 8) Hours one spends playing video games per week
- 9) Hours one spends reading for pleasure per week
- 10) Number of alcoholic drinks one consumes per week
- 11) Number of times per month one consumes 5 or more alcoholic drinks in one sitting
- 12) Number of alcoholic drinks one consumes on a typical drinking day
- 13) Number of times one is hungover per month
- 14) Number of cigarettes one smokes per day
- 15) Number of times one consumes cannabis (e.g., marijuana, hash) per month

16) Number of sexual partners one has had in their lifetime

17) Number of times one has driven under the influence of alcohol in the past year

18) Number of times one has been in a car when the driver has been under the influence of alcohol in the past year

Appendix E: Drinking Behaviours of University Students

Note. Participants completed the 'Drinking Behaviours of University Students' in both Study 3 and 4. In study 3, participants were presented with a high frequency response scale (0 to 20+). In study 4, participants were presented with a low frequency response scale (0 to 5+).

** 1 Standard drink = 12 ounces of beer (~5% alcohol), 5 ounces of wine (~12% alcohol), or 1.5 ounces of hard liquor (~40% alcohol).

- 1) Approximately how many standard alcoholic beverages do you consume **per week**?
- 2) How many times in the **past month** did you consume 5 or more standard drinks (for males)/4 or more drinks (for females) in one sitting?
- 3) Approximately how many standard drinks do you consume on a **typical day when drinking**?
- 4) How many times during the **past year** did you drive a vehicle while under the influence of alcohol (2+ drinks in the past hour)?
- 5) How many times during the **past year** were you a passenger in a car when the driver was under the influence of alcohol (2+ drinks in the past hour)?
- 6) How many times in the **past month** did you have a hangover?

Appendix F: Priming Manipulation

Note. For each of the priming conditions (neutral and honest) for both Studies 3 and 4, participant received the same set of instructions (see below).

Instructions: Communication is a complicated process and even simple words can have slightly different meanings to people. We're interested in how people think about particular words, or what those words mean to people. Each word below is followed by three other words that are similar to the first one. Please **read each word carefully** and indicate which of the three words seems most similar to the first word by putting a check mark next to the most similar word. There are no right or wrong answers. All of the three words are similar to the first word. We are interested in which of those words seems most similar to you.

'Neutral' words (Study 3):

1. Suspicious

_____ Distrustful
 _____ Guarded
 _____ Suspect

2. Secret

_____ Hidden
 _____ Concealed
 _____ Private

3. Common

_____ Frequent
 _____ Routine
 _____ Average

4. Threatened

_____ Exposed
 _____ Vulnerable
 _____ Defenseless

5. Plain

_____ Neutral
 _____ Simple
 _____ Basic

6. Cautious

_____ Hesitant
 _____ Reluctant
 _____ Wary

Honesty words (Studies 3 and 4)

1. Honest

_____ Open
_____ Sincere
_____ Truthful

2. Secure

_____ Safe
_____ Comfortable
_____ Protected

3. Common

_____ Frequent
_____ Routine
_____ Average

4. Genuine

_____ Real
_____ Straightforward
_____ True

5. Correct

_____ Actual
_____ Straight
_____ Accurate

6. Plain

_____ Neutral
_____ Simple
_____ Basic

Neutral words (Study 4)

1. Present

_____ Ready
_____ Available
_____ Attendant

2. Acquaint

_____ Accustom
_____ Familiarize
_____ Habituate

3. Common

_____ Frequent
_____ Routine
_____ Average

4. Group

_____ Arrange
_____ Assemble
_____ Cluster

5. Standard

_____ Accepted
_____ Regular
_____ Customary

6. Plain

_____ Neutral
_____ Simple
_____ Basic