

Evaluations of Rape: Investigations Using Implicit and Explicit Measures, Online
Research Methodology, and Samples of Community Men

by

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Abstract

Evaluations of rape theoretically play an important role in sexually aggressive behaviour (e.g., Nunes, Hermann, & Ratcliffe, 2013). The purpose of this dissertation was to explore the relationship between implicit and explicit evaluations of rape and sexually aggressive behaviour using a longitudinal research design online. Study 1 examined the use of a self-generated identification code (SGIC) to track participants anonymously online. Study 1A examined a six question SGIC in a sample of 168 students and found the SGICs produced unique identifiers, and a low, but acceptable, exact match rate across a one month period. Study 1B explored a 12 question SGIC with a sample of 30 students and 15 community participants. The 12 question SGIC also produced unique identifiers, and resulted in a low, but acceptable, exact match rate across a one week period. These results suggest the 12 question SGIC can be used in longitudinal research online.

Study 2 explored the cross-sectional relationships between implicit and explicit evaluations of rape and sexually aggressive behaviour using a sample of 150 male students and 378 community men. In both samples, explicit evaluations of rape had moderate to strong positive relationships with sexually aggressive behaviour. The same pattern of results was not observed for implicit evaluations of rape.

Study 3 examined the relationship between implicit and explicit evaluations of rape and sexually aggressive behaviour using a longitudinal research design. Study 3 Wave 1 replicated and expanded on Study 2 using a sample of 190 male students and 597 community men. Importantly, four different measures of implicit evaluations of rape were used. The same pattern of results as observed in Study 2 was found. Participants in

Study 3 Wave 2 were 248 community men who had completed both Waves 1 and 2.

Implicit and explicit evaluations of rape at Wave 1 significantly predicted self-reported sexually aggressive behaviour at Wave 2. These findings suggest that both implicit and explicit evaluations of rape may be relevant for sexually aggressive behaviour. If replicated, these results have important implications for theory, research, and correctional practice.

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Evaluations of Rape: Investigations Using Implicit and Explicit Measures, Online Research Methodology, and Samples of Community Men

Sexual aggression against adults is a serious societal problem that has severe consequences for victims. Research estimates that approximately 20% of women and 3.8% of men are victims of sexual assault (Elliott, Mok, & Briere, 2004; Feldhaus, Houry, & Kaminsky, 2000; Koss, 1993). Compared to those who have not been sexually victimized, victims of sexual assault are more likely to experience negative psychological consequences such as anxiety, depression, and post-traumatic stress disorder, and negative physical consequences such as unwanted pregnancy, sexually transmitted infections, and injuries such as bruises and broken bones (e.g., Choudhary, Smith, & Bossarte, 2012; Hanson, 1990; Lalumière, Harris, Quinsey, & Rice, 2005; Resick, 1993). Sexual aggression also negatively impacts the people who know and care about the person who has been assaulted and the wider community (e.g., victim services and criminal justice costs). In light of the widespread negative outcomes of sexual aggression, researchers have focused their attention on understanding the factors that influence sexual violence, with the ultimate goal of reducing the prevalence of sexual assault.

Sexual coercion and aggression against adult victims encompasses an array of behaviour that can vary in sexual act (e.g., forced sexual touching to intercourse) and tactic used to obtain the sexual activity (e.g., verbal coercion, drugs or alcohol, physical force; e.g., see Sexual Experience Survey, Koss et al., 2007). In the review below, the term *sexually aggressive behaviour* will be used inclusively to refer to the perpetration of any unwanted sexual activity. More specific terms, such as *verbal sexual coercion* (i.e., verbally coercing someone into unwanted sexual activity) and *physical sexual aggression*

(i.e., physically forcing someone into unwanted sexual activity), will also be used when appropriate. Of note, some researchers make the distinction between any unwanted sexual behaviour (e.g., forced sexual touching) and forced attempted or completed oral, vaginal, or anal penetration; often the latter is referred to as *attempted* or *completed rape* (e.g., Abbey & McAuslan, 2004; Abbey, Wegner, Pierce, & Jacques-Tiura, 2012; Cue Davis et al., 2014; DeGue & DiLillo, 2004). Again, when appropriate these more specific terms will be used when describing research results.

Distorted cognitions about sexual offending (i.e., offence facilitating/supportive beliefs, attitudes, etc.) are thought to play an important role in the initiation and maintenance of sexually aggressive behaviour (e.g., Beech, Bartels, & Dixon, 2013; Helmus, Hanson, Babchishin, & Mann, 2013; Mann, Hanson, & Thornton, 2010; Ó Ciardha & Gannon, 2011; Ward & Beech, 2006; Ward, Gannon, & Keown, 2006). In recent theory and research, however, there has been a call for more precision and clarity regarding the types of cognition involved in sexual offending and their role in the sexual offence process (e.g., Gannon, Ward, & Collie, 2007; Hermann, Babchishin, Nunes, Leth-Steensen, & Cortoni, 2012; Mann & Beech, 2003; Maurina & Mann, 2006; Nunes, Hermann, & Ratcliffe, 2013; Nunes, Hermann, White, Pettersen, & Bumby, 2015; Ó Ciardha & Gannon, 2011; Ó Ciardha & Ward, 2013). Specifically, my colleagues and I have critically reviewed and contrasted the conceptualization and measurement of attitudes in the forensic/correctional literature and the more established social psychological literature (Nunes, Hermann, Maimone, & Woods, 2015; Nunes et al., 2013; Nunes, Hermann, White et al., 2015), and have started to focus our attention on

attitudes towards sexual aggression (Nunes et al., 2013; Nunes, Hermann, White et al., 2015).

In the social psychology literature, attitudes are typically defined as evaluations of an attitude object (e.g., Ajzen, 2001) and can be divided into implicit attitudes — immediately activated evaluations of an attitude object — and explicit attitudes — deliberative evaluations of an attitude object (e.g., Gawronski & Bodenhausen, 2006). The term *evaluations of rape* (*implicit* or *explicit*) is synonymous with *attitudes towards rape* in this dissertation. As noted below, however, the term *attitude* is often used to refer to cognitions other than evaluations in the forensic/correctional literature (e.g., see Nunes, Hermann, Maimone et al., 2015; Nunes et al., 2013; Nunes, Hermann, White et al., 2015). Consequently, for clarity, the term *evaluations of rape* will be used in the current dissertation. Some recent studies have found that both implicit and explicit evaluations of rape are associated with self-reported sexually aggressive behaviour in samples of students and community men (Nunes et al., 2013; Nunes, Hermann, White et al., 2015; Widman & Olson, 2013). Although promising, this research is still preliminary as these studies examined samples consisting primarily of students. More importantly, these studies were cross-sectional in research design and, consequently, prevent conclusions regarding whether evaluations of rape predict future sexually aggressive behaviour. Thus, it is important to extend and replicate these findings by examining the relationship between evaluations of rape and sexually aggressive behaviour against adults using longitudinal research designs, in representative samples of adult men.

Few studies to date have examined predictors of rape in samples of community

men¹ (see Abbey, Parkhill, Clinton-Sherrod, & Zawacki, 2007; and Greene & Cue Davis, 2011). Prior research has primarily used incarcerated or college/university based samples that may not be fully representative of sexually aggressive men (e.g., Abbey et al., 2007; Green & Cue Davis, 2011). Many victims do not report their sexual assaults to the police (e.g., Brennan & Taylor-Butts, 2008) and even when they are reported, many do not result in conviction, and even fewer result in prison sentences (Public Safety Canada, 2010). As a result, incarcerated samples may only represent one extreme of sexually aggressive men. Although student samples complement incarcerated samples, the typical characteristics of antisocial men are not conducive to educational aspiration or success (e.g., a lack of education [i.e., not completing high school] is one risk factor for criminal behaviour, Andrews & Bonta, 2010). Knowing this, it is likely that student samples are also not fully representative of sexually aggressive men. To address this, samples of community men can be used to complement student and incarcerated samples, and can provide more generalizable results.

Online research, particularly the use of online panels, is one promising method of

¹ To the best of my knowledge, the following are the only studies that examine *predictors of rape* (not rape-supportive cognition specifically) using a community sample (15 studies; 9 independent samples): Abbey, Parkhill, BeShears, Clinton-Sherrod, & Zawacki, 2006; Abbey, Parkhill, Clinton-Sherrod, & Zawacki, 2007; Abbey, Jacques-Tiura, & LeBreton, 2011; Abbey & Jacques-Tiura, 2011; Abbey, Wegner, Pierce, & Jacques-Tiura, 2012; Calhoun, Bernat, Clum, & Fame, 1997; Cue Davis et al., 2014; Greene & Cue Davis, 2011; Jacques-Tiura, Abbey, Wegner, Pierce, Pegram, & Woerner, 2015; Knight & Sims-Knight, 2003; Lim & Howard, 1998; Senn, Desmarais, Verberg, & Wood, 2000; Wegner, Abbey, Pierce, Pegram, & Woerner, 2015; Widman & Olson, 2013; Widman, Olson, & Bolen, 2012. As well, some of these studies use the same sample of participants (Abbey et al., [2006], and Abbey et al. [2007] shared a sample; Abbey, Jacques-Tiura, & LeBreton, [2011], Abbey & Jacques-Tiura, [2011], Abbey et al., [2012], Jacques-Tiura et al. [2015], and Wegner et al. [2015] shared a sample; Widman & Olson [2013] and Widman, Olson, & Bolen [2012] shared a community sample).

assessing community samples of sexually aggressive men. Online research has several advantages, including anonymity that increases self-disclosure and honesty, and convenient and fast access to large samples of participants across multiple locations (Ray, Kimonis, & Donoghue, 2010). In the sexual aggression literature, this data collection technique is relatively new. However, researchers have demonstrated that it is possible to recruit large numbers of participants and that these participants are willing to report sexually deviant behaviour (e.g., Greene & Cue Davis, 2011; Ray et al., 2010). Together, these findings suggest it is possible to tap into a non-incarcerated sexually aggressive sample using online research methodology.

The purpose of this dissertation is to longitudinally explore the relationship between implicit and explicit evaluations of rape and self-reported sexually aggressive behaviour against adults in large samples of students and community men recruited online. The literature below summarizes information from five areas of research that is relevant for the current dissertation. First, the attitude construct is defined and theories and research on the relationship between attitudes and behaviour are reviewed. Next, the literature on distorted cognitions about rape is discussed, with particular focus on the distinction between *evaluations of rape* (i.e., attitudes) and *rape-supportive cognition*. Following this, the literature examining evaluations of rape is presented and areas where more research is needed are highlighted. The importance of examining community samples of sexually aggressive men is then discussed, with a call for more research on sexual aggression using samples of community men. Lastly, an overview of conducting psychological research online is provided, with an emphasis on the feasibility of using this research methodology with longitudinal designs to study sexual aggression against

adults.

Chapter 1: Attitudes From the Social Psychology Perspective

What is an Attitude?

In the social psychology literature there is general agreement that attitudes are evaluations of an attitude object (see Albarracín, Zanna, Johnson, & Kumkale, 2005; Ajzen, 2001; Eagly & Chaiken, 1993; Fazio, 2007; Gawronski & Bodenhausen, 2007). For example, Ajzen (2001) defines attitudes as “a summary evaluation of a psychological object captured in such attribute dimensions as good-bad, harmful-beneficial, pleasant-unpleasant, and likeable-dislikeable” (p. 28). Eagly and Chaiken (1993) define attitudes as “a psychological tendency that is expressed by evaluating a particular entity with some degree of favour or disfavour” (p. 1). Furthermore, Eagly and Chaiken (2007) state their definition “encompasses the key features of attitudes – namely, tendency, entity (or attitude object), and evaluation” (p. 582). Fazio (2007) defines attitudes as “associations between a given object and a given summary evaluation of the object” (p. 4) and Gawronski and Bodenhausen (2007) define attitudes as “evaluative responses” (p. 708). Importantly, it is further recognized that attitudes are distinct cognitive constructs that may differ from other commonly studied types of cognition, such as beliefs and excuses² (e.g., Ajzen, 2001; Albarracín et al., 2005; Maruna & Mann, 2006; Nunes, Hermann, White et al., 2015). From these definitions it is clear that attitudes are evaluative cognitions about a particular attitude object and are considered to be a unique cognitive construct.

² Beliefs can be defined as “the perceived likelihood that an attribute is associated with an object”(Albarracín et al., 2005, p. 4). Excuses can generally be defined as cognitions that alleviate personal responsibility by attributing the cause of the event to external forces (Scott & Lyman, 1968; Mann & Shingler, 2006).

The attitude construct can be divided into two types of attitudes — implicit attitudes and explicit attitudes. Implicit attitudes are automatically activated evaluations of an attitude object (Gawronski & Bodenhausen, 2006) and are typically assessed using response latency measures such as the Implicit Association Test (IAT; Greenwald, McGhee, & Schwartz, 1998), Single-Category Implicit Association Test (SC-IAT; Karpinski, & Steinman, 2006), and/or priming measures such as the Evaluative Priming Procedure (Fazio, Jackson, Dunton, & Williams, 1995). Explicit attitudes are deliberative evaluations of an attitude object and are typically assessed using self-report measures such as *semantic differential* scales and *feeling thermometers* (Gawronski & Bodenhausen, 2006). Theory and research suggest that both types of attitudes provide unique and complementary information (e.g., Greenwald & Farnham, 2000; Nosek & Smyth, 2007; Nunes et al., 2013). Thus, both implicit and explicit attitudes should be examined in research.

In the social psychology literature, there are three prominent theoretical models of the processes underlying implicit and explicit attitudes: the Motivation and Opportunity as Determinants model (MODE; Fazio, 1990; see Olson & Fazio, 2009 for a review), the Associative-Propositional Evaluation model (APE; Gawronski & Bodenhausen, 2006), and the Meta-Cognitive Model (MCM; Petty, Briñol, & DeMarree, 2007). Briefly, the MODE model suggests implicit attitudes are automatically activated associations between the attitude object and summary evaluations of the attitude object; these occur automatically when the individual encounters the attitude object. Explicit attitudes are considered to be verbal behaviours; the base of the explicit attitude is the implicit attitude towards the attitude object, then depending on an individual's motivation (e.g., social

desirability) and opportunity (e.g., time) to deliberate alternative verbal behaviours, an explicit attitude is reported.

The APE model (Gawronski & Bodenhausen, 2006) suggests that implicit attitudes are the result of associative processes. Associative processes refer to the automatic activation of affective evaluations of an attitude object when the attitude object is encountered. This model suggests that the associations that are activated are the result of *pattern activation*. Pattern activation means the automatic evaluations activated are, in part, dependent on external stimuli, in addition to the associations activated by the attitude object. As a result, different patterns of associations can be activated for the same attitude object depending on differing external stimuli. Of note, an individual does not necessarily validate automatically activated evaluations; upon deliberation an individual may regard the automatic evaluations as accurate or inaccurate. The APE model suggests explicit attitudes are the result of propositional processes. Propositional processes refer to the validation of automatically activated evaluations. Individuals consider evaluative and non-evaluative information and use this to determine the validity (i.e., truth) of the automatically activated evaluations. Together this information forms the explicit attitude towards the attitude object.

The MCM of attitudes (Petty et al., 2007) is similar to the previous two models in that it suggests attitude objects are associated with evaluations in one's memory. Petty and colleagues theorize that attitude objects can be associated with both positive and negative evaluations, that these evaluative associations differ in strength, and the associations activated can be, in part, dependent on external stimuli (e.g., context). The key feature of the MCM, however, is the assumption that evaluative associations are

tagged as true or false and/or tagged with more or less confidence³ (e.g., associations can be tagged with “yes/no, confidence/doubt, true/false, accept/reject” [p.663]). Petty and colleagues believe implicit measures assess untagged associated evaluations of an attitude object, whereas explicit measures assess the tagged associated evaluations of an attitude object and the tags linked with evaluations of the attitude object.

From the brief summaries of the attitude models above, it is clear that there are similarities across all three models. Specifically, common to all three models is the notion that implicit attitudes (or implicit measures) assess automatically activated evaluations of an attitude object and that these evaluative associations are not deliberated on and/or validated prior to measurement, whereas explicit attitudes (or explicit measures) assess evaluations that have been deliberated on and/or validated by the individual. Both types of attitude offer unique information and should be examined in research (e.g., Greenwald & Farnham, 2000; Nosek & Smyth, 2007; Nunes et al., 2013).

Can Attitudes Influence Behaviour?

Theoretically, attitudes can play an important role in subsequent behaviour. One prominent model of the attitude-behaviour relationship is Ajzen’s (1991, 2001) theory of planned behavior. This theory suggests an individual’s attitudes, perceived behavioural control, and perceptions of social norms influence his/her intention to commit a particular behaviour, which in turn influences his/her behaviour (see Figure 1). Attitudes are defined as the sum of evaluations of a particular behaviour, social norms are defined as perceptions of the social acceptability and typicality of a particular behaviour, and perceived behavioural control is defined as how easy an individual expects the

³ This is where the name Meta Cognitive model comes from. Petty et al. (2007) state “meta-cognition refers to thoughts about thoughts or thought processes” (p. 663).

performance of the behaviour to be. Attitudes, social norms, and perceived behavioural control are based on beliefs. Generally, beliefs are defined as relevant knowledge in the context of an individual’s perception of that knowledge. A variety of behaviours have been examined within the framework of the theory of planned behaviour, including risky and sexual behaviours such as condom use (e.g., Albarracín, Johnson, Fishbein, & Muellerleile, 2001), alcohol and illegal drug use (e.g., Armitage, Conner, Loach, & Willetts, 1999), and sexual aggression (e.g., Miller, 2010). From this model, it can be suggested that attitudes, through intentions, influence behaviour.

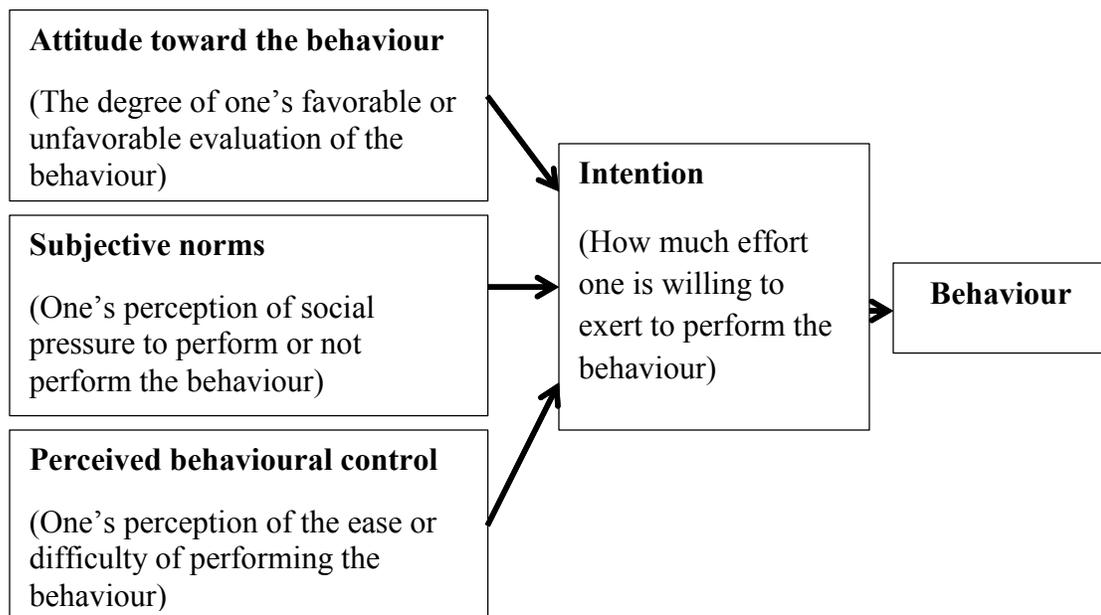


Figure 1. The theory of planned behavior. Adapted from “The Theory of Planned Behavior” by I. Ajzen (1991), *Organizational Behavior and Human Decision Processes*, 50, p. 179-211.

Fazio’s MODE model (Fazio, 1990; see Olson & Fazio, 2009 for a review) also theorizes about the relationship between attitudes and behaviour. As noted above, the MODE model suggests there can be two types of attitudes: implicit attitudes that are automatically activated evaluations of an attitude object and explicit attitudes that are, if

motivation and opportunity permit, deliberative evaluations of an attitude object. In this model it is suggested that attitudes can influence behaviour spontaneously or deliberately, depending on an individual's motivation and opportunity to deliberate between behavioural alternatives (see Figure 2). Attitudes influence behaviour spontaneously when there is little motivation or opportunity to engage in more deliberative processing. In these types of situations, it is the implicit attitude — the attitude that is activated automatically by the attitude object — that guides behaviour without the individual's awareness. In support of this notion, Fazio and colleagues have found that automatically activated attitudes can orient attention, bias visual perceptions of the attitude object, and influence the processing of information related to the attitude object (Olson & Fazio, 2009). Alternatively, when there is high motivation and opportunity to deliberate on behavioural alternatives, behaviour is less influenced by automatically activated attitudes and is instead more influenced by explicit attitudes. In sum, this model suggests both implicit and explicit attitudes can influence behaviour.

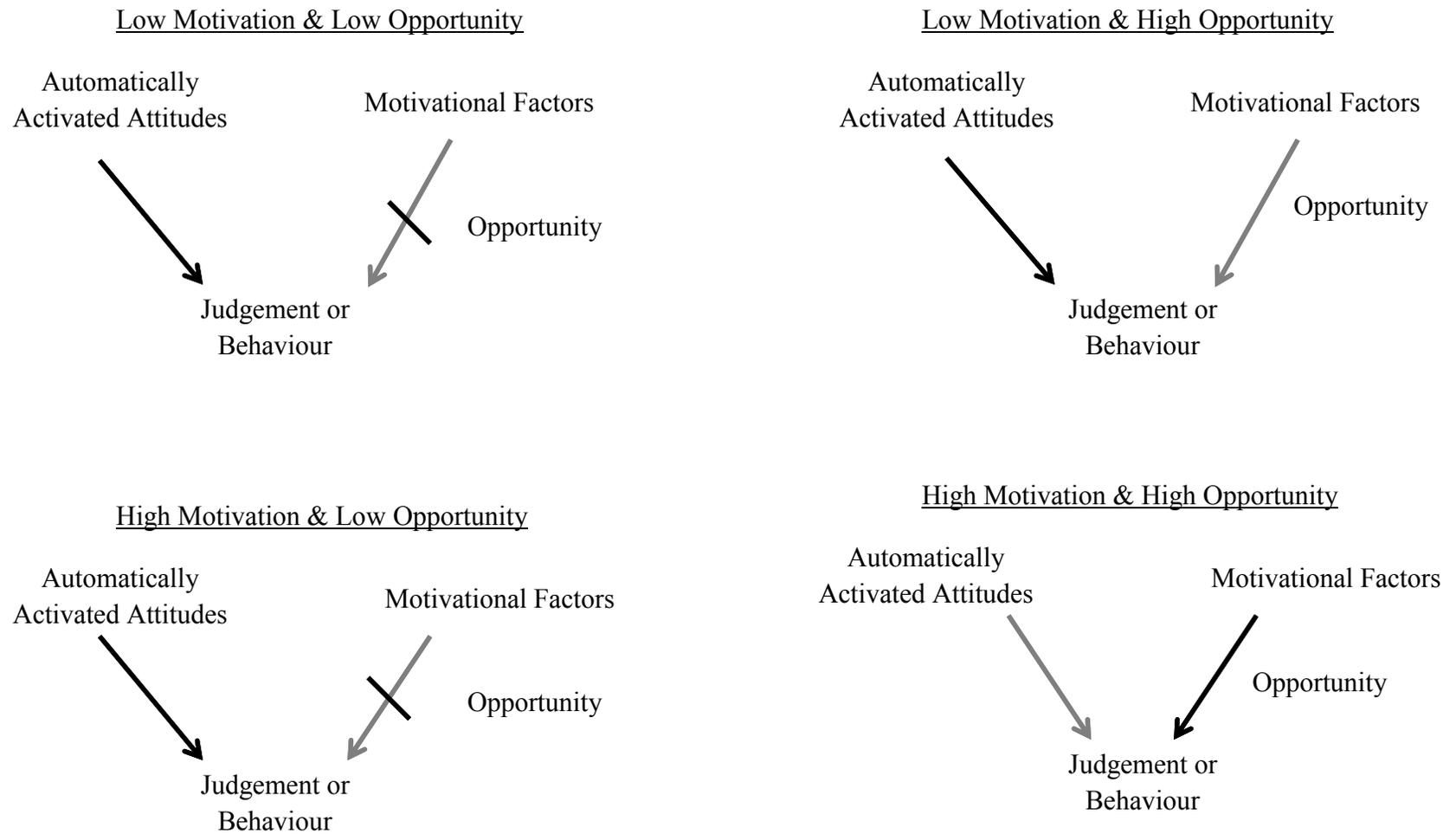


Figure 2. The MODE model as a function of high versus low motivation and opportunity. Reprinted from “Implicit and Explicit Measures of Attitudes: The Perspectives of the MODE Model,” by M. A. Olson & R. H. Fazio (2009), in R. E. Petty, R. H. Fazio, & P. Briñol *Attitudes: Insights from the New Implicit Measures*, p. 25, Psychology Press Taylor & Francis Group: New York.

In each figure the arrows represent the influence of automatically activated attitudes and motivation on judgment or behaviour. The construct represented by the darker arrow exhibits more influence on judgment or behaviour than the construct represented by the lighter arrow. The high and low opportunity conditions are represented by the presence or absence of a back slash on the arrow representing motivation.

Empirically, there is evidence to suggest that attitudes can predict behaviour. For example, Kraus (1995) conducted a meta-analysis of longitudinal studies examining the relationship between explicit attitudes and subsequent behaviour. Overall, Kraus found a moderate statistically significant effect for the relationship between attitudes and subsequent behaviour ($r = .38, k = 88$)⁴; this effect, however, was moderated by a number of attitude characteristics such as attitude certainty (i.e., confidence), stability, and accessibility (i.e., likelihood an attitude will be activated)⁵. Glasman and Albarracín (2006) also conducted a meta-analysis examining the attitude-behaviour relationship. Interestingly, they only included studies in which researchers formed participants' attitudes towards an unknown attitude object (e.g., a new product, a new university parking rule) by providing them with information about the object. In these studies, attitudes were primarily assessed using semantic differential scales (e.g., asking participants to rate the attitude object on bipolar scales such as *good/bad* or *positive/negative*). Furthermore, following attitude formation, the studies had to have measured overt behaviour related to the attitude object. Similar to Kraus (1995), Glasman

⁴ Effect sizes are reported throughout the introduction. Typically, correlation coefficients of .10 are considered small, .30 are considered moderate, and .50 or greater are considered large. Cohen's *d* effect sizes of 0.20 are considered small, 0.50 are considered moderate, and 0.80 or greater are considered large (Cohen, 1992).

⁵ *Attitude certainty* (confidence) moderated the attitude behaviour relationship such that the more confident participants were about their attitudes, the greater the attitude behaviour relationship. *Attitude stability* moderated the attitude behaviour relationship such that more stable attitudes (over time) were better predictors of behaviour than less stable attitudes. *Attitude accessibility* moderated the attitude behaviour relationship such that more accessible attitudes (more likely to be activated when encountering the attitude object) were better predictors of behaviour than less accessible attitudes. Of note, accessibility is increased when greater amounts of thought are given to the attitude object, when the attitude is reported frequently, and when the participant has more direct behavioural experience with the attitude object (Glasman & Albarracín, 2006).

and Albarracín (2006) also found a significant large overall effect for the relationship between attitudes and subsequent behaviour (random-effects approach $r = .51$, 95% CI [.48, .54], $k = 128$, $N = 4,598$). Again, this relationship was moderated by a number of attitude characteristics such as attitude accessibility and stability.

Recent meta-analyses have also found that implicit attitudes are related to subsequent behaviour. For example, Cameron, Brown-Iannuzzi, and Payne (2012) conducted a meta-analysis examining the relationship between implicit attitudes and cognitions⁶ (measured by sequential priming measures) and behaviour; they found a small significant overall effect such that implicit attitudes and cognitions predicted behaviour ($r = .28$, $k = 167$). Furthermore, they found that even when controlling for explicit attitudes and cognitions, implicit attitudes and cognitions continued to significantly predict behaviour. Similarly, Greenwald, Poehlman, Uhlmann, and Banaji (2009) examined the relationship between implicit attitudes, stereotypes, self-concept, and self-esteem as measured by the IAT and criterion variables (behaviour, judgements, or physiological responses); they also found a small significant overall effect ($r = .27$, $k = 184$, $N = 14,900$). Greenwald and colleagues (2009) also found that implicit and explicit measures were independently associated with the criterion variables. In sum, implicit and explicit attitudes can be important predictors of subsequent behaviour.

Chapter 2: Rape Supportive Cognition and Sexually Aggressive Behaviour

What is Rape-Supportive Cognition?

Cognitions supportive of rape are thought to play an important role in the initiation and maintenance of sexually aggressive behaviour (e.g., Beech et al., 2013;

⁶ The term cognition is used here because the meta-analysis included priming measures that assessed attitudes specifically and other types of cognitions (e.g., beliefs).

Helmus et al., 2013; Mann & Beech, 2003; Mann et al., 2010; Ó Ciardha & Gannon, 2011; Ward & Beech, 2006; Ward et al., 2006). Cognitions supportive of rape have been referred to in the literature with varying terminology including rape-supportive cognition, rape myths, cognitive distortions, and rape attitudes; in the current dissertation the term rape-supportive cognition will be used. Importantly, the term rape-supportive cognition (in current dissertation) reflects the notion that these cognitions are in support of sexually aggressive behaviour, but no assumptions are made about the causal relationship between rape-supportive cognition and sexually aggressive behaviour. Rape-supportive cognition is typically defined as encompassing a number of cognitive constructs such as attitudes, beliefs, stereotypes, excuses, and justifications about rape, women, and victims of rape (Helmus et al., 2013; Hermann et al., 2012; Maruna & Mann, 2006; Nunes et al., 2013; Nunes, Hermann, White et al., 2015). For example, Bumby (1996) defines distorted cognitions about sexual offending (*cognitive distortions*) as “learned assumptions, sets of beliefs, and self-statements about deviant sexual behaviours such as child molestation and rape which serve to deny, justify, minimize, and rationalize an offender’s actions” (p. 38). Similarly, Lonsway and Fitzgerald (1994) define cognitions supportive of rape (*rape myths*) as “attitudes and beliefs that are generally false but are widely and persistently held, and that serve to deny and justify male sexual aggression against women” (p. 134). Knight, Sims-Knight, and Brown-McBride (2009) define cognitions supportive of rape (*rape attitudes*) as “a variety of beliefs such as the adversarial nature of men’s relationship with women, stereotypes about women, stereotypical ideas about sexual roles, negative notions about masculinity, and rape myths that support sexually aggressive behaviour” (p.2). Thus, rape-supportive cognition encompasses a number of

distinct cognitive constructs (see Hermann et al., 2012; Nunes et al., 2013; Nunes, Hermann, White et al., 2015), all of which are believed to facilitate sexual aggressive behaviour.

Much of the research conducted to date on cognitions supportive of rape has examined rape-supportive cognition as a unitary construct (i.e., has not differentiated between different rape-supportive cognitive constructs such as attitudes and beliefs). As will be discussed below, there has been a call for more precision and clarity with regards to the types of rape-supportive cognitive constructs being examined in research (Gannon et al., 2007; Hermann et al., 2012; Mann & Beech, 2003; Murna & Mann, 2006; Nunes et al., 2013; Nunes, Hermann, White et al., 2015; Ó Ciardha & Gannon, 2011; Ó Ciardha & Ward, 2013), but because the majority of theory and research has treated rape-supportive cognition as a unitary construct, this chapter will first provide an overview of the literature on rape-supportive cognition more generally, and the following chapter will focus more specifically on evaluations of rape.

Is Rape-Supportive Cognition Associated with the Initiation and Maintenance of Sexually Aggressive Behaviour?

Theories explaining sexually aggressive behaviour against adults tend to suggest rape-supportive cognition plays an important role in sexually aggressive behaviour (e.g., Hall & Hirschmann [1991] quadripartite model of sexual aggression against adults; Malamuth's [1986; 2003] hierarchical-mediational confluence model; Ward & Beech [2006] integrated theory of sexual offending; Ward et al., [2006] judgement model of sexual offending). For example, Malamuth's hierarchical-mediational confluence model (1986; 2003) outlines two pathways that lead to sexual aggression: the

antisocial/impersonal sex path and the *hostile masculinity* path. In the antisocial path/impersonal sex path sexually aggressive behaviour stems from abusive home environments (e.g., sexual or physical abuse), early delinquent behaviour, and impersonal sexuality (i.e., early sex, promiscuity). In the hostile masculinity path, sexually aggressive behaviour stems from rape-supportive cognition (e.g., beliefs accepting violence towards women), narcissism, hostility towards women, and a need to sexually dominate women. Thus, rape-supportive cognition is one factor that, when combined with other factors, promotes sexually aggressive behaviour.

In the judgement model of cognitive distortions (JMCD; Ward et al., 2006), there are three types of cognition (judgements) that are believed to interact to promote sexually aggressive behaviour: (1) *beliefs*, (2) *value-based judgements*, and (3) *action-based judgements*. Ward and colleagues (2006) define *beliefs* as knowledge about the self and/or world that may be true or false. *Value-based judgements*⁷ are defined as evaluative judgements of attitude objects (e.g., people, behaviours) that are positive and thus inform individuals about goals worthy of pursuit. *Action-based judgements* are defined as cognitions regarding the actions an individual has previously engaged in (e.g., could include denial or minimization of a sexually aggressive act). It is suggested that offence supportive beliefs and value-based judgements are encompassed within offence-

⁷ “Judgements relating to what is *valuable* are also evident in sexual offenders’ offense descriptions but are rarely identified as such by researchers. A value judgement asserts that specific types of qualities, which are evaluated as positive or negative, characterize aspects of the world or people. These types of judgements reveal what the individual in question considers to be of worth (and beneficial to himself or others), or of little value (and therefore harmful).” (p. 329)

supportive schema⁸; these cognitions interact with each other and influence an individual's behaviour (goals). Clearly, theory suggests rape-supportive cognition plays a role in sexually aggressive behaviour.

The relationship between rape-supportive-cognition and sexually aggressive behaviour has also been empirically examined. Studies examining the relationship between rape-supportive cognition and sexually aggressive behaviour can be divided into four types of research designs: (1) cross-sectional studies comparing sexually aggressive and non-sexually aggressive groups of participants, (2) cross-sectional studies examining the relationship between rape-supportive cognition and past sexually aggressive behaviour and/or proclivity (likelihood) to rape, (3) longitudinal studies examining the relationship between rape-supportive cognition and sexual recidivism in sexual offenders, or sexually aggressive behaviour in students or community men, and (4) longitudinal studies examining the relationship between treatment change in rape-supportive cognition and sexual recidivism in samples of sexual offenders. If rape supportive cognition is a causal factor for sexual aggression, then we would expect the following pattern of results for each of the research designs outlined above: (1) sexually aggressive men would report more rape-supportive cognition than non-sexually aggressive men, (2) rape-supportive cognition would be positively correlated with indicators of sexually aggressive behaviour such as past sexually aggressive behaviour and/or proclivity to rape, (3) rape-supportive

⁸ Schema are defined as a network of learned associations between knowledge that influence the interpretation of, and aid in the processing of incoming information (Beech et al., 2013; Fiske & Linville, 1980; Mann & Beech, 2003). Theoretically, sexual offenders have distorted schema that bias their interpretation of incoming information in an offence supportive (schema consistent) manner – in the sexual offence literature these are often referred to as Implicit Theories (a.k.a., Thematic Networks; e.g., Ward, 2000; Ward et al., 2006).

cognition would predict sexual recidivism in sexual offender samples or sexually aggressive behaviour in samples of students and community men, and (4) change in rape-supportive cognition from pre to post-treatment would be associated with change in sexual recidivism.

Generally, the findings for research examining group differences between sexually aggressive and non-sexually aggressive men have been mixed. Some studies have found sexually aggressive men endorse more rape supportive cognition than non-sexually aggressive men (e.g., Abbey & McAuslan, 2004; Bumby, 1996; DeGue & DiLillo, 2004; DeGue, DiLillo, & Scalora, 2010; Lanier, 2001), whereas other studies have not (e.g., Blumenthal, Gudjonsson, & Burns, 1999; Pervan & Hunter, 2007; Seto & Lalumière, 2010). For example, in an offender sample Bumby (1996) found rapists endorsed significantly more rape-supportive cognition than non-sex offenders. Similarly, DeGue and colleagues (2010) found offenders who self-reported sexually aggressive behaviour endorsed significantly more rape-supportive cognition than non-sexually aggressive men. In contrast, Pervan and Hunter (2007) found rapists did not significantly differ from child molesters, non-sexually aggressive violent offenders, or male university students in levels of rape-supportive cognition. As well, in a recent meta-analysis Seto and Lalumière (2010) found juvenile sex offenders did not significantly differ from non-sex offenders in their cognitions about sex, women, or sexual offending ($d = -0.09$, 95% CI [-0.46, 0.27], $k = 9$, $n = 748$). Of note, however, this meta-analytic finding is not specific to sexual aggression against peer-aged victims or rape-supportive cognition; it is broader and includes adversarial cognitions about sex, women, and sexual offending against children and adults. Nevertheless, the overall findings suggest sexually aggressive

men do not consistently endorse more rape-supportive cognition than non-sexually aggressive men.

Cross-sectional research examining the relationship between rape-supportive cognition and indicators of sexually aggressive behaviour has found positive relationships between rape-supportive cognition and past sexually aggressive behaviour and/or proclivity to rape (e.g., Anderson, Cooper, & Okamura, 1997; Bernat, Stolp, Calhoun, & Adams, 1997; Blake & Gannon, 2010; Bohner, Jarvis, Eyssel, & Siebler, 2005; Burgess, 2007; Lanier, 2001; Malamuth, 1981; Murnen, Wright, & Kaluzny, 2002; Suarez & Gadalla, 2010). For example, in their meta-analysis Anderson and colleagues (1997) found significant positive relationships between rape-supportive cognition and past sexually aggressive behaviour ($r = .19$, 95% CI [.15, .23], $k = 6$) and proclivity to rape ($r = .38$, 95% CI [.34, .42], $k = 7$). As well, in a more recent meta-analysis Suarez and Gadalla (2010) found a large significant positive relationship between rape-supportive cognition and past sexually aggressive behaviour ($d = 0.91$, $k = 9$). Notably, researchers have found proclivity to rape is significantly associated with the commission of sexually aggressive behaviour in student samples, suggesting it is a reasonable indicator of sexually aggressive behaviour (Gidycz, Warkentin, Orchowski, & Edwards, 2011; O'Donohue, McKay, & Schewe, 1996). These results are consistent with the notion that rape-supportive cognition is a contributing factor in the perpetration of sexually aggressive behaviour.

Longitudinal research examining the relationship between rape-supportive cognition and sexual recidivism, however, has not found rape-supportive cognition predicts sexual recidivism among rapists. In a recent meta-analysis, Helmus and

colleagues (2013) found a small significant positive relationship between sexual offence-supportive cognition and sexual recidivism ($d = 0.22$, 95% CI [.14, .29], $k = 46$, $N = 13,782$) for all sex offenders, but when examining rape-supportive cognition in rapist samples specifically, they did not find rape-supportive cognition significantly predicted sexual recidivism ($d = 0.14$, 95% CI [-.17, .46], $k = 4$, $n = 460$). These findings suggest rape-supportive cognition does not increase the perpetration of subsequent sexual offences.

In contrast, longitudinal research with students and community men has found rape-supportive cognition predicts subsequent sexually aggressive behaviour (e.g., Abbey & McAuslan, 2004; Abbey et al., 2012; Hall, DeGarmo, Eap, Teten, & Sue, 2006; Thompson, Koss, Kingree, Goree, & Rice, 2010). Abbey and McAuslan (2004) examined the relationship between rape-supportive cognition and sexually aggressive behaviour over a one-year time interval in 197 male college students. In this sample, 35% reported engaging in at least one sexually aggressive act at Time 1. Within the one-year follow-up period, 14.2% of participants committed a new sexually aggressive act. Information about whether participants had engaged in sexually aggressive behaviour at two time points one year apart was used to divide participants into 4 mutually exclusive groups: *non-assaulters* ($n = 117$), *past assaulters* ($n = 52$, reported one or more sexual assaults at Time 1 only), *new assaulters* ($n = 11$, reported one or more sexual assaults at Time 2 only), and *repeat assaults* ($n = 17$, reported sexual assaults at Time 1 and 2). Using social desirability as a covariate, non-assaulters endorsed significantly less rape-supportive cognition at Time 1 relative to repeat-assaulters and new-assaulters, but did not significantly differ from past assaulters (partial $\eta^2 = .05$). These results suggest that men

who are actively sexually aggressive endorse more rape-supportive cognition than non-sexually aggressive men. The same pattern of results was also found with men from the community (Abbey et al., 2012). These findings are consistent with the notion that rape-supportive cognition is a contributing factor in the perpetration of sexually aggressive behaviour.

Past research has also found that sex offenders who participate in sex offender treatment evidence reduced rape-supportive cognition (e.g., Beggs & Grace, 2011; Eastman, 2004; Keeling, Rose, & Beech, 2006; Nunes, Babchishin, & Cortoni, 2011; Nunes, Pettersen, Hermann, Looman, & Spape, 2014; Olver, Kingston, Nicholaichuk, & Wong, 2014; O'Reilly, Carr, Murphy, & Cotter, 2010; Williams, Wakeling, & Webster, 2007). For example, Olver and colleagues (2014) found 274 federally incarcerated sex offenders endorsed significantly less rape-supportive cognition (RAPE scale [Bumby, 1996]) post-treatment (d change = 0.64). Similarly, Nunes and colleagues (2011) found 214 federally incarcerated sex offenders endorsed significantly less rape-supportive cognition (RAPE Scale [Bumby, 1996]) post-treatment (d change = 0.75). Although this seems promising, change in rape-supportive cognition has been found to be generally unrelated to sexual recidivism (Beggs & Grace, 2011; Hudson, Wales, Bakker, & Ward, 2002; Nunes et al., 2014; Olver et al., 2014). For example, Nunes and colleagues (2014) found change in rape-supportive cognition (RAPE scale [Bumby, 1996]) did not predict sexual recidivism for 144 federally incarcerated sex offenders. This pattern was also evident when only examining sex offenders who had problematic rape-supportive cognitive pre-treatment ($n = 19$); although, this sample size was very small, limiting statistical power to detect significant relationships. As well, Beggs and Grace (2011)

found change in rape-supportive cognition (Rape Myth Acceptance Scale [Burt, 1980]) was not associated with sexual recidivism for 202 incarcerated sex offenders. Thus, although research suggests that rape-supportive cognition can change for sex offenders participating in treatment, these changes seem to be unrelated to sexual recidivism. These results are inconsistent with the notion that rape-supportive cognition is a causal factor for sexual violence.

From the empirical literature reviewed above, it is clear that although there is some evidence for a relationship between rape-supportive cognition and sexually aggressive behaviour, the findings are mixed. In addition to methodological differences (e.g., sample or measures used), there are three possible explanations for these findings. The first potential explanation is that the pattern of results is inconsistent due to the fact that rapists are a heterogeneous population (Lalumière et al., 2005). Rape-supportive cognition is only one of several theoretical causal factors of sexually aggressive behaviour (e.g., Hall & Hirschman's [1991] quadripartite model of sexual aggression against adults; Malamuth's [1986; 2003] hierarchical-mediational confluence model; Ward & Beech's [2006] integrated theory of sexual offending). As such, it is possible that sexually aggressive men have varying levels of rape-supportive cognition; for some men rape-supportive cognition could be an important causal factor in sexually aggressive behaviour, whereas for other men it may not be. Depending on the sample of sexually aggressive men, this could make it difficult to distinguish between groups of sexually aggressive and non-aggressive men and to find a relationship between rape-supportive cognition and sexual recidivism.

It is also possible that rape-supportive cognition is only a correlate of sexually aggressive behaviour, not a causal factor. For example, it is possible that the same factors that theoretically cause sexually aggressive behaviour also cause increased levels of rape-supportive cognition, but that changes in rape-supportive cognition are unrelated to changes in sexually aggressive behaviour. This interpretation is consistent with the research that has found higher levels of rape-supportive cognition in sexually aggressive men, relationships between rape-supportive cognition and indicators of sexually aggressive behaviour, a lack of relationship between rape-supportive cognition and sexual recidivism, and a lack of relationship between change in rape-supportive cognition and sexual recidivism. It is inconsistent, however, with the results of Abbey and colleagues' (2004, 2012) longitudinal research that found men who committed sexually aggressive acts post Time 1 (i.e., new assaulters and repeat assaulters) endorsed more rape-supportive cognition at Time 1 than non-sexually aggressive men and men who had committed sexually aggressive behaviour prior to Time 1. If rape-supportive cognition were only a correlate of sexually aggressive behaviour, then we would expect all three sexually aggressive groups to endorse similar levels of rape-supportive cognition.

Alternatively, another possible explanation is that only certain types of rape-supportive cognition cause sexually aggressive behaviour (e.g., attitudes), whereas other types may be associated with, but not causally related to sexually aggressive behaviour. Maruna and Mann (2006) highlight this notion by differentiating between excuses and justifications for sexual offending and beliefs supportive of sexual offending⁹. They

⁹ Maruna and Mann (2006) use the term *attitude* (offence-supportive attitudes and beliefs), however they define attitude more broadly than evaluations of an attitude object. As such, the term belief is used instead.

suggest endorsing/creating excuses and justifications can be a normal and healthy response to committing transgressions (e.g., sexual offending), whereas beliefs supportive of sexual offending may contribute to the perpetration of sexually aggressive behaviour. This notion is also evident in the judgement model of cognitive distortions (Ward et al., 2006); this model suggests beliefs and value-based judgments influence the perpetration of sexually aggressive behaviour, whereas action-based judgments are by-products of engaging in sexually aggressive behaviour. As noted above, despite rape-supportive cognition encompassing a number of distinct cognitive constructs (Hermann et al., 2012; Nunes, Hermann, White et al., 2015), it is often measured as a unitary construct. If rape-supportive cognition is measured as a unitary construct and/or if the different types of cognitive constructs are not consistently represented in the measures used, then this could lead to inconsistencies in research and a lack of meaningful results. Thus, more clarity and precision in the conceptualization and measurement of rape-supportive cognitive constructs is needed in order to advance knowledge about the role of rape-supportive cognition in the perpetration of sexually aggressive behaviour.

Chapter 3: Evaluations of Rape

What are Evaluations of Rape?

As noted in the previous chapter, there has been a call for more precision and clarity regarding the types of cognition involved in sexual offending and their role in the sexual offence process (e.g., Gannon et al., 2007; Hermann et al., 2012; Maurina & Mann, 2006; Nunes et al., 2013; Nunes, Hermann, White et al., 2015; Ó Ciardha & Gannon, 2011; Ó Ciardha & Ward, 2013). In light of this, some researchers have started to focus their research efforts on understanding the role of evaluative cognitions (i.e., attitudes) in

the perpetration of sexually aggressive behaviour (e.g., Nunes et al., 2013; Nunes, Hermann, White et al., 2015; Widman & Olson, 2013). In our recent research, my colleagues and I have critically reviewed and contrasted the conceptualization and measurement of attitudes in the forensic/correctional literature and the more established social psychological literature (Nunes, Hermann, Maimone, & Woods, 2015; Nunes et al., 2013; Nunes, Hermann, White et al., 2015). From the social psychology literature, attitudes are evaluations of an attitude object; thus attitudes towards rape are evaluations of rape. Although the term ‘attitudes’ has been widely used in the sexual aggression literature, it is rarely used to refer to evaluations of sexually aggressive behaviour. For example, Feild’s (1978) Attitudes Towards Rape scale was designed to measure “people’s beliefs or opinions about rape” (p. 158) and measures designed to assess rape-supportive cognition such as Burt’s (1980) Rape Myth Acceptance Scale are commonly used as measures of attitudes towards rape (e.g., see Anderson et al., 1997). As a result of this, little research to date has examined the relationship between evaluations of sexually aggressive behaviour and the perpetration of sexually aggressive behaviour.

Are Evaluations of Rape Associated with Sexually Aggressive Behaviour?

To date, there are only a few studies that have examined the relationship between evaluations of rape and sexually aggressive behaviour. Of these studies, the first two studies summarized below do not examine evaluations of rape directly; instead they examined the relationship between the valence of the expected outcomes of rape and sexually aggressive behaviour (i.e., how positively and/or negatively an individual evaluates outcomes of rape, such as going to jail or sexual pleasure). Fishbein and Ajzen’s (1975) expectancy-value model of attitudes suggests that attitudes towards a

given behaviour are theoretically based on the aggregate valence of the expected outcomes of that behaviour. Similarly, both Ajzen's (1991, 2001) theory of planned behaviour and Fazio's (1990) MODE model suggest that evaluations of expected outcomes of behaviour are summarized as part of the attitude towards a particular behaviour. Thus, the valence of the expected outcomes of a particular behaviour can be used as an indicator of an individual's attitudes towards a particular behaviour¹⁰.

Of the studies examining the relationship between the valence of expected-outcomes of rape and sexually aggressive behaviour, both found a positive evaluation-behaviour relationship. O'Donohue et al. (1996) examined the relationship between the expected outcomes of raping a woman, self-reported past sexual coercion, and self-reported likelihood to rape with 167 male undergraduate students. They found that lower expectancies of negative outcomes of rape were significantly associated with greater past sexual coercion ($r = -.36$) and proclivity to rape ($r = -.39$). Bouffard (2002) also examined the relationship between the expected outcomes of rape and proclivity to rape with 129 male undergraduate students. Proclivity to rape was significantly correlated with the perceived expectancies and evaluation of negative outcomes of rape (respectively, $r = -.25$ and $r = -.17$) and the evaluation of positive outcomes of rape ($r = .21$). These findings suggest evaluations of outcome expectancies for rape are associated with sexually aggressive behaviour.

Widman and Olson (2013) examined the relationship between implicit evaluations of rape and self-reported past sexual aggression with 75 male undergraduate students and 50 male community participants. In the student sample, 36% ($n = 27$) of the

¹⁰ Measures assessing evaluations of outcome expectancies of rape will be referred to as explicit measures of evaluations of rape in this dissertation.

men had committed at least one sexually aggressive act since the age of 14 and, of that 36%, 5% ($n = 4$) committed attempted or completed rape. In the sample of community men, 60% ($n = 30$) of the men had committed at least one sexually aggressive act since the age of 14 and, of that 60%, 12% ($n = 6$) committed attempted or completed rape. Widman and Olson (2013) adapted Fazio's evaluative priming procedure (Fazio et al., 1995) to assess implicit evaluations of rape. In the student sample, they found that implicit evaluations of rape and a measure of rape supportive cognition were not significantly related ($r = .11$). As well, using negative binominal regression they found both positive implicit evaluations of rape ($d = 0.60$) and rape-supportive cognition ($d = 0.91$) were significantly associated with past sexual aggression. Furthermore, implicit evaluations of rape and rape-supportive cognition were independently associated with past sexual aggression. Similarly in the sample of community men, there was a medium, but non-significant relationship between implicit evaluations of rape and rape-supportive cognition ($r = .25, p = .08$). As well, using negative binomial regression they found that both implicit evaluations of rape ($d = 0.69$) and rape-supportive cognition ($d = 1.05$) significantly predicted past sexual aggression. Again, implicit evaluations of rape and rape-supportive cognition were independently associated with past sexual aggression. These results suggest that implicit evaluations of rape are a distinct cognitive construct and that both implicit evaluations of rape and, more generally, rape-supportive cognition are associated with sexual aggression.

Nunes et al. (2013) examined the relationship between implicit and explicit evaluations of rape, sexually aggressive behaviour, and proclivity to rape in a sample of 86 male university students. The IAT (Greenwald et al., 1998) was adapted to assess

implicit evaluations of rape. Large significant differences in both implicit and explicit evaluations of rape were found between participants who reported no past sexually aggressive behaviour and those who reported the most sexually aggressive behaviour (implicit evaluations of rape $d = 0.76$, 95% CI [0.11, 1.41]; explicit evaluations of rape $d = 0.85$, 95% CI [0.20, 1.50]). Similarly, large significant differences were found between participants who reported no proclivity to rape and those who reported the most proclivity to rape (implicit evaluations of rape $d = 0.94$, 95% CI [0.18, 1.69]; explicit evaluations of rape $d = 1.20$, 95% CI [0.43, 1.96]). Furthermore, both implicit and explicit evaluations of rape were significantly and independently related to past sexually aggressive behaviour (implicit evaluations of rape OR = 6.62, 95% CI [1.06, 41.48]; explicit evaluations of rape OR = 1.27, 95% CI [1.02, 1.58]). Implicit and explicit evaluations of rape were also associated with proclivity to rape, although implicit evaluations of rape only approached statistical significance (implicit evaluations of rape OR = 9.10, 95% CI [0.99, 83.48], $p = .05$; explicit evaluations of rape OR = 1.38, 95% CI [1.05, 1.81]). These findings suggest both implicit and explicit evaluations of rape are associated with sexually aggressive behaviour.

More recently, Nunes, Hermann, White et al. (2015) conducted a study exploring whether explicit evaluations of rape are distinct from rape-supportive cognition measured using the RAPE scale (Bumby, 1996), a popular self-report measure of rape-supportive cognition that is currently used to assess treatment needs and change in rape-supportive cognition in sexual offenders (e.g., see Nunes et al., 2014). They conducted an exploratory factor analysis on items from the RAPE scale and a measure of explicit evaluations of rape (Evaluation of Rape Scale) using a large sample of male

undergraduate students ($N = 660$) and found the items assessing explicit evaluations of rape formed a distinct latent factor. Additionally, they found that the explicit evaluations of rape and the rape-supportive cognition independently predicted past sexually aggressive behaviour and proclivity to rape. These findings suggest evaluations of rape are distinct from rape-supportive cognition as measured by the RAPE scale, and that they are associated with indicators of sexually aggressive behaviour.

Hermann and colleagues (2015) also examined implicit evaluations of rape¹¹ with a small sample of rapists ($n = 27$) and non-sexual offenders ($n = 16$). Specifically, Hermann and colleagues (2015) examined the influence of sexual arousal on implicit evaluations of rape as measured by an IAT, using a within-subjects research design. Of note, this IAT was a modified version of the one used in Nunes et al. (2013). Counter to what was hypothesized, Hermann and colleagues (2015) found rapists implicitly evaluated rape significantly more negatively than non-sexual offenders ($d = -0.92$, 95% CI [-1.63, -0.21]). They did find, however, that rapists implicitly evaluated rape significantly more positively when sexually aroused than when not sexually aroused (arousal condition d change = 1.04, 95% CI [0.23, 1.85] vs. neutral condition d change = 0.56, 95% CI [-0.08, 1.20]). The same pattern of results was not observed for non-sexual offenders (arousal condition d change = 0.21, 95% CI [-0.60, 1.02] vs. neutral condition d change = 0.40, 95% CI [-0.30, 1.10]). These results are consistent with the notion that evaluations of rape may play a role in sexual offending, but only under certain conditions (e.g., when sexually aroused).

¹¹ Explicit evaluations of rape were also assessed, but these data were essentially constant and as a result are not reported here.

Maimone, Hermann, Atlas, Berliant, and Nunes (2013) also examined the relationship between implicit and explicit evaluations of rape and indicators of sexually aggressive behaviour in a sample of male students ($N = 72$). In this study, two measures of implicit evaluations of rape were used; an IAT adapted to assess implicit evaluations of rape (see Hermann et al., 2015) and the Affect Misattribution Procedure (AMP; Payne, Cheng, Govorun, & Stewart, 2005) adapted to assess implicit evaluations of rape. The measures of implicit evaluations of rape were not correlated with each other ($r = -.14$, ns), self-reported past sexually aggressive behaviour (IAT $r = .11$, ns; AMP $r = -.04$, ns), or proclivity to rape (IAT $r = -.15$, ns; AMP $r = .06$, ns). However, the IAT measure was significantly and positively associated with explicit evaluations of rape ($r = .25$, $p < .05$). Measures of explicit evaluations of rape were significantly correlated with each other ($r = .30$, $p < .05$), self-reported sexually aggressive behaviour ($r = .67$, $p < .001$), and proclivity to rape ($r = .34$, $p < .01$). The results of this study and Hermann et al.'s (2015) study suggest more research is needed examining the role of implicit evaluations of rape in sexually aggressive behaviour, as these findings are inconsistent with those of both Nunes et al. (2013) and Widman and Olson (2013).

Overall, the results of the studies examining evaluations of rape to date are preliminary but promising, and suggest there is a positive relationship between evaluations of rape and sexually aggressive behaviour; this being particularly true for explicit evaluations of rape. These results are consistent with the notion that evaluations of rape play a causal role in the initiation and maintenance of sexual violence. Although promising, these results are preliminary and need to be replicated and extended. Specifically, there are several limitations in these studies that can be addressed. One key

limitation is the use of cross-sectional research designs. Cross-sectional research designs do not allow for conclusions to be drawn regarding the direction of influence between the variables studied. This means, for example, it is unknown whether evaluations of rape predict sexually aggressive behaviour, if sexually aggressive behaviour predicts evaluations of rape, or both (Kazdin, 2003). Longitudinal research designs can be used to start addressing this limitation. Another potential limitation is the use of primarily student samples. Student samples may not be fully representative of the larger population of sexually aggressive men because the typical characteristics of antisocial men are not conducive to educational aspiration or success (e.g., Andrews & Bonta, 2010). For example, because sexually aggressive men tend to engage in more antisocial sexually aggressive and non-aggressive behaviour than non-sexually aggressive men, this may preclude them from gaining a post-secondary education (e.g., Lalumière et al., 2005). The use of additional sample types, such as men recruited from the community, can add to the generalizability of these findings. Of note, however, Widman and Olson (2013) found the same pattern of results for the relationship between implicit evaluations of rape and sexually aggressive behaviour for students and community men. Thus, there is some preliminary evidence across samples for a positive relationship between evaluations of rape and sexually aggressive behaviour. Future studies examining and expanding upon this research are needed to further understand the role of evaluations of rape in sexual violence.

Chapter 4: Increasing Generalizability with Community Based

Samples of Sexually Aggressive Men

To date, few studies have examined predictors of rape in samples of community men (see Abbey et al., 2007; Greene & Cue Davis et al., 2011)¹². Prior research has primarily used incarcerated or student samples that may not be fully representative of sexually aggressive men (e.g., Abbey et al., 2007; Greene & Cue Davis, 2011). Many victims do not report their sexual assaults to the police (e.g., Brennan & Taylor-Butts, 2008) and even when they are reported, many do not result in conviction, and even fewer result in prison sentences (Public Safety Canada, 2010). As a result, incarcerated samples may only represent one extreme of sexually aggressive men. Furthermore, there are a number of potentially important differences between incarcerated samples of rapists and sexually aggressive men in the community. For example, research suggests that incarcerated rapists are “more antisocial, more hostile, and less empathic; have more favourable perceptions of rape, and have more conservative attitudes toward women and sexuality” relative to non-offenders (Lalumière et al., 2005, p. 78-79). Lalumière et al. (2005) suggest that when comparing incarcerated rapists to non-sex offenders (e.g., violent offenders), however, many of these differences are reduced or are no longer statistically significant, suggesting there are important differences between offenders more generally and non-offenders. Thus, it is important to examine the relationship

¹² As noted above, to the best of my knowledge, the following are the only studies that examine *predictors of rape* using a community sample (15 studies; 9 independent samples): Abbey et al., 2006; Abbey et al., 2007; Abbey, Jacques-Tiura, & LeBreton, 2011; Abbey & Jacques-Tiura, 2011; Abbey et al., 2012; Calhoun et al., 1997; Cue Davis et al., 2014; Greene & Cue Davis, 2011; Jacques-Tiura et al., 2015; Knight & Sims-Knight, 2003; Lim & Howard, 1998; Senn et al., 2000; Wegner et al., 2015; Widman & Olson, 2013; Widman et al., 2013. As well, some of these studies use the same sample of participants (Abbey et al., [2006] and Abbey et al. [2007] shared a sample; Abbey, Jacques-Tiura, & LeBreton, [2011], Abbey & Jacques-Tiura, [2011] and Abbey et al., [2012], Jacques-Tiura et al. [2015], and Wegner et al. [2015] shared a sample; Widman & Olson [2013] and Widman et al. [2013] shared a community sample).

between potential causal factors of sexual aggression and sexually aggressive behaviour in both community and incarcerated samples of participants.

Although student samples complement incarcerated samples, student samples also may not be fully representative of sexually aggressive men. Although sexual aggression against adults is a well-known problem for college and university campuses, the typical characteristics of antisocial men are not conducive to educational aspiration or success (e.g., a lack of education [i.e., not completing high school] is one risk factor for criminal behaviour, Andrews & Bonta, 2010). Knowing this, it is likely that student samples are not fully representative of sexually aggressive men. Community samples can address this limitation by sampling from a non-incarcerated and non-student based sample of men. Importantly, community samples can offer more diversity in terms of ethnicity (Casler, Bickel, & Hackett, 2013; Paolacci, Chandler, & Ipeirotis, 2010), employment status and history (Behrend, Sharek, Meade, & Wiebe, 2011), age (Behrend et al., 2011; Casler et al., 2013; Paolacci et al., 2010), and education (Paolacci et al., 2010), than student samples (Buhrmester, Kwang, & Gosling, 2011). By focusing primarily on these two extremes (i.e., college and incarcerated samples), researchers may be missing a large population of sexually aggressive men. Community samples can be used to complement student and incarcerated samples, and can potentially increase the generalizability of research results.

One potential concern when using samples of community men for research on sexual aggression may be whether participants will be willing to report engaging in such behaviour. Similar to student samples, researchers have found that participants recruited from the community do in fact report engaging in a variety of sexually coercive and

aggressive behaviours (e.g., Abbey et al., 2012; Calhoun et al., 1997; Cue Davis et al., 2014; DiNitto et al., 2008; Greene & Cue Davis, 2011; Widman et al., 2013). For example, Abbey and colleagues (2012) obtained a large sample of young men ($N = 423$; 18-35 years old) from the community and found that 43% of participants reported that they had engaged in sexually aggressive behaviour since the age of 14 years old, and that 25.5% reported they had engaged in sexually aggressive behaviour over the past year. In terms of severity of sexually aggressive behaviour, 1.4% reported they had committed attempted rape and 5.4% reported they had committed completed rape in the past year. Similarly, Widman and colleagues (2013) found 59% of men in a community sample ($N = 49$) reported committing at least one sexually aggressive act, 47% reported committing more than one sexually aggressive act, and that 28% reported committing five or more sexually aggressive acts since the age of 14 years old. In terms of severity of sexually aggressive behaviour, 6% reported attempted rape and 8% reported they had committed rape since the age of 14 years old. These results suggest that community men are willing to report engaging in sexually aggressive behaviour, including attempted and completed rape.

Another concern when using community samples, relative to incarcerated samples, is the lack of official records to corroborate self-reported sexually aggressive behaviour. Generally, research suggests that using self-report methodology to assess engagement in delinquency and crime is reliable and valid (see Piquero, Schubert, & Brame, [2014] and Thornberry & Krohn, [2000] for overviews; e.g., Jolliffe, Farrington, Hawkins, Catalano, Hill, & Kosterman, 2003; Jones & Miller, 2012; Kroner, Mills, & Morgan, 2007; Weinrott & Saylor, 1991; Woods, Nunes, Hermann, McPhail, & Sewell,

2011). As well, research suggests that convicted rapists can accurately self-report engaging in sexually aggressive behaviour (Weinrott & Saylor, 1991; Woods et al., 2011). For example, Weinrott and Saylor (1991) surveyed a sample of sex offenders ($N = 99$), asking them to self-report how often they have engaged in sexual aggression against adults, sexual aggression against children, and non-sexual criminal behaviour (e.g., stealing, assault, selling or using hard drugs). Of the 99 participants, 37 were convicted of rape against an adult female. These 37 participants had been charged with a total of 66 sexual offences against adult women and, on average, had 1.8 victims. The same 37 participants self-reported 433 rapes and, on average, had 11.7 victims. Furthermore, the majority of participants accurately self-reported their number of prior arrests (79%), and of the participants who incorrectly reported their number of prior arrests, most were incorrect by only one prior arrest. In addition, Woods and colleagues (2011) found 86% agreement on offence related information between self-report and file-based information (i.e., Static-99 variables) for a small sample of sex offenders ($N = 21$; $n = 12$ rapists). Generally these results suggest that sexually aggressive men are willing to self-report engaging in sexually aggressive behaviour and that self-report methods can be a valid measure of sexual aggression.

In sum, research on samples of community men can complement research on student and incarcerated samples, allowing for a more complete understanding of the causal factors of sexual aggression against adults. Furthermore, research suggests that using samples of community men for research on sexual aggression is feasible as community men are willing to report engaging in sexually aggressive behaviour,

including attempted and completed rape, and that self-reported sexually aggressive behaviour can be a valid indicator of sexual violence.

Chapter 5: Online Research Methodology

In recent psychological research, there has been an influx of studies using online surveys to examine psychological questions. In particular, researchers have started to use crowdsourcing web services to recruit large numbers of community participants for their research (e.g., Behrend et al., 2011; Buhrmester et al., 2011; Goodman, Cryder, & Cheema, 2013; Mason & Suri, 2012; Paolacci et al., 2010; Shapiro, Chandler, & Mueller, 2013). Crowdsourcing can be defined as “the paid recruitment of an online, independent global workforce for the objective of working on a specifically defined task or set of tasks” (Behrend et al., 2011, p. 801). Thus, crowdsourcing provides large pools of potential participants who are willing to complete tasks, such as online surveys, for compensation (e.g., money, consumer points etc.). Often, these online pools of participants are referred to as *online panels*¹³ (e.g., Göritz, 2007). One of the most well known crowdsourcing web services is Amazon’s Mechanical Turk (MTurk; see Buhrmester et al., 2011 for an overview; Mason & Suri, 2012); there are, however, a number of online panels from which participants can be recruited (Göritz, 2007). Online panels can be accessed directly by researchers (e.g., MTurk) or can be accessed through companies that host online surveys and/or manage data collection (e.g., Qualtrics). In sum, large numbers of community participants can be recruited for psychological research from online panels of participants.

¹³ Göritz (2007) defines an online panel as “a pool of registered people who have agreed to occasionally take part in web-based studies” (p.473).

Using online panels of participants for psychological research has raised a number of methodological questions from researchers; in particular, researchers are concerned about the generalizability of the obtained results and the reliability and validity of the data collected. Generalizability refers to the applicability of the results of one study to other research, settings or circumstances, samples of participants, and/or populations (Meltzoff, 2011). Accordingly, the demographic characteristics of an online panel of participants are an important consideration when conducting research. Generalizability is, of course, online panel dependent; however, research does suggest that online panels can be a close approximation of general populations of interest¹⁴ (Goodman et al., 2012; Paolacci et al., 2010), and can provide more diverse samples in terms of ethnicity (Casler, Bickel, & Hackett, 2013; Paolacci et al., 2010), employment status and history (Behrend et al., 2011), age (Behrend et al., 2011; Casler et al., 2013; Paolacci et al., 2010), and education (Paolacci et al., 2010), than student samples (Buhrmester et al., 2011). More generally, research suggests that the majority of the North American population now has access to the Internet at home (The Daily, 2013; United States Census Bureau, 2014) making it possible for them to participate in online research; this, in turn, increases the generalizability of research conducted online. For example, the Canadian Internet Use survey of 2012 estimates that 83% of Canadian households have access to the Internet (The Daily, 2013) and the United States Census Bureau (2014) estimates 74.8% of households have access to the Internet. Thus, online panel research can add to research

¹⁴ MTurk U.S. participants were similar to general U.S. population (e.g., Goodman et al., 2013), however, research has found that on average MTurk participants tend to be younger (average age early to mid 30s), more educated, Caucasian, and middle class (Mason & Suri, 2012; Paolacci et al., 2010; Shapiro et al., 2013).

conducted with student samples, in that it can increase the generalizability of research findings.

Ensuring data are reliable and valid is the other primary methodological concern of online panel research. Currently researchers are advised to screen for non-serious responding and inattention, using methods such as quality control questions and/or instructions (e.g., asking participants to respond in a certain way) and examining survey response times for unusually quick responding (for examples see Behrend et al., 2011; Goodman et al., 2013; and Paolacci et al., 2010). After screening out participants for non-accurate responding, research has found that online panel data are reliable and valid (e.g., Buhrmester et al., 2011; Casler et al., 2013; Goodman et al., 2013; Horton, Rand, & Zeckhauser, 2011; Paolacci et al., 2010; Shapiro et al., 2013). For example, Paolacci and colleagues (2010) replicated three well-established judgment and decision-making psychological effects¹⁵ (i.e., framing effect, conjunction fallacy, and outcome bias), in online surveys with samples recruited from an online panel (MTurk), students, and participants recruited through various websites. These three samples all demonstrated the same pattern of results, suggesting online panel research is as valid as research using more traditional samples. Similarly, Casler and colleagues (2013) conducted the same psychological experimental task with three different samples; students tested in-lab, participants recruited from an online panel (MTurk) tested using an online survey, and participants recruited through various social media websites (e.g., Facebook, Reddit, etc.)

¹⁵ Framing effects are evidenced by participants choosing more risky solutions when a problem is framed in terms of losses instead of gains. Conjunction fallacy is evidenced when participants regard a combination of events as more probable than a single event. Outcome bias is evidenced when participants evaluate the quality of a decision more highly when the judgment is followed by a success rather than a failure.

tested using an online survey. Again, the same pattern of results was found for all three samples, suggesting online panel research can be as valid as in-lab testing with traditional samples. Together these findings suggest that the data obtained from online panels of participants are valid.

Research has also found online panel data are reliable. For example, Buhrmester and colleagues (2011) report that in a large sample of online panel participants (MTurk; $N = 3,006$) the average internal consistency for six personality questionnaires was excellent (mean $\alpha = .87$) and was consistent with what is typically obtained with traditional samples. As well, they found high test-retest reliability for measures of individual differences administered 3-weeks apart (mean $r = .88$). In addition, Shapiro and colleagues (2013) examined the reliability of demographic information (e.g., sexual orientation, employment status, psychiatric and health history) reported across a one-week time interval in a sample of online panel participants (MTurk); they found 97.5% of participants reported consistent demographic information ($n = 387$ of $N = 397$). Thus, research also suggests that data collected using online panel participants is reliable.

In addition to the more general methodological concerns noted above, there are several methodological questions about online research that are particularly relevant for the current dissertation. Specifically, the current study utilizes an anonymous and longitudinal research design, as such it is important to determine whether conducting longitudinal research online is a viable option and whether participants can be matched across waves of data collection anonymously online. To date, there have been several studies that have conducted longitudinal research using online research methodology (e.g., Hiskey & Troop, 2002; Peter & Valkenburg, 2009; Trepte & Reinecke, 2013;

Ybarra, Strasburger, & Mitchell, 2014); some of which have been conducted using online panels (e.g., Peter & Valkenburg, 2009; Ybarra et al., 2014) and some of which have recruited participants from various websites online (e.g., Hiskey & Troop, 2002; Trepte & Reinecke, 2013). Of note, some of these surveys have asked about sensitive information such as adverse life events (Hiskey & Troop, 2002), exposure to pornography and sexual satisfaction (Peter & Valkenburg, 2009), and sexual behaviours and victimization (Ybarra et al., 2014). For example, Hiskey and Troop (2002) recruited participants ($N = 370$) online for a study on adverse life events (e.g., sexual assault, life-threatening illness, accident etc.) from a number of websites. After completing the survey, participants were asked if they would be interested in completing follow-up surveys at two time points: three months after initial participation and three months following the second participation. If participants were interested, they were asked to provide an e-mail address so that they could be invited to participate in the follow-up studies. Of the 370 participants, 132 (36%) signed up for the follow-up studies, and of these 132 participants, 61% ($n = 80$) participated in Wave 2 and 41% ($n = 54$) completed wave 3. Although attrition was high, these results suggest it is possible to successfully conduct longitudinal research on sensitive topics online.

Ensuring participants' anonymity is important when studying criminal behaviour. Anonymity protects participants who report engaging in criminal behaviour, and protects researchers from ethical duties to report criminal behaviour. Anonymity poses a problem for longitudinal research, however, as researchers need to be able to match participants' data across waves of data collection. One solution currently used in research is to ask participants to report a Self Generated Identification Code (SGIC) (e.g., DiIorio, Soet,

Van Marter, Woodring, & Dudley, 2000; Grube, Morgan, & Kearney, 1989; Kearney, Hopkins, Mauss, & Weisheit, 1984; Kristjansson, Sigfusdottir, Sigfusson, & Allegrante, 2014; McGloin, Holcomb, & Main, 1996; Schnell, Bachteler, & Reiher, 2010; Trepte & Reinecke, 2012; Yurek, Vasey, & Sullivan Havens, 2008). SGICs are created by asking participants to respond to a number of personally relevant questions (e.g., birth year, sex, middle initial) in each wave of data collection; responses to these questions are then combined into a unique identification code that can be used to match participants across data collection waves (see Schnell et al., [2010] and Yurek et al., [2008]). There are several key characteristics of SGIC questions that increase the match rate obtained between waves of data collection, these are: stability, variability, and proximate relevance (Yurek et al., 2008). Stability refers to the notion that SGIC questions should ask participants about information that is unlikely (or impossible) to change (e.g., birth year). Variability refers to the notion that SGIC questions need to produce answers that vary across the population of study (e.g., birth month, first initial). If all participants are expected to answer the SGIC with approximately the same response, then this reduces the uniqueness of the final SGICs. SGIC questions should also be personally relevant (proximate relevance) as it is easier for participants to accurately and consistently report information that is more personally relevant (e.g., participant's birth month) than information that is less personally relevant (e.g., maternal grandmother's birth month) (Yurek et al., 2008).

There are two common concerns regarding the use of SGICs in longitudinal research. The first concern is the average percentage of 'exact matches' (i.e., participants responded consistently to all SGIC questions across waves of data collection) and the

second concern is the average number of false positives (i.e., incorrectly matching data across waves that belong to two different participants). With regard to the first concern, research has found exact match rates range from 40% to 90%, with the majority falling in the low to mid 60% range (see Schnell et al., 2010 for an overview; e.g., DiIorio et al., 2000; Grube et al., 1989; Kearney et al., 1984; Kristjansson et al., 2014). To increase the match rate across waves, researchers often allow SGICs to differ across waves by one (one-off rule) or two (two-off rule) questions after the exact matches have been removed. Implementing the one-off rule often increases the match rate to the low to mid 70% range (see Schnell et al., 2010; DiIorio et al., 2000; Grube et al., 1989; Kearney et al., 1984). Although the exact match and one-off match rates are less than ideal, it is possible that they can be increased by clearly stressing the importance and purpose of the SGIC questions in the survey instructions, increasing the number of SGIC questions asked (most studies ask approximately seven SGIC questions; Schnell et al., 2010), and by focusing on questions that are stable in nature, but that would result in variability in responding from the participants surveyed.

Two studies to date have assessed false positive rates for SGIC use. In each of these studies researchers used two independent methods for identifying participants and matching their data across waves, one of which were SGICs (Kearney et al., 1984; McGloin et al., 1996). In both studies, participants were asked to complete SGICs and were provided with sticker labels with unique identification codes that were used to track participants' data across data collection waves. When examining only exact matches, there were no false positives (Kearney et al., 1984) and when employing the one-off rule, less than 5% of matches were false positives (Kearney et al., 1984; McGloin et al., 1996).

The results of these studies suggest that there are a minimal number of false positives when using SGICs, even when the one-off rule is employed. Thus, the SGIC is one method for maintaining participant anonymity in longitudinal research.

A final methodological concern relevant for the current dissertation is whether implicit and explicit attitudes can be reliably and validly assessed online. One of the largest sources of evidence suggesting that attitudes can be assessed online is Project Implicit (<https://implicit.harvard.edu/implicit/>). Project Implicit is a multi-university collaboration that was founded by Drs. Anthony Greenwald, Mahzarin Banaji, and Brian Nosek in 1998 to assess implicit cognition online. This website hosts a number of studies assessing implicit cognition, some of which assess implicit and explicit attitudes towards various attitude objects. Researchers using the data obtained from Project Implicit have found the data to be reliable and valid (e.g., Greenwald, Smith, Sriram, Bar-Anan, & Nosek, 2009; Nosek, Banaji, & Greenwald, 2002; Sabin, Marini, & Nosek, 2012; Sabin, Nosek, Greenwald, & Rivara, 2009). For example, Greenwald and colleagues (2009) assessed implicit and explicit attitudes towards race (Black vs. White) and participants' intentions to vote for either the White (McCain) or Black (Obama) presidential candidate, using data from Project Implicit. As expected, they found implicit and explicit attitudes towards race significantly predicted intention to vote (i.e., more positive attitudes towards White people predicted intention to vote for the White presidential candidate). These results are consistent with research on racial attitudes conducted in-lab (e.g., Dasgupta, McGhee, Greenwald, & Banaji, 2000; McConnell & Leibold, 2001). As well, Sabin and colleagues (2012) assessed implicit and explicit attitudes towards overweight people (relative to thin people) using data from Project Implicit and found that both the general

population and a sub-sample of medical doctors had strong negative attitudes towards overweight people (i.e., ‘anti-fat bias’). Again, these results are consistent with what is typically found in studies on the ‘anti-fat bias’ in-lab (e.g., Brochu & Morrison, 2007; Teachman, Gapinski, Brownell, Rawlins, & Jeyaram, 2003). The data from project implicit suggest that implicit and explicit attitudes can be assessed online.

Online research methodology is a viable option for studying sexually aggressive behaviour. As reviewed above, research suggests that online panels can provide representative, reliable, and valid data. Furthermore, anonymous longitudinal research designs are feasible for studying sensitive research questions. As well, evidence suggests that both implicit and explicit attitudes can be accurately assessed online. Thus, online research methodology is a worthwhile approach to studying sexually aggressive behaviour.

Summary

From the literature summarized above, it is clear that more research is needed examining the role evaluations of rape play in sexually aggression against adults. As noted above, implicit and explicit attitudes are unique cognitive constructs that theoretically and empirically predict subsequent behaviour. To date, most research examining cognition in the sexual offender literature has focused on assessing rape-supportive cognition more generally, not specifically evaluations of rape. In order to more fully understand the role rape-supportive cognition plays in sexual aggression against adults, it is important to separately examine the relationship between different rape-supportive cognitive constructs and sexually aggressive behaviour. In light of this, some researchers have turned their attention towards examining evaluations of rape, and

they have found preliminary evidence suggesting implicit and explicit evaluations of rape are associated with indicators of sexually aggressive behaviour (Nunes et al., 2013; Nunes, Hermann, White et al., 2015; Widman & Olson, 2013). Importantly, this research needs to be replicated and expanded upon with samples of students and community men, using longitudinal research designs. Online research methodology, particularly online panels, can provide large representative samples of community men to complement student samples in research examining evaluations of rape. Thus, the purpose of this dissertation is to explore the relationship between implicit and explicit evaluations of rape and self-reported sexually aggressive behaviour against adults using a longitudinal research design, in large samples of students and community men recruited online.

Overview of the Dissertation

Three studies were conducted in this dissertation. Prior to conducting the longitudinal study, it was important to first establish whether the use of self-generated identification codes (SGICs) would be an acceptable method for tracking participants anonymously online. Thus, the purpose of Study 1 (Study 1A and Study 1B) was to examine the utility of SGICs in longitudinal research. Prior to conducting the longitudinal study, it was also important to examine the relationships between implicit and explicit evaluations of rape and indicators of sexually aggressive behaviour with students and community men recruited online, using a cross-sectional research design; thus, this was the purpose of Study 2. Furthermore, the rates of self-reported sexually aggressive behaviour and the utility of the SGICs in samples of students and community men recruited online were also explored. Study 3 (Wave 1 and Wave 2) addressed the primary purpose of this dissertation, which was to examine the relationship between implicit and

explicit evaluations of rape and sexually aggressive behaviour using a longitudinal research design. Research questions and hypotheses for each study are presented below.

Study 1: Self-Generated Identification Codes (SGIC)

Two studies were conducted to examine the utility of SGICs for longitudinal research on sexually aggressive behaviour. Specifically, the purpose of these studies was to examine the uniqueness of the SGICs in student and community samples, the number of exact matches obtained across waves of data collection, and the percent agreement for SGIC questions across waves of testing.

Study 1A: 6 Question SGICs

Research Questions and Hypotheses

(1) What is the exact match rate for 6 SGIC questions in a student sample over a one-month period?

H1: A minimum exact match rate of 60% is expected based on prior research (see Schnell et al., 2010 for an overview; e.g., DiIorio et al., 2000; Grube et al., 1989; Kearney et al., 1984; Kristjansson et al., 2014).

(2) How unique are SGICs?

H1: All participants were expected to have unique identification codes.

Methods

Participants

Participants were 193 students recruited from the psychology participant pool (SONA) at Carleton University; participants received course credit (0.5%) for participating in the current study. Furthermore, interested participants were entered into a draw for an Amazon gift card worth \$250.00. Participants were excluded if they were female or missing data on this item ($n = 16$), reported they could not understand written English or were missing data on this item ($n = 7$), or were missing data on one of the six

SGIC questions ($n = 14$). This resulted in a final sample size of 168 male students. Of note, the exclusion categories are not mutually exclusive. The majority of participants were between 18 and 19 years old (52.4%, $n = 88$), identified as White (67.3%, $n = 113$), reported English was their first language (79.8%, $n = 134$), were single (61.3%, $n = 103$), and identified as heterosexual (92.3%, $n = 155$) (see Table 1).

Table 1

Demographic Characteristics of the Student Sample

Demographic Characteristics	%	<i>n</i>
Age		
16-17	1.8	3
18-19	52.4	88
20-24	39.3	66
25-29	4.2	7
30-34	-	-
35-39	1.2	2
40-49	1.2	2
Race		
White	67.3	113
Black	2.4	4
Asian	11.3	19
Aboriginal	0.6	1
East Indian	2.4	4
Hispanic/Latino	1.2	2
Arab	7.7	13
Other	7.1	12
English First Language^a		
Yes	79.8	134
No	19.0	32
Relationship Status		
Married	1.8	3
Living With Romantic Partner	6.5	11
In a Romantic Relationship	27.4	46
Single	61.3	103
Other	3.0	5
Sexual Orientation		
Heterosexual	92.3	155
Homosexual	3.0	5
Bisexual	4.2	7
Other	0.6	1

Note. ^a $n = 2$ missing data.

Measures

Demographic questionnaire. Participants were asked a number of questions about their demographic information, these included questions about their age, sex, race, ability to understand English, relationship status, and sexual orientation (see Appendix A).

SGIC questions. Participants were asked to complete six questions to create their SGIC. The questions used to create the SGIC were developed for the current study and are listed in Table 2. The questions used were based on questions used in previous research (e.g., DiIorio et al., 2000; Kearney et al., 1984; Schnell et al., 2010; Yurek et al., 2008). Participants were instructed to answer the questions as honestly and accurately as possible.

Table 2

SGIC Questions Used in Study 1A

SGIC Questions	Response Format	Example
What is your shoe size?	Open ended text	10
What day of the month is your birthday? (dd)	Open ended text	06
What is your height in inches? e.g. 5 feet 5 inches (If you know your height in cm, please skip this question)	Pull down menu for feet Pull down menu for inches	6 ft 2 in
OR		
What is your height in cm? (If you answered in inches, please skip this question)	Sliding scale for cm	--
What is the last letter of your first name? (e.g., if John write n)	Open ended text (letters converted into numbers)	N (14)
What is the last letter of your last name? (e.g., if Smith write h)	Open ended text (letters converted into numbers)	H (8)
What is your mother’s birth month (mm)? For example, if your mother was born in August you would write 08 (if you do not know please write NA).	Open ended text	08
SGIC		10066214808

Procedure

The demographic and SGIC measures were completed as part of a larger online survey examining rape-supportive cognition. Participants were recruited from Carleton University through the psychology participant pool (i.e., SONA). Participants were first provided with a consent form (Appendix B) outlining the study details. If participants agreed to participate, they were presented with the SGIC questions, followed by the demographic questionnaire (Appendix A). Participants were then asked to complete a number of questionnaires about their opinions and experiences with sexually aggressive

behaviour (results not reported here). Following the completion of the questionnaires, participants were presented with a debriefing form (Appendix C).

Participants were also asked if they were interested in participating in a second survey one-month following their survey completion date. In order to keep participants' responses to the questionnaires about sexually aggressive behaviour anonymous, contact information was collected in a separate survey. At the top of the debriefing form participants were provided a link to an additional survey where they could enter their contact information for (1) a draw for an electronic Amazon gift card, and (2) to opt to participate in a follow-up survey one-month following their survey completion date. If participants clicked on the link it redirected them to a new survey that asked for (1) their contact information (e-mail address or mailing address), (2) whether they would be interested in participating in a follow-up survey one month from the survey completion date, and (3) if they were interested in participating in the follow-up survey, the best method to invite and remind them to participate (e-mail, telephone, mail; see Appendix D). Participants who provided contact information in the follow-up survey were contacted approximately one month after they completed the first survey (Appendix E) and asked to complete the same survey for a second time.

Results

In the first survey, 168 male students had complete information for the SGIC questions. The majority of the SGICs were unique; there were only two pairs of participants (i.e., four participants) out of 168 participants who had the same SGIC. Of the 168 participants, 81 completed the contact information survey. Of the 81 participants, only 28 reported they would be interested in completing the follow-up survey, and of

these 28 participants only 8 completed the follow-up survey. In the follow-up survey, one pair of participants shared the same SGIC and 5 of 8 participants reported the same SGIC as in Study 1 (62.5% exact match rate).

Discussion

The SGIC questions used, for the most part, produced unique SGICs for participants and, although seemingly low, the exact match rate is consistent with what has been found in past research (see Schnell et al., 2010 for an overview; e.g., DiIorio et al., 2000; Grube et al., 1989; Kearney et al., 1984; Kristjansson et al., 2014). There were several problems with how the SGIC data were collected, however, that could be improved upon in the following studies. Specifically, the open ended text responses allowed participants to respond to the SGIC questions in a variety of ways (e.g., using numbers, decimal points, fractions, and text); this made it difficult to combine responses into a single SGIC code. For example, shoe size was reported in a variety of ways, such as 10.5, 10 ½, and 10 and a half. As well, asking participants to report their height in inches or centimeters resulted in some participants reporting both; some of the time their responses would not result in the same height. Future research should address these limitations as they may impact the ability to successfully track participants anonymously in longitudinal studies online.

Study 1B: 12 Question SGICs

The purpose of the second SGIC study (Study 1B) was to improve the SGIC questions used in Study 1A. A number of new SGIC questions were developed and the previously used questions (Study 1A) were modified; particularly, response formatting was modified to limit how participants could respond to each question, and SGIC

question instructions were modified to stress the importance of honest and accurate responding.

Research Questions and Hypotheses

The same research questions and hypotheses as listed in Study 1A applied to the current study.

Methods

Participants

Student sample. Participants were 33 students recruited through the psychology participant pool (SONA) at Carleton University; participants received course credit (0.25%) for participating in the current study. Participants were excluded if they failed the quality control questions ($n = 0$), reported that they could not understand written English ($n = 1$), or were missing data on one of the 12 SGIC questions ($n = 2$). This resulted in a final sample size of 30 students. The majority of participants were between 18 and 19 years old (56.7%, $n = 17$), were male (63.3%, $n = 19$), identified as White (66.7%, $n = 20$), and were single (56.7%, $n = 17$) (see Table 3).

Community sample. Participants were 40 individuals from the community recruited online. Participants were recruited using a recruitment advertisement posted on various websites (e.g., Craigslist, Kijiji, and Facebook), and did not receive any compensation for participating in this study. Participants were excluded if they did not complete the survey ($n = 19$), failed one or more of the quality control questions ($n = 24$), reported that they could not understand written English or were missing data on this item ($n = 2$), or were missing data on one of the 12 SGIC questions ($n = 1$). Of note, the exclusion categories are not mutually exclusive. This resulted in a final sample size of 15

community participants. The majority of participants were between 20 and 24 years old (53.3%, $n = 8$), were male (86.7%, $n = 13$), identified as White (93.3%, $n = 14$), and were single (60.0%, $n = 9$) (see Table 3).

Table 3

Demographic Characteristics of the Student and Community Samples

Demographic Characteristics	Students % (n)	Community Participants % (n)
Sex		
Male	63.3% (19)	86.7% (13)
Female	36.7% (11)	13.3% (2)
Age		
16-17	-	6.7% (1)
18-19	56.7% (17)	6.7% (1)
20-24	33.3% (10)	53.3% (8)
25-29	6.7% (2)	-
30-34	3.3% (1)	6.7% (1)
35-39	-	-
40-49	-	13.3% (2)
50-59	-	6.7% (1)
60 or older	-	6.7% (1)
Race		
White	66.7% (20)	93.3% (14)
Black	10.0% (3)	-
Asian	13.3% (4)	-
Aboriginal	-	-
East Indian	3.3% (1)	-
Hispanic/Latino	3.3% (1)	-
Arab	-	6.7% (1)
Other	3.3% (1)	-
Relationship Status		
Married	3.3% (1)	13.3% (2)
Living With Romantic Partner	-	13.3% (2)
In a Romantic Relationship	33.3% (10)	6.7% (1)
Single	56.7% (17)	60.0% (9)
Separated	3.3% (1)	6.7% (1)
Other	3.3% (1)	-

Measures

Demographic questionnaire. Participants were asked a number of questions about their demographic information, these included questions about their age, sex, race, ability to understand English, employment status, and relationship status (see Appendix F). Participants were also asked to report their first and last name, and their e-mail address.

Follow-up survey question. In the consent form, participants were asked if they were interested in participating in a follow-up survey one-week following their survey completion time. If they responded that they were interested, participants were asked to provide their e-mail address (Appendix G).

SGIC questions. Participants were asked to complete 12 questions to create their SGIC. The questions used were based on questions used in Study 1A and previous research (e.g., DiIorio et al., 2000; Kearney et al., 1984; Schnell et al., 2010; Yurek et al., 2008). The questions used to create the SGIC are listed in Table 4. Participants were also provided with the following instructions:

Please answer the following questions as **honestly** and **accurately** as possible. Please read all of the questions carefully and answer the following questions by selecting the option most appropriate for you.

The next few questions will ask about information such as your shoe size, day of the month of your birthday, height, and the last letter of your first name. This information will be used to create a unique identifier for you. If you accept our invitation to complete the follow-up survey one week from now, we will use this identifier to link your responses in this survey to your responses in the follow-up survey. **Therefore, it is important that you answer these questions honestly, consistently, and accurately.**

Table 4

SGIC Questions Used in Study 1B

SGIC Questions	Response Format	Example
How tall are you in feet and inches?	Text box for feet	6
	Text box for inches (two numerical characters per text box)	0
What is your birth month?	Pull down menu (months)	January (01)
What is your birthday day?	Pull down menu (1 to 31)	12
What is your mother's birth month?	Pull down menu (months) ^a	April (04)
What is your father's birth month?	Pull down menu (months) ^a	March (03)
What is the last number of your birth year? (For example, if your birth year is 1985 the last number is 5)	Pull down menu (0 to 9)	5
How many older brothers (living and deceased) do you have?	Pull down menu (none, 1 to 10 or more)	1
What is the first letter of your middle name (if you have more than one middle name, please use your first middle name; if you do not have a middle name please use X)?	Pull down menu (A to Z) (converted to numbers)	A (1)
What is the last letter of your last name (if you have more than one last name, please use your first last name)?	Pull down menu (A to Z) (converted to numbers)	H (8)
How many letters are in your first name (please use your full name [Nicholas], not nicknames [Nick]; for example, if your name is Nicholas than you would respond 8)?	Pull down menu (1 to 15 or more)	5
What colour are your eyes?	Pull down menu (eye colour)	Blue (1)
What is your shoe size (round up to the	Pull down menu (smaller	12 (8)

nearest whole size; for example, size 9 ½ than 6 to Larger than 14) would be rounded up to size 10)?

SGIC

60011204035118518

Note. ^a Participants were also provided with an ‘unknown’ option for these questions.

Quality control questions. Participants were asked to complete 10 quality control questions to ensure that they were paying attention throughout the survey. The questions were presented at random points throughout the survey and were used to screen out participants who were not paying attention. For example, participants were asked “*Please respond to this question by selecting the number 10*” (Appendix H).

Procedure

Student participants were recruited from Carleton University through the psychology participant pool (i.e., SONA) (Appendix I). Community participants were recruited via an advertisement posted on various websites (e.g., Facebook, Kijiji, and Craigslist) (Appendix I). All of the measures were completed as an online survey. Participants were first presented with a consent form outlining the study (Appendix G). In the consent form participants were asked if they agree to participate in the current study and if they would be interested in completing the follow-up survey approximately one week following the completion of the first survey. Following this, participants completed the demographic questionnaire (Appendix F), the SGIC questionnaire, and the quality control questions (Appendix H). Participants were then presented debriefing information and were thanked for their participation (Appendix J).

If participants agreed to take part in the follow-up survey, they were invited to complete the follow-up survey approximately one week later (Appendix K). In the follow-up survey participants were presented with a consent form (Appendix G). If

participants agreed to participate, they were then asked to complete the demographic questionnaire (Appendix F), the SGIC questionnaire, and the quality control questions (Appendix H). Participants were then presented with debriefing information and thanked for their participation (Appendix J).

Results

Student Sample

In the first survey, all 30 students had unique SGICs. Of the 30 students, 20 reported that they would be interested in participating in the follow-up survey and 17 provided e-mail addresses so that they could be contacted. Of these 17 participants, 6 completed the follow-up survey. All 6 participants had unique SGICs.

For participants who completed both surveys, responses on each SGIC question were compared for accuracy across the approximately one-week time period. Participants' SGIC questions were matched using participants' full names and e-mail addresses. Specifically, percent agreement was computed for each survey question (see Table 5). The majority of SGIC questions achieved 100% agreement across surveys, three questions reached 83% agreement (last number of birth year, number of older brothers, and shoe size), and one question only had 50% agreement across surveys (last letter of last name). Of note, the small sample size increases the impact each error has on percent agreement.

The exact match rate for the participants who completed both surveys was low (33.3%). Four of six participants could not be matched due to inconsistencies in their responses across surveys. Two participants had one error in the SGIC questions and two participants had two errors in their SGIC responses. To increase the exact match rate

across waves, researchers often allow SGICs to differ across waves by one (one-off rule) or two (two-off rule) questions after the exact matches have been removed. If the one-off rule were employed, then four of the six participants would be classified correctly (66.6%).

Community Sample

In the first survey, all 15 of the community participants had unique SGICs. Of these, 11 reported that they would be interested in participating in the follow-up survey and provided e-mail addresses so that they could be contacted. Of these 11 participants, 8 completed the follow-up survey. All 8 participants had unique SGICs.

For participants who completed both surveys, responses on each SGIC question were compared for accuracy across the approximately one-week time period. Participants' SGIC questions were matched using participants' full names and e-mail addresses. Specifically, percent agreement was computed for each survey question (see Table 5). Of note, one participant was excluded from these analyses because his/her SGIC questions could not be matched across surveys, as he/she did not report his/her full name and/or e-mail address in Survey 1. The majority of SGIC questions achieved 100% agreement across surveys, three questions reached 86% agreement (height – inches, first letter of middle name, and number of letters in first name), and one question had 71% agreement across surveys (eye colour). Notably, the small sample size increases the impact each error has on percent agreement.

The exact match rate for the participants who completed both surveys was moderate to low (57.1%). Three of seven participants could not be matched due to inconsistencies in their responses across surveys. One participant had one error in the

SGIC questions and two participants had two errors in their SGIC responses. If the one-off rule were employed, then five of the seven participants would be classified correctly (71.4%).

Table 5

Percent Agreement on SGIC Questions with a 1-Week Follow-Up in the Samples of Students and Community Men

SGIC Question	Student % Agreement	Community Men % Agreement
Height - Feet	100%	100%
Height – Inches	100%	86%
Birth Month	100%	100%
Birth Day	100%	100%
Mother’s Birth Month	100%	100%
Father’s Birth Month	100%	100%
Last Number of Birth Year	83%	100%
Number of Older Brothers	83%	100%
First Letter of Middle Name	100%	86%
Last Letter of Last Name	50%	100%
Number of Letters in First Name	100%	86%
Eye Colour	100%	71%
Shoe Size	83%	100%

Note. For the student sample, $n = 6$ for participants who completed surveys at time 1 and time 2. For the community men, $n = 7$ for participants who completed surveys at Time 1 and time 2.

Discussion

The results of this study suggest the 12 SGIC questions used in the current study can be used to create unique identification codes for student and community participants. The percent agreement for each SGIC question was high across approximately a one-week time period, with the exception of ‘last letter of last name’ in the student sample and ‘eye colour’ in the community sample. Although the exact match rate was low for both samples, employing the one-off rule increased the exact match rate to levels slightly

lower, but generally consistent with what is typically found in the literature (e.g., see Schnell et al., 2010; DiIorio et al., 2000; Grube et al., 1989; Kearney et al., 1984).

The primary limitation of the current study is small sample size. For both samples, percent agreement and exact match rate were heavily influenced by any errors in participant responding as a result of the small sample size. A more reliable test of participants' consistency in reporting SGIC responses and exact match rates would require a larger sample size. Thus, the current results, in conjunction with results from larger samples of student and community participants, would allow for confidence in the use of these 12 questions as an SGIC.

Study 2: Examining Implicit and Explicit Evaluations of Rape Online in Samples of Students and Community Men

The primary purpose of Study 2 was to preliminarily explore the relationships between implicit and explicit evaluations of rape and indicators of sexually aggressive behaviour in students and community men online. In Study 2 the rates of self-reported sexually aggressive behaviour and the utility of the SGICs were also explored.

Research Questions and Hypotheses

(1) What is the frequency of self-reported sexually aggressive behaviour in samples of students and community men recruited online?

H1: It is hypothesized that approximately 30 to 60% of the student and community participants will have engaged in verbally coercive or sexually aggressive behaviour, as these are the rates typically found in past research (e.g., Abbey & McAuslan, 2004; Abbey et al., 2012; Abbey et al., 2001; Gidycz et al., 2011; Nunes et al., 2013; Widman & Olson, 2013).

(2) What is the relationship between implicit and explicit evaluations of rape in samples of students and community men recruited online?

H1: Past research suggests implicit and explicit attitudes are distinct cognitive constructs (e.g., Gawronski & Bodenhausen, 2006; Nosek & Smyth, 2007; Nunes et al., 2013), as such no relationship and/or small positive relationships are expected between implicit and explicit evaluations of rape.

(3) What is the relationship between implicit evaluations of rape and indicators of sexually aggressive behaviour (i.e., proclivity to rape and self-reported sexually aggressive behaviour) in samples of students and community men recruited online?

H1: It is hypothesized that implicit evaluations of rape will be positively associated with indicators of sexually aggressive behaviour in samples of students and community men. Past research has found implicit attitudes are associated with behaviour (e.g., Cameron et al., 2012; Greenwald et al., 2009) and some research has found a positive relationship between implicit evaluations of rape and sexually aggressive behaviour in students and community men (Nunes et al., 2013; Widman & Olson, 2013).

- (4) What is the relationship between explicit evaluations of rape and indicators of sexually aggressive behaviour (i.e., proclivity to rape and self-reported sexually aggressive behaviour) in samples of students and community men recruited online?

H1: It is hypothesized that explicit evaluations of rape will be positively associated with indicators of sexually aggressive behaviour in samples of students and community men. Past research has found explicit attitudes are associated with behaviour (e.g., Kraus, 1995; Glasman & Albarracín, 2006) and research has found a positive relationship between explicit evaluations of rape and sexually aggressive behaviour in student samples (Maimone et al., 2013; Nunes et al., 2013; Nunes, Hermann, White et al., 2015).

- (5) The same research questions and hypotheses regarding the SGICs from Study 1 were also explored in this study.

Methods

Participants

Student sample. Participants were 200 students recruited from Carleton University from the psychology participant pool (SONA). Participants received 0.5% of a

course credit for participating in the current study. Participants were excluded if they were female ($n = 10$, or missing data on this item $n = 11$), failed the quality control questions ($n = 11$), reported they could not understand written English or were missing data on this item ($n = 11$), or responded too quickly on the Single Category- Implicit Association Test (SC-IAT; $n = 8$) or Implicit Association Test (IAT; $n = 5$) (i.e., if more than 10% of trials are less than 300ms). Of note, the exclusion categories are not mutually exclusive. This resulted in a final sample size of 150 participants. The majority of participants were between 18 and 19 years old (48.7%, $n = 73$), identified as White (65.3%, $n = 98$), and were single (58.0%, $n = 87$) (see Table 6).

Community Sample. Participants were 400 community men recruited through Qualtrics from an online panel of participants¹⁶. The panel of participants used in the current study was limited to adult men residing in North America. Participants received \$2.00 for completing this study. Participants were excluded if they were female ($n = 0$), failed the quality control questions ($n = 17$), reported they could not understand written English or were missing data on this item ($n = 2$), or responded too quickly on the Single Category- Implicit Association Test (SC-IAT; $n = 1$) or Implicit Association Test (IAT; $n = 3$) (i.e., if more than 10% of trials are less than 300ms). Of note, the exclusion categories are not mutually exclusive. This resulted in a final sample size of 378 participants. On average, participants were between 40 and 49 years old (20.4%, $n = 77$), identified as White (86.5%, $n = 327$), and were married (55.0%, $n = 208$) (see Table 6).

¹⁶ Qualtrics is partnered with a number of online panel partners; the online panel partners are responsible for recruiting participants from their online panels to participate in research (Qualtrics, 2014). Participants in an online panel are sent an invitation e-mail that informs them that a survey is taking place for research purposes, describes the length of the survey, and describes the incentive for participating. Panel participants can then decide to opt in or out of the study. Data collection is managed by Qualtrics.

Table 6

Demographic Characteristics of the Student and Community Samples

Demographic Characteristics	Students	Community Participants	X² (df)
	% (n)	% (n)	
Age			413.5 (7), <i>p</i> < .001 ^f
18-19	48.7% (73)	0.3% (1)	
20-24	42.0% (63)	4.0% (15)	
25-29	7.3% (11)	5.8% (22)	
30-34	1.3% (2)	7.1% (27)	
35-39	-	6.9% (26)	
40-49	0.7% (1)	20.4% (77)	
50-59	-	26.7% (101)	
60 or older	-	28.8% (109)	
Race^c			62.6 (7), <i>p</i> < .001 ^g
White	65.3% (98)	86.5% (327)	
Black	7.3% (11)	5.0% (19)	
Asian	9.3% (14)	2.6% (10)	
Aboriginal	-	0.3% (1)	
East Indian	1.3% (2)	-	
Hispanic/Latino	3.3% (5)	4.2% (16)	
Arab	8.7% (13)	-	
Other	4.7% (7)	1.1% (4)	
Relationship Status^a			206.2 (6), <i>p</i> < .001 ^h
Married	4.0% (6)	55.0% (208)	
Living With Romantic Partner	3.3% (5)	8.7% (33)	
In a Romantic Relationship	32.7% (49)	3.7% (14)	
Single	58.0% (87)	22.5% (85)	
Separated	-	1.6% (6)	
Divorced	-	7.9% (30)	
Other	1.3% (2)	0.5% (2)	
Full Time Employment^{be}			82.3 (1), <i>p</i> < .001 ⁱ
Yes	6.7% (10)	48.9% (185)	
No	92.0% (138)	50.3% (190)	
Part Time Employment^{ad}			63.5 (1), <i>p</i> < .001 ⁱ
Yes	46.7% (70)	14.0% (53)	
No	52.7% (79)	84.7% (320)	
Currently Attending University or College^c			448.1 (1), <i>p</i> < .001 ⁱ
Yes	100% (150)	4.8% (18)	
No	0% (0)	95.0% (359)	
Completed University or College			82.2 (1), <i>p</i> < .001 ⁱ
Yes	7.3% (11)	49.7% (188)	
No	92.7% (139)	50.3% (190)	

^a $n = 1$ student participant missing data. ^b $n = 2$ student participants missing data. ^c $n = 1$ community participant missing data. ^d $n = 5$ community participants missing data. ^e $n = 3$ community participants missing data. ^f Fischer's exact test (age split at 30 years), $p < .001$. ^g Fischer's exact test (race: white vs. other), $p < .001$. ^h Fischer's exact test (relationship status: no relationship vs. relationship), $p < .001$. ⁱ Fischer's exact test, $p < .001$.

Measures

Demographic questionnaire. Participants were asked a number of questions about their demographic information, these included questions about their age, sex, race, ability to understand English, employment status, education status, and relationship status (see Appendix L).

SGIC questions. Participants were asked to complete 12 questions to create their SGIC. The questions used were the same questions from Study 1B and are listed in Table 4.

Rape Evaluation IAT (RE-IAT). Implicit Association Test (IAT) measures are computer based tasks that use response latencies to measure the implicit associations between two concept (e.g., *RAPE* and *CONSENTING SEX*) and two attribute (e.g., *positive* and *negative*) categories (see Greenwald et al., 1998) (Appendix M). Participants are asked to classify selected stimuli (e.g., words) into their respective concept or attribute categories using two buttons on a computer keyboard (e.g., *d* and *k*). The time it takes for participants to classify stimuli correctly is known as the response latency. Blocks of trials differ by the concept and attribute categories that are paired (i.e., share a response key). For some blocks *RAPE* and *positive* share a response key (*d*) and *CONSENTING SEX* and *negative* share a response key (*k*), whereas for other blocks *RAPE* and *negative* share a response key (*d*) and *CONSENTING SEX* and *positive* share a response key (*k*) (see Figure 3). When a concept and attribute category pair is more

compatible for a participant (i.e., associated in memory) and they share a response key, the participant classifies the stimulus more quickly and with less error than when a less compatible concept and attribute category pair shares a response key (Greenwald et al., 1998). For example, an individual who associates *RAPE* with *positive* more so than *RAPE* with *negative* will classify stimuli more quickly when the *RAPE* and *positive* categories share the same response key. From average response latencies for each type of block (i.e., *RAPE* and *positive*, *CONSENTING SEX* and *negative* vs. *RAPE* and *negative*, *CONSENTING SEX* and *positive*) a difference score can be calculated that allows researchers to make inferences about participants' implicit evaluations. The RE-IAT in the current study follows the standard procedure for number of trials, blocks, and order presentation (as outlined in Nosek et al., 2007), and the standard scoring procedure was used (Lane et al., 2007). The Rape Evaluation IAT (RE-IAT) effect was calculated so that positive scores suggest rape and positive are more strongly associated than rape and negative and negative scores suggest the opposite.

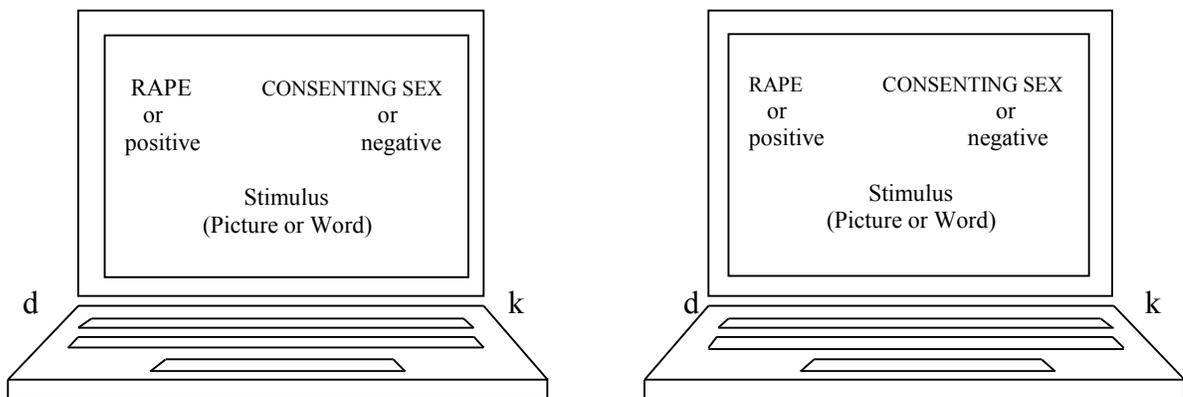


Figure 3. An Example of an IAT Measure Adapted to Assess Attitudes Towards Rape.

Generally IAT measures are considered to be reliable and valid measures of implicit attitudes (e.g., Greenwald et al., 1998; Greenwald et al., 2009; Hofmann,

Gawronski, Gschwendner, Le, & Schmitt, 2005; Lane, Banaji, Nosek, & Greenwald, 2007; Nosek, Greenwald & Banaji, 2007). IAT measures have demonstrated good internal consistency and moderate test retest reliability (e.g. Bosson, Swann, & Pennebaker, 2000; Cunningham, Preacher, & Banaji, 2001; Hofmann et al., 2005; Lane et al., 2007). For example, Hoffmann and colleagues (2005) conducted a meta-analysis examining the relationship between implicit attitudes measured with the IAT and explicit self-report measures. In this meta-analysis, they also examined reliability and found a mean internal reliability coefficient of .79 for a total of 50 studies (i.e., internal consistency scores and split-half reliability scores) and a mean test-retest reliability coefficient of .51 for 11 studies. As well, Lane et al. (2007) examined the test-retest reliability of the IAT in 20 studies and found reliability ranged from .25 to .69, with a mean and median score of .50. These results suggest the IAT has adequate reliability.

IAT measures have also demonstrated good validity. Hofmann and colleagues (2005) found a small to moderate mean correlation of .24 between implicit attitudes measured with the IAT and explicit self-report measures assessing the same attitude object ($n = 12,289$, $k = 126$; measurement error corrected). These results suggest explicit self-report measures and IAT measures assess similar but distinct constructs, and provide some evidence of convergent validity. Research has also found evidence of known-groups validity (e.g., Greenwald et al., 1998; Greenwald & Farnham, 2000). For example, when studying masculinity-femininity self-concept Greenwald and Farnham (2000) found that males more strongly associated themselves with masculinity and females more strongly associated themselves with femininity. Furthermore, Greenwald et al. (2009) conducted a meta-analysis examining the predictive validity of IAT measures and found a

mean correlation of .27 ($k = 184$) with criterion variables, suggesting the IAT also demonstrates good predictive validity. In sum, IAT measures have demonstrated good reliability and validity.

The IAT has been adapted to assess implicit evaluations of rape (RE-IAT) (Hermann et al., 2015; Maimone et al., 2013; Nunes et al., 2013). The categories and stimuli used in the current study are adapted from this past research and are presented in Table 7; an overview of the RE-IAT blocks is presented in Table 8. The current study is the first study to administer the RE-IAT online in Qualtrics.

RE-IAT measures have shown levels of internal consistency that are consistent with the literature for other IAT measures (e.g., Hoffmann et al., 2005; Lane et al., 2007). More specifically, research has found RE-IAT measures have low to moderate internal consistency (α range .51 to .78; Hermann et al., 2015; Maimone et al., 2013; Nunes et al., 2013), and Hermann et al. (2015) found the RE-IAT had moderate test-retest reliability ($r = .60$). The validity of RE-IAT measures is largely unknown. Research has found the RE-IAT is positively correlated with measures of explicit evaluations of rape (ROE-Evaluation Scale $r = .25, p < .05$; Maimone et al., 2013), providing some preliminary evidence of convergent validity. Importantly, the evidence for reliability and validity pertains to RE-IAT measures administered in lab; the psychometric properties of RE-IAT measures administered online are currently unknown.

Table 7

RE-IAT Categories and Stimuli

Positive	Negative	RAPE	CONSENTING SEX
Vacation	Rotten	Forced Sex	Consent
Rainbow	Poison	Violent	Mutual
Smile	Sickness	Rape	Willing
Sunshine	Vomit	Violate	Permission
Paradise	Cancer	Assault	Agreement
Freedom	Evil	Abuse	Love Making
Joy	Ugly	Sexual Assault	Making Love
Laughter	Stink	Victim	Consensual
Happy	Disease		
Hope	Mean		

Table 8

RE-IAT Blocks of Trials

Block	Number of Trials	Left Key (d) Categories	Right Key (k) Categories
1	20	RAPE	CONSENTING SEX
2	20	positive	negative
3	20	RAPE & positive	CONSENTING SEX & negative
4	40	RAPE & positive	CONSENTING SEX & negative
5	40	negative	positive
6	20	RAPE & negative	CONSENTING SEX & positive
7	40	RAPE & negative	CONSENTING SEX & positive

Rape Evaluation Single Category IAT (RESC-IAT). The Single Category IAT (SC-IAT; Karpinski & Steinman, 2006) is a modified version of the IAT that allows researchers to assess absolute implicit attitudes towards an attitude object (e.g., implicit evaluations of rape) instead of relative implicit attitudes (i.e., implicit evaluations of rape relative to consenting sex) (Karpinski & Steinman, 2006) (Appendix N). Similar to the IAT, participants are asked to classify selected stimuli (words or pictures) into their respective concept or attribute categories using two buttons on a computer keyboard (e.g.,

d and *k*). The time it takes for the participant to classify each stimulus correctly is known as the response latency. The primary difference between the IAT and SC-IAT is that the SC-IAT only has one concept category (e.g., *RAPE*), instead of two (e.g., *RAPE* and *CONSENTING SEX*). For some blocks each button on the keyboard represents either a target concept and attribute category pair (e.g., *d* represents *RAPE* and *positive*) or just an attribute category (e.g., *negative*). One stimulus representative of one of the three possible categories is presented on the screen, and participants are asked to categorize the stimulus using the two keyboard buttons. When a concept and attribute category pair is more compatible for a participant (i.e., associated) and they share a response key, participants classify stimuli more quickly and with less error than when a less compatible concept and attribute category pair share a response key. From average response latencies for each type of critical block (i.e., *RAPE* and *positive* vs. *RAPE* and *negative*) a difference score can be calculated that allows researchers to make inferences about participants' implicit evaluations.

Karpinski and Steinman (2006) conducted three studies examining the reliability and validity of the SC-IAT. They examined implicit and explicit attitudes towards Coke vs. Pepsi (Study 1), implicit and explicit self-esteem (Study 2), and implicit and explicit attitudes towards Black and White people (Racial bias; Study 3). In total, five SC-IAT measures were developed (Coke SC-IAT, Pepsi SC-IAT, Self SC-IAT, Black SC-IAT, and White SC-IAT). The internal consistency was low to moderate (r ranged from .55 to .73) for the SC-IAT measures. More recent research using the SC-IAT has also found moderate to good internal consistency ($\alpha = .73$ and $\alpha = .81$, Friese, Hofmann, & Wänke, 2008; $r = .88$, Nederkoorn, Houben, Hofmann, Roefs, & Jansen, 2010). These results

suggest the SC-IAT has adequate reliability, consistent with what is typically found in the literature for implicit measures (e.g., Hoffmann et al., 2005).

In terms of validity, the SC-IAT measures designed to assess implicit attitudes towards Coke and Pepsi (combined into a relative score) were positively correlated with an IAT measure of attitudes towards Coke relative to Pepsi ($r = .29, p < .05$), and explicit attitudes towards Coke and Pepsi (non-significant; Coke $r = .27, p = .05$, Pepsi $r = .26, p = .06$), providing some evidence of convergent validity. As well, the self-esteem SC-IAT was positively, but non-significantly correlated, with the self-esteem IAT (self-esteem; $r = .25, p = .07$) and significantly correlated with an explicit measure of self-esteem ($r = .38, p < .01$). In the study on racial bias, the SC-IAT measures designed to assess implicit attitudes towards White and Black people (combined into a relative score) were positively and significantly correlated with a race IAT ($r = .40, p < .01$). However, the SC-IAT measures and IAT were not correlated with explicit measures of racial bias. These results provide preliminary evidence of convergent validity.

Karpinski and Steinman (2006) also found evidence of known groups validity. There were large group differences between Pepsi drinkers and Coke drinkers on the Pepsi SC-IAT ($d = 0.94$), however the same group differences were not evidenced for the Coke SC-IAT ($d = 0.20$). In the study on self-esteem, participants had significantly more positive associations with self than negative associations with self ($d = 1.13$). As well, for White participants there was a significant racial bias ($d = .30, p < .01$) on the SC-IAT combined measure, but not for Black participants ($d = -0.10, p = .57$). These results provide preliminary evidence of known groups validity. In sum, there is preliminary evidence to suggest the SC-IAT is a reliable and valid measure of implicit attitudes.

To date, the SC-IAT has not been adapted to assess implicit evaluations of rape, and as a result a Rape Evaluation SC-IAT (RESC-IAT) was developed for the current study. The categories and stimuli used in the current study are adapted from past research on the RE-IAT and are presented in Table 7 (excluding CONSENTING SEX stimuli), and an overview of the RESC-IAT blocks is presented in Table 9. To calculate the RESC-IAT effect the *D* algorithm outlined by Greenwald, Nosek, and Banaji (2003) was adapted and used. The *D* algorithm transforms raw data into an IAT effect value that represents the difference in mean response latency times between the two types of combined tasks (i.e., *RAPE* and *positive* vs. *negative* contrasted with *RAPE* and *negative* vs. *positive*). The RESC-IAT effect was calculated so that positive scores suggest rape and positive are more strongly associated than rape and negative.

Table 9

RESC-IAT Blocks of Trials

Block	Number of Trials	Left Key (d) Categories	Right Key (k) Categories
1	20	positive	negative
2	24	RAPE & positive	negative
3	72	RAPE & positive	negative
4	24	positive	RAPE & negative
5	72	positive	RAPE & negative

Sexual Experience Survey Tactics First- Revised (SES-TFR). Sexually aggressive behaviour was measured using a revised version of the ‘Tactics First’ Sexual Experience Scale (SES-TF) from Abbey, Parkhill, and Koss (2005; Appendix O). The original SES scale was developed by Koss and colleagues (Koss & Gidycz, 1985; Koss, Gidycz, Wisniewski, 1987; Koss & Oros, 1982), and since then it has been revised numerous times by researchers (see Koss et al., 2007). SES measures are widely used in

research on sexual aggression (e.g., Abbey et al., 2007; Cue Davis et al., 2014; Greene & Cue Davis, 2011; Thompson et al., 2010), including the SES-TF (e.g., Abbey et al., 2005; Cue Davis et al., 2014; Widman et al., 2013; Widman & Olson, 2013). The SES-TF asks participants to self-report whether, since the age of 14 years old, they have engaged in any sexual behaviours (e.g., sexual touching, oral sex, vaginal intercourse, etc.) by using any of the following sexually aggressive tactics: (a) arguments and pressure, (b) lies or false promises, (c) guilt or displeasure, (d) giving a woman drugs or alcohol, (e) taking advantage of a woman when she is incapacitated due to drugs or alcohol, and/or (f) physical force. Each item is typically rated on a 4 or 6 point Likert scale from *never* (0) to *three/five times or more* (3 or 5). In the current study, the SES was modified in the following ways; first participants were asked to recall behaviour since the age of 16 years old, instead of 14 years old, because 16 years old is the age of consent in Canada and a large proportion of participants were from Canada (i.e., all student participants). As well, the Likert scale for each item was modified to *never* (0) to *nine times or more* (9). Clear instructions were also provided that operationally defined ‘woman.’ Specifically, participants were instructed “by ‘woman’ we mean a female who at the time of the sexual experience was 18 years or older or, if younger than 18 years, was close to your age (e.g., 16 years) or older at the time of the sexual experience”. Lastly, the original SES-TF treats ‘anal sex’ and ‘inserting an object into her’ as one type of sexual behaviour, whereas in the current study participants were asked about these behaviours separately. The SES was scored using the weighted scoring method developed by Cue Davis et al. (2014).

The SES-TF has demonstrated excellent internal consistency in samples of sex offenders and community men (e.g., $\alpha = .92$ and $\alpha = .91$, respectively; Widman et al.,

2013). The SES-TF has also demonstrated good validity. As noted above, self-report measures of delinquent and criminal behaviour are considered to be reliable and valid (see Piquero et al., [2014] Thornberry & Krohn, [2000] for overview), and self-report measures of sexually aggressive behaviour align with independent indicators of such behaviour, such as official criminal records (Weinrott & Saylor, 1991; Woods et al., 2011).

Sexual Experience Survey-Tactics First Revised Attitudes

(SES-TFR Attitudes). Explicit evaluations of sexually aggressive behaviour were measured using a revised version of the Sexual Experience Survey – Tactics First from Abbey et al. (2005; Appendix O)¹⁷. Specifically the response scale of the SES-TFR was modified to assess evaluations of sexually aggressive behaviour, instead of frequency of sexually aggressive behaviour. Participants were asked to evaluate a number of sexual behaviours (e.g., sexual touching, oral sex, vaginal intercourse, etc.) engaged in using any of the following sexually aggressive tactics: (a) arguments and pressure, (b) lies of false promises, (c) guilt or displeasure, (d) giving a woman drugs or alcohol, (e) taking advantage of a woman when she is incapacitated due to drugs or alcohol, and/or (f) physical force. Each item was rated on a seven point Likert scale from *very negative* to *very positive*. A total score is computed by taking the average evaluation rating for all of the items. There is no psychometric information available for this measure, as it was developed for the current study.

¹⁷ Of note, the SES-TFR Attitudes measure will often be referred to as a measure of explicit evaluations of rape for sake of simplicity. The SES-TFR Attitudes measure asks participants to evaluate a range of sexually aggressive behaviours, including, but not limited to rape. Thus, more accurately, the SES-TFR Attitudes is a measure of explicit evaluations of sexually aggressive behaviour.

Sexual Experience Survey-Tactics First Revised Proclivity

(SES-TFR Proclivity). Proclivity of engaging in sexually aggressive behaviour was measured using a revised version of the Sexual Experience Survey – Tactics First from Abbey et al. (2005; Appendix O)¹⁸. Specifically the response scale of the SES-TFR was modified to assess proclivity of engaging in sexually aggressive behaviour, instead of frequency of sexually aggressive behaviour. Participants were asked to self-report their proclivity of engaging in a number of sexual behaviours (e.g., sexual touching, oral sex, vaginal intercourse, etc.), using any of the following sexually aggressive tactics: (a) arguments and pressure, (b) lies of false promises, (c) guilt or displeasure, (d) giving a woman drugs or alcohol, (e) taking advantage of a woman when she is incapacitated due to drugs or alcohol, and/or (f) physical force. Each item was rated on a seven point Likert scale from *very unlikely* to *very likely*. A total score is computed by taking the average proclivity rating for all of the items. There is no psychometric information available for this measure, as it was created for the current study. More generally, however, Gidycz et al. (2011) found male college students' self-reported proclivity of engaging in sexually coercive and aggressive behaviour was significantly associated with perpetrating subsequent sexually coercive and aggressive behaviour during a three month follow-up period.

Likelihood to Rape (LR) question. The Likelihood to Rape question (Malamuth, 1981) assesses proclivity to rape (Appendix P). This measure consists of one question

¹⁸ As with the SES-TFR Attitudes measure, the SES-TFR Proclivity will often be referred to as a measure of proclivity to rape for sake of simplicity. The SES-TFR Proclivity measure asks participants to report their proclivity to commit a range of sexually aggressive behaviours, including, but not limited to rape. Thus, more accurately, the SES-TFR Proclivity is a measure of proclivity of engaging in sexually aggressive behaviour.

asking participants if they “would commit rape if they knew that they would not be caught or punished”. Participants respond on a five point Likert scale (*not at all likely* to *very likely*). Scores can range from 1 to 5, with higher scores indicating higher proclivity to rape. Past research has found moderate to large positive relationships between proclivity to rape and past sexually aggressive behaviour in student samples (e.g., Maimone et al., 2013; Nunes et al., 2013), and as noted above, Gidycz and colleagues (2011) found male college students’ self-reported proclivity for sexually coercive and aggressive behaviour was positively associated with perpetrating subsequent sexually coercive and aggressive behaviour during a three month follow-up period.

Rape Outcome Expectancies - Evaluation Scale (ROE- Evaluation). The Rape Outcome Expectancies – Evaluation Scale assesses explicit evaluations of the outcomes of rape (Nunes et al., 2013) (Appendix Q). Participants are asked to provide three self-generated outcomes of sexual assault, rate how likely each outcome is to happen, and rate the valance of each outcome on a seven point Likert scale from *very negative* to *very positive*. The ROE-Evaluation scale is the average evaluation rating of the three outcomes. Although this scale has not yet been validated, similar measures have been used in past research to assess outcome expectancies of rape (Bouffard, 2002; O’Donohue et al., 1996), and past research has found that the ROE-Evaluation scale was moderately and significantly correlated with another measure designed to assess explicit evaluations of rape in a sample of male university students (Evaluation of Rape Scale, $r = .30, p < .05$; Maimone et al., 2013).

The RAPE Scale. The RAPE Scale (Bumby, 1996) (Appendix R) is a self-report measure consisting of 36 statements reflective of rape-supportive cognition. For each

statement participants are asked to rate how much they agree with the statement on a four-point Likert scale from (*disagree* to *agree*). The responses are then summed and scores can range from 36 to 144, with higher scores indicating a higher acceptance of rape-supportive cognitive distortions (Bumby, 1996). Generally, the RAPE Scale has good internal consistency ($\alpha = .96$, Bumby, 1996; average Cronbach's $\alpha = .95$, Nunes et al., 2014), test-retest reliability ($r = .86$, over a two week interval), convergent validity, and is not significantly correlated with a measure of social desirability (Bumby, 1996).

Evaluation of Rape Scale. The Evaluation of Rape Scale (Appendix S) consists of five semantic differential items that ask participants to evaluate rape on bipolar scales (e.g., *bad* to *good*) using a seven point Likert scale. A total score is calculated by averaging these ratings, with higher scores indicating more positive evaluations of rape. Average scores can range from 1 to 7. Semantic differential scales are commonly used in social psychology research to assess attitudes (e.g., Gawronski & Bodenhausen, 2006; Glasman & Albarracín, 2006; Greenwald et al., 1998; Hofmann et al., 2005), and the Evaluation of Rape Scale has been found to have acceptable reliability in student samples (e.g., $\alpha = .90$, Maimone et al., 2013; $\alpha = .79$, Nunes, Hermann, White et al., 2015). Although the Evaluation of Rape Scale has not yet been validated, past research has found it is moderately and significantly correlated with other measures designed to assess explicit evaluations of rape (ROE-Evaluation Scale $r = .30$, $p < .05$, Maimone et al., 2013).

Quality control questions. Participants were asked to complete 10 quality control questions to ensure that they were paying attention throughout the survey. The questions were presented at random points throughout the survey and were used to screen

out participants who were not paying attention. For example, participants were asked “Please respond to this question by selecting the number 10” (Appendix H).

Online Measure Programming

As noted above, the online measures of implicit evaluations of rape (RE-IAT and RESC-IAT) were developed for the current dissertation. To develop these measures, I hired and worked closely with a computer programmer to create these measures in the Qualtrics environment. To program these measures in Qualtrics, a combination of computer code (javascript) and Qualtrics’ already programmed functions were used to present the blocks and trails for each measure as outlined in the appendices (M and N), randomize the presentation of stimuli, and record reaction times. The development of these measures took approximately 11 months to complete (May, 2014 to March, 2014). Once the implicit measures of evaluations of rape were programmed in Qualtrics, I programmed the self-report questionnaires (e.g., SES-TFR Attitudes, RAPE Scale, etc.), consent form, and debriefing forms.

Procedure

Student participants were recruited from Carleton University through the psychology participant pool (i.e., SONA). Community men were recruited through Qualtrics from an online panel. Participants completed all of the measures in an online survey. Participants were first presented with a consent form outlining the study (Appendix T). If participants agreed to participate, they were then asked to read a pre-debriefing form (Appendix U), complete the demographic questionnaire (Appendix L), and the SGIC questions. Following this, participants were randomly assigned to complete either the RE-IAT or RESC-IAT (Appendices M and N). After this participants were

asked to complete the SES measures (Appendix O). Participants were then randomly assigned to complete either the ROE-Evaluation scale or the Evaluation of Rape Scale (Appendices Q and S). Subsequently, participants were randomly assigned to complete the RAPE Scale (Appendix R) or another measure of rape-supportive cognition (not included in the current study). Participants were then asked to complete the LR question (Appendix P), and the SGIC questions for a second time. Throughout the survey participants were asked to complete the quality control questions (Appendix H). After participants completed the measures, they were presented with a debriefing form (Appendix U).

Results

Descriptive statistics and internal consistency for each measure are presented in Table 10. In both the student and community samples the implicit measures of evaluations of rape had moderate internal consistency. In both samples, the measures of explicit evaluations of rape, rape-supportive cognition, past sexually aggressive behaviour, and proclivity to rape all had excellent internal consistency. The exception to this was the Evaluation of Rape Scale in the student sample, which only had moderate internal consistency¹⁹.

In the current study, data were often not normally distributed. For each statistical test, univariate outliers were reduced while maintaining rank order and data were screened for multivariate outliers. When possible, the analyses were run with both

¹⁹ Internal consistency is dependent on the variance in total scores a particular measure; more variance in total scores equals higher internal consistency (Streiner, 2010). The range of scores for the Evaluation of Rape Scale in the student sample was restricted relative to the range of scores for the community sample, likely resulting in the lower internal consistency score.

parametric (e.g., Pearson correlations) and non-parametric statistics (e.g., Spearman Rho correlations). If the pattern of results obtained differed depending on the use parametric or non-parametric statistics, non-parametric statistics were reported and this was reported in a Table note. When interpreting the results, emphasis was placed on effect size in addition to and/or instead of significance testing. A large number of significance tests were conducted within the same dataset; this increases the chance that a Type 1 error was made. As well, for some significance tests the sample size was small due to missing data and/or only a portion of the sample completing one of the measures; this resulted in less power to detect significant results. Focusing on effect sizes goes beyond significance testing by describing the magnitude of the relationship observed. For correlations, r of .10 is considered small, r of .30 is considered moderate, and r of .50 is considered large (Cohen, 1992). Cohen's d of 0.20 are generally considered small, d of 0.50 are considered moderate, and d of .80 or greater are considered large (Cohen, 1992).

Table 10

Internal Consistency and Descriptive Statistics for the Evaluation of Rape, Rape-Supportive Cognition, and Indicators of Sexually Aggressive Behaviour Measures for the Samples of Students and Community Men

Measures	Students				Community Men				<i>d</i>	95% CI
	α	Range	<i>M</i> (<i>SD</i>)	<i>n</i>	α	Range	<i>M</i> (<i>SD</i>)	<i>n</i>		
Implicit Evaluations of Rape										
RE-IAT	.73	-1.49 to 0.90	-0.73 (0.42)	77	.67	-2.61 to 0.24	-1.07 (0.46)	191	0.76*	0.49 to 1.03
RESC-IAT	.79 ^a	-0.85 to 0.70	-0.22 (0.34)	73	.63 ^b	-1.69 to 0.41	-0.42 (0.36)	186	0.56*	0.29 to 0.84
Explicit Evaluations of Rape										
Eval. of Rape Scale	.62	1.00 to 2.33	1.12 (0.33)	67	.88	1.00 to 5.00	1.10 (0.40)	183	0.05	-0.23 to 0.33
ROE-Evaluation	-	1.00 to 6.33	1.61 (1.12)	73	-	1.00 to 5.67	1.56 (0.98)	181	0.05	-0.22 to 0.32
SES-TFR Attitudes	.94	1.00 to 3.89	1.23 (0.42)	143	.97	1.00 to 5.19	1.16 (0.40)	373	0.17	-0.02 to 0.37
Rape Supportive Cognition										
RAPE Scale	.96	36 to 99	56.03 (15.40)	72	.95	36 to 111	54.64 (15.11)	159	0.09	-0.19 to 0.37
Past Sexually Aggressive Behaviour										
SES-TFR	.89	0 to 596	25.41 (74.82)	143	.90	0 to 820	25.70 (77.17)	374	0.00	-0.20 to 0.19
Proclivity to Rape										
SES-TFR Proclivity	.94	0.00 to 3.00	0.23 (0.46)	144	.96	0.00 to 3.92	0.16 (0.42)	358	0.16	-0.03 to 0.36
LR	-	1 to 4	1.18 (0.51)	140	-	1 to 5	1.14 (0.53)	377	0.08	-0.12 to 0.27

Note. ^a Internal consistency was computed using the method from Karpinski and Steinman (2006); this method involves computing three RESC-IAT scores using only response latencies (i.e., not including standard deviation). Three RESC-IAT scores can also be computed using the complete scoring procedure, when the complete scoring procedure is used $\alpha = 0.62$ for students. ^b When the complete scoring procedure is used $\alpha = 0.70$ for community men. Cohen's *d* were computed such that

positive values indicate the student sample has higher/more positive scores than the community sample, and negative values indicate the student sample has lower/more negative scores than the community sample.

* $p < .05$

The proportion of each sample who self-reported that they had engaged in sexually aggressive behaviour is presented in Table 11. In both samples, approximately 45% of participants reported committing a sexually coercive or aggressive act since the age of 16 (48.3% of students and 43.6% of community men). This information is further broken down by tactic used to obtain sexual activity (see Table 11). For both students and community men, approximately 25% of participants had engaged in sexual activity using sexually coercive tactics (e.g., using arguments or pressure), 3% of the student sample and 6% of the community sample gave a woman drugs or alcohol to obtain sexual activity, 9% of the student sample and 15% of the community sample had engaged in sexual activity when a woman was passed out or too drunk to stop the behaviour, and 2% of the student sample and 4% of the community sample reported using physical force to obtain sexual activity.

Table 11

Self-Reported Frequency of Sexually Aggressive Behaviour by Tactic Used for the Samples of Students and Community Men

SES-TFR Tactics	Students (N = 143)		Community Men (N = 374)	
	%	n	%	n
1. Arguments and pressure	27%	38	26%	97
2. Made promises you knew were untrue	26%	37	25%	94
3. Shown you were not happy by making a woman feel guilty, swearing, sulking, or getting angry	32%	45	25%	92
4. Giving a woman drugs or alcohol without her permission	3%	4	6%	24
5. Woman passed out or too drunk to stop what was happening	9%	13	15%	55
6. Used physical force	2%	3	4%	15

Pearson correlations were used to examine the relationship between the measures of explicit evaluations of rape and the measure of rape-supportive cognition (see Table 12). The SES-TFR Attitudes measure had a large positive relationship with the Evaluation of Rape Scale in both the student and community sample, and a large positive relationship with the ROE Evaluation Scale in the community sample. The SES-TFR Attitudes scale, Evaluation of Rape Scale, and ROE Evaluation Scale all had moderate to large positive relationships with the RAPE Scale, although for the ROE Evaluation Scale this relationship was non-significant in the student sample.

Table 12

Pearson Correlations between Measures of Explicit Evaluations of Rape and Rape-Supportive Cognition for the Samples of Students and Community Men

	Students	
	SES-TFR Attitudes <i>r</i> (<i>n</i>)	RAPE Scale <i>r</i> (<i>n</i>)
Evaluation of Rape Scale	.58* (65)	.65*(32)
ROE Evaluation Scale	.07 (73)	.19 (38)
SES-TFR Attitudes	-	.39* (72)
	Community Men	
	SES-TFR Attitudes <i>r</i> (<i>n</i>)	RAPE Scale <i>r</i> (<i>n</i>)
Evaluation of Rape Scale	.46* (179)	.50* (82)
ROE Evaluation Scale	.44* (180)	.25* (71) ^a
SES-TFR Attitudes	-	.28* (157)

Note. ^a Spearman’s rho correlation (Pearson correlation $r = .21, p = .07$).

* $p < .001$

The relationships between implicit evaluations of rape, explicit evaluations of rape, and rape-supportive cognition were also examined using Pearson correlations (see Table 13). Most of the relationships were small and/or close to zero and were non-significant. Focusing on effect size ($r \geq .10$), in the sample of community men the RE-IAT had a small positive (non-significant) relationship with the RAPE Scale, and the RESC-IAT had a small (non-significant) positive relationship with the ROE Evaluation

Scale, but a small (non-significant) negative relationship with the RAPE Scale. In the student sample, the RESC-IAT had a small (non-significant) positive relationship with the SES-TFR Attitudes and the RAPE Scale. More generally, however, in both samples there was no consistent pattern found between implicit evaluations of rape, and explicit evaluations of rape or rape-supportive cognition.

Table 13

Pearson Correlations between Implicit Evaluations of Rape, Explicit Evaluations of Rape, and Rape-Supportive Cognition in the Samples of Students and Community Men

Implicit Evaluations of Rape	Explicit Evaluations of Rape/ Rape-Supportive Cognition	Students		Community Men	
		<i>n</i>	<i>r</i>	<i>n</i>	<i>r</i>
RE-IAT	Evaluation of Rape Scale	33	-.02	87	.09
RE-IAT	SES-TFR Attitudes	74	-.01	187	.03
RE-IAT	ROE Evaluation Scale	37	.06	98	-.07
RE-IAT	RAPE Scale	38	.04	80	.18
RESC-IAT	Evaluation of Rape Scale	34	-.02	96	-.05
RESC-IAT	SES-TFR Attitudes	69	.12	185	.06
RESC-IAT	ROE Evaluation Scale	36	.02	82	.21^a
RESC-IAT	RAPE Scale	34	.21	79	-.14

Note. Bolded values are $r \geq .10$. ^a Spearman rho correlation (Pearson correlation $r = .28^*$, $p < .05$).

* $p < .05$

Pearson correlations were then used to examine the relationship between implicit and explicit evaluations of rape, rape-supportive cognition, self-reported past sexually aggressive behaviour, and proclivity to rape (see Table 14). For both students and community men, implicit evaluations of rape were not consistently associated with past sexually aggressive behaviour or proclivity to rape. For explicit evaluations of rape, there were moderate to large positive relationships between the SES-TFR Attitudes, Evaluation of Rape Scale, self-reported past sexually aggressive behaviour, and proclivity to rape in both samples of students and community men. This pattern of results was also generally

evident for the ROE Evaluation Scale in the sample of community men, but not in the sample of students. There were also moderate to large positive relationships between rape-supportive cognition and self-reported past sexually aggressive behaviour, and proclivity to rape. These results suggest that implicit evaluations of rape are not associated with indicators of sexually aggressive behaviour, but that explicit evaluations of rape and rape-supportive cognition are associated with indicators of sexually aggressive behaviour.

Table 14

Pearson Correlations between Evaluations of Rape, Rape-Supportive Cognition, and Indicators of Sexually Aggressive Behaviour in the Samples of Students and Community Men

Evaluations of Rape/ Rape-Supportive Cognition	Indicators of Sexually Aggressive Behaviour	Students		Community Men	
		<i>n</i>	<i>r</i>	<i>n</i>	<i>r</i>
RE-IAT	SES-TFR	73	.03	191	-.12
	SES-TFR Proclivity	74	-.03	181	.03
	LR	71	-.16	190	.13^a
RESC-IAT	SES-TFR	70	-.10	186	-.02
	SES-TFR Proclivity	70	.03	176	.01
	LR	69	.12	186	.05
SES-TFR Attitudes	SES-TFR	141	.57***	373	.43***
	SES-TFR Proclivity	142	.84***	354	.81***
	LR	138	.31***	372	.40***
Evaluation of Rape Scale	SES-TFR	66	.48***	183	.41***
	SES-TFR Proclivity	66	.63***	175	.56***
	LR	66	.56***	183	.63***
ROE Evaluation	SES-TFR	72	.03	181	.23**
	SES-TFR Proclivity	73	.10	171	.46***
	LR	71	.14	180	.34***
RAPE Scale	SES-TFR	71	.40***	159	.26**^b
	SES-TFR Proclivity	72	.44***	157	.34***
	LR	72	.38**	159	.37***

Note. Bolded values are $r \geq .10$. ^a Spearman rho correlation (Pearson correlation $r = .18^*$, $p < .05$). ^b Spearman rho correlation (Pearson correlation $r = .11$, $p = .164$).

** $p < .01$, *** $p < .001$

Group differences in implicit and explicit evaluations of rape, rape-supportive cognition, and proclivity to rape were examined (see Tables 15 and 16). Participants were divided into three groups using their past sexually aggressive behaviour on the SES-TFR: (1) no past sexually coercive/aggressive behaviour, (2) verbal sexual coercion, but no physical sexual aggression, and (3) physical sexual aggression, with or without verbal sexual coercion (see Tables 15 and 16 note for further explanation of how groups were formed). Focusing on effect size ($d \geq .20$), in both samples, as expected, the largest differences were observed between participants with no past sexually coercive or aggressive behaviour and those who had used physical sexual aggression. Generally, there were significant moderate to large group differences in explicit evaluations of rape, rape-supportive cognition, and proclivity to rape. For community men, this pattern of results was also evident when comparing men with no past sexually aggressive behaviour to those who have used verbally coercive tactics to engage in sexual activity. For the student sample, however, there were only moderate to large group differences for the SES-TFR Attitudes, SES-TFR Proclivity, and RAPE Scale (non-significant). For the most part, groups did not differ in their implicit evaluations of rape; the exception to this was for the community sample, where non-sexually aggressive men had more positive implicit evaluations of rape than participants who had engaged in physical sexual aggression on the RESC-IAT.

Table 15

Group Differences between Non-Sexually Aggressive Men and Sexually Aggressive Men in Evaluations of Rape, Rape-Supportive Cognition, and Proclivity to Rape in the Sample of Students

	Students										
	No Sexual Coercion/ Aggression (0)			Verbal Sexual Coercion (1)			Physical Sexual Aggression (2)			0 vs. 1	0 vs. 2
	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>d</i> (95%CI)	<i>d</i> (95%CI)
Implicit Evaluations of Rape											
RE-IAT	-0.72	0.49	39	-0.78	0.33	26	-0.66	0.42	9	-0.13 (-0.63, 0.37)	0.13 (-0.60, 0.85)
RESC-IAT	-0.21	0.34	36	-0.22	0.39	26	-0.25	0.26	8	0.04 (-0.54, 0.47)	-0.13 (-0.90, 0.63)
Explicit Evaluations of Rape											
SES-TFR	1.08	0.15	75	1.31	0.37	52	1.53	0.67	17	0.84* (0.47, 1.20)	1.42* (0.85, 1.98)
Attitudes											
Eval. of	1.03	0.10	34	1.05	0.15	22	1.39	0.51	11	0.13 (-0.40, 0.67)	1.39* (0.66, 2.13)
Rape Scale											
ROE	1.53	0.90	38	1.75	1.32	29	1.27	0.44	5	0.20 (-0.28, 0.68)	-0.30 (-1.23, 0.64)
Evaluation											
Rape Supportive Cognition											
RAPE	51.64	15.18	33	59.16	15.29	31	62.00	13.28	8	0.49 (0.00, 0.99)	0.70 (-0.09, 1.48)
Scale											
Proclivity to Rape											
SES-TFR	0.05	0.09	75	0.33	0.45	52	0.58	0.77	17	0.97* (0.60, 1.34)	1.59* (1.02, 2.17)
Proclivity											
LR	1.11	0.40	72	1.20	0.57	50	1.41	0.71	17	0.19 (-0.17, 0.55)	0.64* (0.10, 1.17)

Note. Bolded values are $d \geq .20$. No Sexual Coercion/Aggression group = no past sexual aggression on SES; Verbal Sexual Coercion = past sexual aggression engaged in using verbal tactics (arguments and pressure; lies or promises; shown you were unhappy or making a woman feel guilty by sulking, swearing, or getting angry), but not using physical tactics; Physical Sexual

Aggression = past sexual aggression engaged in using physical tactics (giving a woman drugs or alcohol, waiting until a woman was too drunk or passed out, using physical force).

* $p < .05$

Table 16

Group Differences between Non-Sexually Aggressive Men and Sexually Aggressive Men in Evaluations of Rape, Rape-Supportive Cognition, and Proclivity to Rape in the Sample of Community Men

	Community Men										
	No Sexual Coercion/Aggression (0)			Verbal Sexual Coercion (1)			Physical Sexual Aggression (2)			0 vs. 1	0 vs. 2
	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>d</i> (95%CI)	<i>d</i> (95%CI)
Implicit Evaluations of Rape											
RE-IAT	-1.07	0.48	99	-1.06	0.47	46	-1.05	0.42	44	0.02 (-0.33, 0.37)	0.04 (-0.31, 0.40)
RESC-IAT	-0.40	0.35	112	-0.37	0.34	41	-0.53	0.33	31	0.09 (-0.27, 0.44)	-0.38 (-0.78, 0.02)
Explicit Evaluations of Rape											
SES-TFR	1.05	0.13	210	1.19	0.30	87	1.35	0.44	72	0.72* (0.46, 0.97)	1.21* (0.92, 1.49)
Attitudes											
Eval. of Rape Scale	1.00	0.00	105	1.05	0.12	43	1.30	0.58	35	0.78* (0.41, 1.14)	1.04* (0.64, 1.44)
ROE Evaluation	1.42	0.79	98	1.44	0.67	43	1.87	1.16	37	0.03 (-0.33, 0.39)	0.50* (0.11, 0.88)
Rape Supportive Cognition											
RAPE Scale	51.09	12.40	97	56.55	16.22	31	64.03	17.52	29	0.41 (0.00, 0.81)	0.94* (0.51, 1.37)
Proclivity to Rape											
SES-TFR	0.02	0.07	202	0.18	0.27	84	0.40	0.58	68	1.02* (0.75, 1.28)	1.28* (0.99, 1.58)
Proclivity											
LR	1.04	0.22	210	1.19	0.60	88	1.32	0.66	75	0.40* (0.15, 0.65)	0.72* (0.45, 0.99)

Note. Bolded values are $d \geq .20$. No Sexual Coercion/Aggression group = no past sexual aggression on SES; Verbal Sexual Coercion = past sexual aggression engaged in using verbal tactics (arguments and pressure; lies or promises; shown you were unhappy or making a woman feel guilty by sulking, swearing, or getting angry), but not using physical tactics; Physical Sexual

Aggression = past sexual aggression engaged in using physical tactics (giving a woman drugs or alcohol, waiting until a woman was too drunk or passed out, using physical force).

* $p < .05$

Percent agreement was computed for each SGIC question in both samples; each question was completed at the beginning and end of the survey (see Table 17). The majority of SGIC questions achieved good percent agreement across the survey, with most items achieving higher than 90% agreement. In the student sample, the exact match rate for participants was good, this was true when participants with missing data were included (73.3%) and excluded (80.5%). Of the 150 student participants, 40 (26.6%) did not have an exact match in their SGIC codes across the survey. Of the 40 participants, 19 had one error or missing value in their SGIC questions, 9 participants had two errors or missing values in their SGIC responses, and 12 had more than 2 errors or missing values in their SGIC responses. If the one-off rule were employed, then 129 of the 150 student participants would be classified correctly (86.0%). Of the 110 student participants who had an exact match rate for their SGIC, there were 2 participants with the exact same SGIC code.

Table 17

Percent Agreement for SGIC Questions Administered at the Beginning and End of the Online Survey

SGIC Question	Student % Agreement	Community Men % Agreement
Height – Feet and Inches	90.0%	97.6%
Birth Month	94.7%	98.9%
Birth Day	94.7%	98.4%
Mother’s Birth Month	92.7%	97.1%
Father’s Birth Month	91.3%	96.0%
Last Number of Birth Year	92.7%	97.1%
Number of Older Brothers	92.7%	97.1%
First Letter of Middle Name	92.7%	96.6%
Last Letter of Last Name	84.0%	88.9%
Number of Letters in First Name	94.0%	98.1%
Eye Colour	94.7%	98.4%
Shoe Size	92.7%	99.7%
SGIC Code	73.3%	73.8%

Note. $N = 150$ students, some variables had missing data. $N = 378$ community men, some variables had missing data.

The exact match rate for community participants was also good, this was true when participants with missing data were included (73.8%) and excluded (81.4%). Of the 378 community participants, 99 (26.2%) did not have an exact match in their SGIC codes across the survey. Of the 99 participants, 76 had one error or missing value in their SGIC questions, 17 participants had two errors or missing values in their SGIC responses, and 6 had more than 2 errors or missing values in their SGIC responses. If the one-off rule were employed, then 355 of the 378 community participants would be classified correctly (93.9%). Of the 279 participants who had an exact match rate for their SGIC, there were 2 participants with the exact same SGIC code.

Discussion

The purpose of Study 2 was to preliminarily explore the relationships between implicit and explicit evaluations of rape and indicators of sexually aggressive behaviour in students and community men recruited online. Overall, the measures of implicit evaluations of rape (RE-IAT and RESC-IAT) demonstrated moderate internal consistency that is consistent with the literature (e.g., Hoffman et al., 2005; Lane et al., 2007). As well, the measures of explicit evaluations of rape demonstrated good internal consistency. The exception to this was in the student sample, the Evaluation of Rape Scale only demonstrated moderate internal consistency. In the student sample, the range of total scores was restricted relative to the range of scores in the community sample; this is likely responsible for the lower internal consistency score for the student sample (Streiner, 2010).

For the most part, the measures of explicit evaluations of rape were all moderately and positively correlated. There were moderate to strong positive correlations between the SES-TFR Attitudes and Evaluation of Rape Scale measures for both students and community men. The ROE Evaluation Scale, however, only had moderate to strong positive associations with the SES-TFR Attitudes in the community sample. These results suggest these measures of explicit evaluations of rape may be measuring aspects of the same construct or that they may be measuring distinct, but closely related, constructs. The measures used to assess explicit evaluations of rape have face validity, and all employ methodology that is commonly used in the social psychology literature to assess attitudes (i.e., semantic differential scales; Gawronski & Bodenhausen, 2006; Glasman & Albarracín, 2006; Greenwald et al., 1998; Hofmann et al., 2005). It is important to note, however, that the validity of these measures to assess explicit evaluations of rape has not yet been examined in the literature. Thus, although these results are consistent with the notion that all three measures are assessing explicit evaluations of rape, more research is needed in order to validate these measures.

Consistent with what was hypothesized, the measures of implicit evaluations of rape had small and/or no relationship with the measures of explicit evaluations of rape. As noted above, this in itself is not surprising as past research has generally found that implicit and explicit attitudes are distinct cognitive constructs (e.g., Gawronski & Bodenhausen, 2006; Nosek & Smyth, 2007; Nunes et al., 2013). However, for the most part, implicit evaluations of rape were also found to be unrelated to indicators of sexually aggressive behaviour. Furthermore, when participants were divided into groups based on their past sexually aggressive behaviour (no sexual coercion or aggression, verbal sexual

coercion, physical sexual aggression), groups did not differ in their implicit evaluations of rape and/or the effect was in the unexpected direction. Past research generally suggests that implicit attitudes can predict subsequent behaviour (Cameron et al., 2012; Greenwald et al., 2009), and some research has found implicit evaluations of rape to be associated with indicators of sexually aggressive behaviour (Nunes et al., 2013; Widman & Olson, 2013). Thus, these findings are inconsistent with past research and do not support the hypothesis that implicit evaluations of rape are positively associated with indicators of sexually aggressive behaviour.

Of note, other unpublished research has also failed to find an association between implicit evaluations of rape and indicators of sexually aggressive behaviour in offender and student samples (Hermann et al., 2015; Maimone et al., 2013). One possible explanation for the differences in results is the use of different versions of the RE-IAT. Nunes et al. (2013) found implicit evaluations of rape, measured using an adapted version of the IAT (RE-IAT), were associated with past sexually aggressive behaviour and proclivity to rape. The RE-IAT used in this study was constructed using the concept categories of *RAPE* and *NOT RAPE* and attribute categories of *good* and *bad* (now referred to as RNGB-IAT). The current and previous studies that did not find a relationship between implicit evaluations of rape and indicators of sexually aggressive behaviour used a modified version of Nunes et al.'s (2013) RE-IAT. The RE-IAT used in these studies was constructed using the concept categories *RAPE* and *CONSENTING SEX* and attribute categories of *positive* and *negative* (now referred to as RCPN-IAT). It is possible that the different pattern of results is due to the use of different concept and attribute categories in IATs adapted to assess implicit evaluations of rape. Future research

should explore the impact of using different concept and attribute categories on the relationship between implicit evaluations of rape and indicators of sexually aggressive behaviour.

As a whole, explicit evaluations of rape had moderate to strong positive relationships with past sexually aggressive behaviour and proclivity to rape. In both the student and community samples, the SES-TFR Attitudes and Evaluation of Rape Scales had moderate to strong positive relationships with past sexually aggressive behaviour and proclivity to rape. Furthermore, there were large group differences in explicit evaluations of rape (Evaluation of Rape Scale, SES-TFR Attitudes) between participants who had engaged in past physical sexual aggression and those with no past sexual coercion or aggression in both of the samples. In the community sample, the ROE Evaluation scale had small to moderate positive relationships with indicators of sexually aggressive behaviour. The same pattern of results, however, was not found in the student sample. Generally, these results are consistent with what was hypothesized and suggest that explicit evaluations of rape are associated with sexually aggressive behaviour.

The proportion of students and community men who reported engaging in sexually aggressive behaviour online was also examined. In both samples, almost half of participants had committed at least one sexually coercive or aggressive act since the age of 16 years old. Approximately 25% of participants used sexually coercive tactics (e.g., arguments and pressure) to engage in sexual activity, and approximately 10% used sexually aggressive tactics (e.g., drugs or alcohol, physical force) to engage in sexual activity. These results are generally consistent with what was hypothesized and with the rates observed in past research (e.g., Abbey et al., 2012; Widman & Olson, 2013), and

suggest students and community men are willing to report engaging in sexually aggressive behaviour online.

Study 2 also further examined the consistency in reporting, and exact match rate for the SGICs in samples of students and community men. For both samples, there was good percent agreement for the individual SGIC items across the survey. Furthermore, the exact match rate in SGICs for both students (80.5%, no missing data) and community men (81.4%, no missing data) was high. The SGICs were also found to be largely unique in both the samples of students and community men. These results support the use of these SGICs in the longitudinal study.

In the current study the relationships between implicit and explicit evaluations of rape and indicators of sexually aggressive behaviour were examined. Explicit evaluations of rape had moderate to strong positive relationships with past sexually aggressive behaviour and proclivity to rape. These results are consistent with the notion that explicit evaluations of rape may predict subsequent sexually aggressive behaviour. The same pattern of results, however, was not found for implicit evaluations of rape. The relationship between implicit evaluations of rape, as measured using different versions of the IAT, and indicators of sexually aggressive behaviour need further exploration. Consistent with what was hypothesized, both students and community men reported engaging in past sexually aggressive behaviour at similar rates observed in past research, suggesting participants are willing to report engaging in sexually aggressive behaviour online. As well, the results for the SGIC are consistent with past research and support its use in the longitudinal study.

Study 3: Longitudinal Study Examining the Relationship between Implicit and Explicit Evaluations of Rape and Sexually Aggressive Behaviour

The primary purpose of Study 3 was to examine the relationship between implicit and explicit evaluations of rape and sexually aggressive behaviour using a longitudinal research design. Participants were asked to complete measures of implicit and explicit evaluations of rape, rape-supportive cognition, past sexually aggressive behaviour, and proclivity to rape (Wave 1), and then four months later, were again asked to complete measures of implicit and explicit evaluations of rape, proclivity to rape, and to self-report any sexually aggressive behaviour they had engaged in over the four month period (Wave 2). Thus, the relationship between implicit and explicit evaluations of rape at Wave 1 and subsequent sexually aggressive behaviour reported at Wave 2 was examined.

Study 3: Wave 1

The purpose of Study 3, Wave 1 was to replicate and expand on the findings of Study 2. As noted in Study 2, different concept and attribute categories have been used in measures examining implicit evaluations of rape (Hermann et al., 2015; Maimone et al., 2013; Nunes et al., 2013). Different patterns of results have been obtained in past research, with some studies finding an association between implicit evaluations of rape and indicators of sexually aggressive behaviour (e.g., Nunes et al., 2013) and other studies finding no evidence of an association between implicit evaluations of rape and indicators of sexually aggressive behaviour (e.g., Hermann et al., 2015). Thus, one purpose of this study was to examine the impact of using different concept and attribute

categories in adaptations of the Implicit Association Test to assess implicit evaluations of rape²⁰. The second purpose of this study was to replicate the findings of Study 2.

Research Questions and Hypotheses

(1) What is the relationship between each of the four measures of implicit evaluations of rape and indicators of sexually aggressive behaviour (i.e., proclivity to rape and past sexually aggressive behaviour) in samples of students and community men recruited online?

H1: It is hypothesized that at least one of the measures of implicit evaluations of rape will be positively associated with indicators of sexually aggressive behaviour in samples of students and community men as past research has found implicit attitudes are associated with behaviour (e.g., Cameron et al., 2012; Greenwald et al., 2009). More specifically, it is hypothesized that the version of the IAT used in Nunes et al. (2013; RRGB IAT) will be positively associated with indicators of sexually aggressive behaviour.

(2) The research questions and hypotheses from Study 1B were explored in this study.

(3) The research questions and hypotheses from Study 2 were explored in this study.

Methods

Participants

Student sample. Participants were 257 students recruited from Carleton University from the psychology participant pool (SONA). Participants received (0.5%)

²⁰ Four versions of the RE-IAT were created using different concept and attribute categories (see Table 19). The RESC-IAT was not included in Study 3 Wave 1 due to the limited sample size for this study (i.e., participants were randomly assigned to one of four implicit measures) and because the pattern of results for the RE-IAT and RESC-IAT were very similar in Study 2.

course credit for participating in the current study. Participants were excluded if they were female or missing data on this question ($n = 28$), failed the quality control questions ($n = 8$), did not identify as heterosexual ($n = 32$), reported they could not understand written English or were missing data on this item ($n = 22$), or responded too quickly on the Implicit Association Test (IAT; $n = 17$) (i.e., if more than 10% of trials are less than 300ms). Of note, the exclusion categories are not mutually exclusive. This resulted in a final sample size of 190 participants. The majority of participants were between 18 and 19 years old (58.9%, $n = 112$), identified as White (68.4%, $n = 130$), and were single (57.4%, $n = 109$) (see Table 18).

Community sample. Participants were 617 community men recruited through Qualtrics from an online panel of participants²¹. The online panel of participants was limited to adult English speaking men, who identified as heterosexual, and who resided in North America. Participants received \$2.00 as compensation for completing this study. Participants were excluded if they did not identify as male ($n = 0$), failed the quality control questions ($n = 0$), did not identify as heterosexual ($n = 0$), reported they could not understand written English or were missing data on this item ($n = 0$), or responded too quickly on the Implicit Association Test (IAT; $n = 20$) (i.e., if more than 10% of trials are less than 300ms). Of note, the exclusion categories are not mutually exclusive. This resulted in a final sample size of 597 participants. On average, participants were between 40 and 49 years old (15.2%, $n = 91$), identified as White (82.9%, $n = 495$), and were married (54.4%, $n = 324$) (see Table 18).

²¹ Qualtrics screened participants out if they failed the quality control questions, did not identify as male, did not identify as heterosexual, or reported they could not understand written English. This resulted in a sample of 617 complete cases for Qualtrics to sample from for Wave 2.

Table 18

Demographic Characteristics of Wave 1 Sample of Students and Community Men

Demographic Characteristics	Students	Community Participants	X ² (df)
	% (n)	% (n)	
Age			627.9 (7) ^{*a}
18-19	58.9% (112)	0.2% (1)	
20-24	33.7% (64)	3.7% (22)	
25-29	5.8% (11)	7.5% (45)	
30-34	1.1% (2)	13.2% (79)	
35-39	-	4.9% (29)	
40-49	-	15.2% (91)	
50-59	0.5% (1)	25.6% (153)	
60 or older	-	29.6% (177)	
Race^b			53.2 (7) ^{*c}
White	68.4% (130)	82.9% (495)	
Black	7.9% (15)	6.9% (41)	
Asian	10.0% (19)	5.0% (30)	
Aboriginal	0.5% (1)	0.5% (3)	
East Indian	2.6% (5)	0.3% (2)	
Hispanic/Latino	2.1% (4)	3.5% (21)	
Arab	4.7% (9)	-	
Other	3.2% (6)	0.8% (5)	
Relationship Status^d			261.9 (6) ^{*e}
Married	2.1% (4)	54.4% (324)	
Living With Romantic Partner	4.7% (9)	4.4% (26)	
In a Romantic Relationship	35.3% (67)	4.7% (28)	
Single	57.4% (109)	26.8% (160)	
Separated	-	1.0% (6)	
Divorced	-	7.7% (46)	
Other	0.5% (1)	1.0% (6)	
Full Time Employment^{fg}			124.1 (1) ^{*h}
Yes	5.3% (10)	51.4% (307)	
No	91.1% (173)	47.9% (286)	
Part Time Employment^{ib}			82.5 (1) ^{*h}
Yes	48.4% (92)	15.9% (95)	
No	51.1% (97)	82.4% (492)	
Currently Attending University or College^j			619.2 (1) ^{*h}
Yes	100% (190)	6.1% (36)	
No	0% (0)	93.5% (558)	
Completed University or College^{bj}			132.8 (1) ^{*h}
Yes	12.1% (23)	60.0% (358)	
No	87.4% (166)	39.5% (236)	

Note. ^a Fischer’s exact test is more appropriate than the Chi-Square test when sample and cell sizes are small; thus, the results of Fischer’s exact tests are also provided. Fischer’s exact test (age split at 30 years), $p < .001$. ^b $n = 1$ missing data students. ^c Fischer’s exact test (race: white vs. other), $p < .001$. ^d $n = 1$ missing data community participants. ^e Fischer’s exact test (relationship status: no relationship vs. relationship), $p < .001$. ^f $n = 4$ missing data community participants. ^g $n = 7$ missing data students. ^h Fischer’s exact test, $p < .001$. ⁱ $n = 10$ missing data community participants. ^j $n = 3$ missing data community participants.
 * $p < .001$

Measures

Descriptions of the Demographic questionnaire (appendix L), Self-Generated Identification Code (SGIC) questions (Table 4), Sexual Experience Survey – Tactics First Revised (SES-TFR) (Appendix O), Sexual Experience Survey – Tactics First Revised (SES-TFR) Attitudes (Appendix O), Sexual Experience Survey – Tactics First Revised (SES-TFR) Proclivity (Appendix O), Likelihood to Rape question (appendix P), Rape Outcome Expectancies (ROE) – Evaluation Scale (appendix Q), RAPE Scale (Appendix R), and Evaluation of Rape Scale (appendix S) are available in Study 2.

Rape Evaluation Implicit Association Test (RE-IAT). The RE-IAT was modified for Study 3 (see Appendix M). Four versions of the RE-IAT were developed for this study that varied by the concept and attribute categories used (see Table 19). The RE-IATs employed the same stimuli (see Table 7) and procedure (see Table 8) as Study 2, and the same scoring method was applied (see Lane et al., 2007).

Table 19

Concept and Attribute Categories for the Four Versions of the RE-IAT

	RNPN IAT	RCPN IAT	RNGB IAT	RCGB IAT
Concept	RAPE	RAPE	RAPE	RAPE
Categories	NOT RAPE	CONSENTING SEX	NOT RAPE	CONSENTING SEX
Attribute	positive	positive	good	good
Categories	negative	negative	bad	bad

Online Measure Programming

To develop the four implicit measures of evaluations of rape, I modified the programming (i.e., computer code) developed by the computer programmer hired for Study 2. Once the implicit measures of evaluations of rape were programmed in Qualtrics, I programmed the self-report questionnaires (e.g., SES-TFR Attitudes, RAPE Scale, etc.), consent form, and debriefing forms.

Procedure

Student participants were recruited from Carleton University through the psychology participant pool (i.e., SONA). Community men were recruited through Qualtrics. Participants completed all of the measures as an online survey. Participants were first presented with a consent form outlining the study (Appendix V). If participants agreed to participate, they were then asked to read a pre-debriefing form (Appendix U), complete the demographic questionnaire (Appendix L), and the SGIC questions. Following this, participants were randomly assigned to complete one of the four RE-IATs. After this participants were asked to complete the SES-TFR measures (Appendix O). Participants were then randomly assigned to complete either the ROE-Evaluation Scale (Appendix Q) scale or the Evaluation of Rape Scale (Appendix S). Following this, participants were randomly assigned to complete the RAPE Scale (Appendix R) or another measure of rape-supportive cognition (not included in the current study). Participants were then asked to complete the LR question (Appendix P), and then to complete the SGIC questions for a second time. Participants completed quality control questions throughout the survey (Appendix H). After participants completed the measures, they were presented with a debriefing form (Appendix U).

Results

Descriptive statistics and internal consistency for both samples are presented in Table 20. The measures of implicit evaluations of rape had moderate to good internal consistency in the community sample, and moderate internal consistency for two of the implicit measures in the student sample. The results for two implicit measures were not examined for the student sample due to low internal consistency. The measures of explicit evaluations of rape, rape-supportive cognition, past sexually aggressive behaviour, and proclivity to rape all had excellent internal consistency in both samples. The exception to this was the Evaluation of Rape Scale in the student sample, which only had moderate internal consistency²². As in Study 2, data were often not normally distributed. The same approach to statistical analysis used in Study 2 was used in the current study.

²² Internal consistency of a particular measure is dependent on the variance in total scores for that measure; more variance in total scores equals higher internal consistency scores (Streiner, 2010). The range of scores for the Evaluation of Rape Scale in the student sample is restricted relative to the range of scores for the community sample, likely resulting in the lower internal consistency score.

Table 20

Descriptive Statistics and Internal Consistency for Wave 1 Sample of Students and Community Men

Measures	Students				Community Men				<i>d</i>	95% CI
	α	Range	<i>M</i> (<i>SD</i>)	<i>n</i>	α	Range	<i>M</i> (<i>SD</i>)	<i>n</i>		
Implicit Evaluations of Rape										
RNPN IAT	.62	-1.68 to 0.29	-0.82 (0.47)	47	.74	-2.53 to 0.58	-1.10 (0.58)	153	0.50*	0.17 to 0.83
RCPN IAT	.49	-2.05 to 0.16	-0.81 (0.39)	49	.74	-2.45 to 2.08	-1.22 (0.56)	156	0.78*	0.45 to 1.11
RCGB IAT	.83	-1.29 to 1.89	-0.62 (0.54)	45	.72	-2.77 to 0.28	-1.18 (0.55)	149	1.02*	0.67 to 1.37
RNGB IAT	.51	-1.58 to 0.03	-0.71 (0.41)	49	.79	-3.35 to 1.26	-1.09 (0.66)	139	0.63*	0.30 to 0.96
Explicit Evaluations of Rape										
Eval. of Rape Scale	.69	1.00 to 2.67	1.09 (0.30)	85	.93	1.00 to 7.00	1.15 (0.60)	296	-0.11	-0.35 to 0.13
ROE-Evaluation	-	1.00 to 7.00	1.79 (1.37)	94	-	1.00 to 7.00	1.69 (1.35)	281	0.07	-0.16 to 0.31
SES-TFR Attitudes	.93	1.00 to 3.17	1.19 (0.34)	184	.98	1.00 to 7.00	1.26 (0.66)	579	-0.12	-0.28 to 0.05
Rape-Supportive Cognition										
RAPE Scale	.96	36.00 to 102.00	55.74 (15.78)	84	.97	36.00 to 144.00	59.23 (18.89)	233	-0.19	-0.44 to 0.06
Past Sexually Aggressive Behaviour										
SES-TF	.80	0.00 to 468.00	18.29 (51.63)	188	.94	0.00 to 1236.00	33.15 (110.73)	578	-0.15	-0.31 to 0.02
Proclivity to Rape										
SES-TF Proclivity	.93	0.00 to 2.47	0.17 (0.34)	177	.98	0.00 to 6.00	0.23 (0.65)	585	-0.10	-0.27 to 0.07
LR	-	1.00 to 5.00	1.20 (0.58)	183	-	1.00 to 5.00	1.15 (0.57)	596	0.09	-0.08 to 0.25

Note. Bolded values are $d \geq .20$. Sample size for each measure varies as a result of missing data. Cohen's d were computed such that positive values indicate the student sample has higher/more positive scores than the community sample, and negative values indicate the student sample has lower/more negative scores than the community sample. RNPN IAT categories = RAPE, NOT RAPE, positive, negative. RCPN IAT categories = RAPE, CONSENTING SEX, positive, negative. RCGB IAT categories = RAPE, CONSENTING SEX, good, bad. RNGB IAT categories = RAPE, NOT RAPE, good, bad.

* $p < .05$

The proportion of each sample who self-reported that they had engaged in sexually aggressive behaviour is presented in Table 21. In both samples, approximately 40% of participants reported committing a sexually coercive or aggressive act since the age of 16 (40.6% of students and 42.0% of community men). This information is further broken down by tactic used to obtain sexual activity. For both students and community men, approximately 25% of participants had engaged in sexual activity using sexually coercive tactics (e.g., using arguments or pressure), 2.8% of the student sample and 4.8% of the community sample gave a woman drugs or alcohol to obtain sexual activity, 4.4% of the student sample and 9.9% of the community sample had engaged in sexual activity when a woman was passed out or too drunk to stop the behaviour, and 2.8% of the student sample and 2.9% of the community sample reported using physical force to obtain sexual activity.

Table 21

Self-Reported Frequency of Sexually Aggressive Behaviour by Tactic Used for the Samples of Students and Community Men

SES-Tactic	Students (N = 180) ^a		Community Men (N = 578)	
	%	n	%	n
1. Arguments and pressure	17.8%	32	27.2%	157
2. Made promises you knew were untrue	16.7%	30	18.9%	109
3. Showed you were not happy by making a woman feel guilty, swearing, sulking, or getting angry	27.2%	49	25.6%	148
4. Giving a woman drugs or alcohol without her permission	2.8%	5	4.8%	28
5. Woman passed out or too drunk to stop what was happening	4.4%	8	9.9%	57
6. Used physical force	2.8%	5	2.9%	17

Note. n = 8 participants were missing data on one or more items of the SES-TFR and were excluded from these analyses. A total SES-TFR score was still computed for participants with missing data.

Pearson correlations were used to examine the relationship between the measures of explicit evaluations of rape and the measure of rape-supportive cognition (see Table 22). All the relationships were positive and larger than r of .10. The SES-TFR Attitudes measure had a small positive (non-significant) relationship with the Evaluation of Rape Scale and a small positive significant relationship with the ROE Evaluation Scale in the student sample. In the community sample, the SES-TFR Attitudes measure had moderate positive significant relationships with the Evaluation of Rape Scale and ROE Evaluation scale. The SES-TFR Attitudes scale, Evaluation of Rape Scale, and ROE Evaluation Scale all had moderate to large positive significant relationships with the RAPE Scale, although for the Evaluation of Rape Scale this relationship was non-significant in the student sample.

Table 22

Pearson Correlations between Measures of Explicit Evaluations of Rape and Rape-Supportive Cognition

	Students	
	SES-TFR Attitudes r (n)	RAPE Scale r (n)
Evaluation of Rape Scale	.20 (85)	.27 (38)
ROE Evaluation	.28*** ^a (94)	.39* (45)
SES-TFR Attitudes	-	.51* (84)
	Community Men	
	SES-TFR Attitudes r (n)	RAPE Scale r (n)
Evaluation of Rape Scale	.32* (284)	.57* (103)
ROE Evaluation	.45* (277)	.46* (120)
SES-TFR Attitudes	-	.51* (116)

Note. ^a Spearman rho correlation (Pearson correlation $r = .16, p = .133$)

* $p < .001$

The relationships between implicit evaluations of rape and explicit evaluations of rape, and rape-supportive cognition were also examined using Pearson correlations (see Table 23). Most of the relationships were small and were non-significant. Focusing on

effect size ($r \geq .10$), the RNPN IAT had small to moderate positive relationships with the Evaluation of Rape Scale and ROE Evaluation Scale in the student sample, but the same pattern of results was not found in the community sample. The RNPN IAT also had a small positive relationship with the RAPE Scale in the community sample; this was not observed in the student sample. The RCPN IAT had small positive relationships with the ROE Evaluation Scale and RAPE Scale in the community sample. The RCGB IAT had small positive relationship with the ROE Evaluation Scale and RAPE Scale in the student sample. The RCGB IAT also had small positive relationships with the Evaluation of Rape Scale and ROE-Evaluation Scale, and a moderate positive relationship with the RAPE Scale in the community sample. The RNGB IAT had small positive relationships with the Evaluation of Rape Scale, SES-TFR Attitudes, and ROE-Evaluation Scale in the community sample. Thus, there was some preliminary evidence of a relationship between implicit evaluations of rape and explicit evaluations of rape (ROE Evaluation Scale) and rape-supportive cognition.

Table 23

Pearson Correlations between Implicit Evaluations of Rape, Explicit Evaluations of Rape, and Rape-Supportive Cognition in the Samples of Students and Community Men

Implicit Evaluation of Rape	Explicit Evaluation of Rape/ Rape Supportive Cognition	Students		Community Men	
		<i>n</i>	<i>r</i>	<i>n</i>	<i>r</i>
RNPN IAT	Evaluation of Rape Scale	26	.38	67	-.03
RNPN IAT	SES-TFR Attitudes	44	.05	149	.06 ^a
RNPN IAT	ROE Evaluation	25	.29	78	.01
RNPN IAT	RAPE Scale	19	-.06	71	.12
RCPN IAT	Evaluation of Rape Scale	-	-	78	.09
RCPN IAT	SES-TFR Attitudes	-	-	151	.07 ^b
RCPN IAT	ROE Evaluation	-	-	75	.21
RCPN IAT	RAPE Scale	-	-	57	.27*^c
RCGB IAT	Evaluation of Rape Scale	21	.07	76	.18
RCGB IAT	SES-TFR Attitudes	44	-.06	142	.01
RCGB IAT	ROE Evaluation	21	.28	69	.18
RCGB IAT	RAPE Scale	21	.17	51	.40**
RNGB IAT	Evaluation of Rape Scale	-	-	75	.24*
RNGB IAT	SES-TFR Attitudes	-	-	137	.16
RNGB IAT	ROE Evaluation	-	-	59	.13
RNGB IAT	RAPE Scale	-	-	54	.03

Note. Bolded values are $r \geq .10$. ^a Spearman rho correlation (Pearson correlation $r = .16^*$, $p < .05$). ^b Spearman rho correlation (Pearson correlation $r = .20^*$, $p < .05$). ^c Spearman correlation (Pearson correlation $r = .24$, $p = .07$). RNPN IAT categories = RAPE, NOT RAPE, positive, negative. RCPN IAT categories = RAPE, CONSENTING SEX, positive, negative. RCGB IAT categories = RAPE, CONSENTING SEX, good, bad. RNGB IAT categories = RAPE, NOT RAPE, good, bad.

* $p < .05$

Pearson correlations were then used to examine the relationship between implicit and explicit evaluations of rape, rape-supportive cognition, and past sexually aggressive behaviour and proclivity to rape (see Table 24). For both students and community men, the relationships between implicit evaluations of rape and indicators of sexually aggressive behaviour were either non-existent or small and non-significant. The RNPN IAT had small negative relationships with indicators of sexually aggressive behaviour in the student sample, but not in the community sample. The RCPN IAT has small positive

relationships with indicators of sexually aggressive behaviour in the community sample. The RCGB IAT was mostly unrelated to indicators of sexually aggressive behaviour in both samples, with the exception of a small negative relationship with past sexually aggressive behaviour in the community sample. And the RNGB IAT had a small positive relationship with proclivity to rape in the community sample. Of the four IAT measures designed to assess implicit evaluations of rape, the RCPN IAT was the most related to indicators of sexually aggressive behaviour in the current study.

For explicit evaluations of rape, there were moderate to large positive significant relationships between the SES-TFR Attitudes and past sexually aggressive behaviour and proclivity to rape in both the samples of students and community men. This pattern of results was also generally evident for the Evaluation of Rape Scale and ROE Evaluation Scales in the sample of community men. The Evaluation of Rape Scale had a small positive relationship with past sexually aggressive behaviour and proclivity to rape (LR) in the student sample. The ROE Evaluation Scale had small positive relationships with proclivity to rape in the student sample (LR). There were also moderate to large positive relationships between rape-supportive cognition and past sexually aggressive behaviour and proclivity to rape in both the student and community samples.

Table 24

Pearson Correlations between Evaluations of Rape, Rape-Supportive Cognition, and Indicators of Sexually Aggressive Behaviour in the Samples of Students and Community Men

Evaluation of Rape/ Rape-Supportive Cognition	Indicators of Sexually Aggressive Behaviour	Students		Community Men	
		<i>n</i>	<i>r</i>	<i>n</i>	<i>r</i>
RNPN IAT	SES-TFR Past Total	46	-.11	153	.04
	SES-TFR Proclivity	43	-.11	147	.01
	LR	44	-.18	153	.03
RCPN IAT	SES-TFR Past Total	-	-	156	.14
	SES-TFR Proclivity	-	-	154	.11^a
	LR	-	-	156	.12
RCGB IAT	SES-TFR Past Total	45	-.05	149	-.11
	SES-TFR Proclivity	41	-.09	148	.05
	LR	43	.03	148	.07
RNGB IAT	SES-TFR Past Total	-	-	139	.08
	SES-TFR Proclivity	-	-	136	.07 ^b
	LR	-	-	139	.17^c
SES-TFR Attitudes	SES-TFR Past Total	184	.52***	579	.59***
	SES-TFR Proclivity	177	.65***	568	.84***
	LR	182	.37***	579	.49***
Evaluation of Rape Scale	SES-TFR Past Total	85	.30**^d	296	.21***
	SES-TFR Proclivity	81	.11	288	.34***
	LR	84	.35**	295	.52***
ROE Evaluation	SES-TFR Past Total	96	-.10	281	.20**
	SES-TFR Proclivity	94	.08	277	.47***
	LR	93	.22*	281	.40***
RAPE Scale	SES-TFR Past Total	84	.35**	233	.28***
	SES-TFR Proclivity	79	.45***	231	.57***
	LR	84	.48***	233	.58***

Note. Bolded values are $r \geq .10$. ^a Spearman rho correlation (Pearson correlation $r = .23, p < .01$). ^b Spearman rho correlation (Pearson correlation $r = .23, p < .01$). ^c Spearman rho correlation (Pearson correlation $r = .17, p = .05$). ^d Spearman correlation (Pearson correlation $r = .20, p = .06$). RNPN IAT categories = RAPE, NOT RAPE, positive, negative. RCPN IAT categories = RAPE, CONSENTING SEX, positive, negative. RCGB IAT categories = RAPE, CONSENTING SEX, good, bad. RNGB IAT categories = RAPE, NOT RAPE, good, bad.

⁺ $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$

Group differences in implicit and explicit evaluations of rape, rape-supportive cognition, and proclivity to rape were examined (see Tables 25 and 26). Participants were

divided into three groups using their past sexually aggressive behaviour on the SES-TFR: (1) no past sexually coercive/aggressive behaviour, (2) verbal sexual coercion, but no physical sexual aggression, and (3) physical sexual aggression, with or without verbal sexual coercion (see Tables 25 and 26 note for further explanation of how groups were formed). Focusing on effect size ($d \geq .20$), in both samples, as expected, the largest differences were observed between participants with no past sexually coercive or aggressive behaviour and those who had used physical sexual aggression. Generally, there were significant moderate to large group differences in explicit evaluations of rape, rape-supportive cognition, and proclivity to rape. This pattern of results was also evident when comparing men with no past sexually aggressive behaviour to those who have used verbally coercive tactics to engage in sexual activity. The exception to this was the ROE Evaluation scale in both the student and community samples, and the LR scale in the student sample. Contrary to what was expected, groups either did not differ in their implicit evaluations of rape or non-sexually aggressive men had more positive implicit evaluations of rape than participants who had engaged in physical sexual aggression.

Table 25

Group Differences between Non-Sexually Aggressive Men and Sexually Aggressive Men in Evaluations of Rape, Rape-Supportive Cognition, and Proclivity to Rape in the Sample of Students

	Students										
	No Sexual Coercion/Aggression (0)			Verbal Sexual Coercion (1)			Physical Sexual Aggression (2)			0 vs. 1	0 vs. 2
	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>d</i> (95%CI)	<i>d</i> (95%CI)
Implicit Evaluations of Rape											
RNPN IAT	-0.74	0.46	29	-0.99	0.42	14	-1.62	-0.78	3	-0.56 (-1.21 to 0.09)	-1.80* (-3.07 to -0.54)
RCGB IAT	-0.61	0.46	24	-0.77	0.35	14	-0.60	0.14	7	-0.38 (-1.04 to 0.29)	0.02 (-0.82 to 0.87)
Explicit Evaluations of Rape											
SES-TFR	1.06	0.12	109	1.28	0.30	58	1.53	0.46	17	1.09* (0.75 to 1.43)	2.35* (1.77 to 2.94)
Attitudes											
Eval. of Rape Scale	1.03	0.12	52	1.09	0.28	24	1.32	0.56	9	0.32 (-0.16 to 0.81)	1.24* (0.50 to 1.98)
ROE Evaluation	1.80	1.30	54	1.59	0.86	32	1.50	0.76	8	-0.18 (-0.62 to 0.26)	-0.24 (-0.98 to 0.50)
Rape Supportive Cognition											
RAPE Scale	48.24	11.16	46	61.68	13.85	25	70.85	18.29	13	1.10* (0.59 to 1.62)	1.74* (1.05 to 2.43)
Proclivity to Rape											
SES-TFR	0.05	0.11	105	0.25	0.32	57	0.48	0.48	15	0.96* (0.62 to 1.30)	2.21* (1.60 to 2.81)
Proclivity											
LR	1.03	0.21	109	1.07	0.32	57	1.06	0.24	17	0.16 (-0.16 to 0.48)	0.14 (-0.37 to 0.65)

Note. Bolded values are $d \geq .20$. No Sexual Coercion/Aggression group = no past sexual aggression on SES; Verbal Sexual Coercion = past sexual aggression engaged in using verbal tactics (arguments and pressure; lies or promises; shown you were unhappy or making a woman feel guilty by sulking, swearing, or getting angry), but not using physical tactics; Physical Sexual

Aggression = past sexual aggression engaged in using physical tactics (giving a woman drugs or alcohol, waiting until a woman was too drunk or passed out, using physical force).

* $p < .05$

Table 26

Group Differences between Non-Sexually Aggressive Men and Sexually Aggressive Men in Evaluations of Rape, Rape-Supportive Cognition, and Proclivity to Rape in the Sample of Community Men

	Community Men										
	No Sexual Coercion/Aggression (0)			Verbal Sexual Coercion (1)			Physical Sexual Aggression (2)			0 vs. 1	0 vs. 2
	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>d</i> (95%CI)	<i>d</i> (95%CI)
Implicit Evaluations of Rape											
RNPN IAT	-1.08	0.59	91	-1.20	0.58	38	-0.98	0.58	17	-0.20 (-0.58 to 0.17)	0.17 (-0.35 to 0.69)
RCPN IAT	-1.22	0.46	94	-1.27	0.47	44	-1.30	0.72	17	-0.11 (-0.47 to 0.25)	-0.16 (-0.67 to 0.36)
RCGB IAT	-1.07	0.47	79	-1.30	0.61	42	-1.33	0.63	23	-0.44* (-0.82 to -0.06)	-0.51* (-0.98 to -0.04)
RNGB IAT	-1.01	0.64	71	-1.22	0.71	42	-1.07	0.63	20	-0.31 (-0.70 to 0.07)	-0.09 (-0.59 to 0.40)
Explicit Evaluations of Rape											
SES-TFR Attitudes	1.07	0.15	327	1.31	0.39	161	1.67	0.93	74	0.94* (0.74 to 1.14)	1.43* (1.16 to 1.70)
Eval. of Rape Scale	1.05	0.16	170	1.13	0.33	78	1.20	0.38	36	0.35* (0.08 to 0.62)	0.70* (0.33 to 1.07)
ROE Evaluation	1.53	1.10	151	1.51	0.90	86	2.27	1.74	38	-0.02 (-0.28 to 0.25)	0.59* (0.23 to 0.95)
Rape Supportive Cognition											
RAPE Scale	55.10	16.69	141	63.55	16.76	66	71.76	22.47	21	0.51* (0.21 to 0.80)	0.95* (0.48 to 1.42)
Proclivity to Rape											
SES-TFR Proclivity	0.04	0.14	329	0.25	0.36	165	0.66	0.97	76	0.89* (0.69 to 1.08)	1.42* (1.15 to 1.69)
LR	1.03	0.18	335	1.10	0.48	166	1.34	0.81	76	0.22* (0.04 to 0.41)	0.81* (0.55 to 1.06)

Note. Bolded values are $d \geq .20$. No Sexual Coercion/Aggression group = no past sexual aggression on SES; Verbal Sexual Coercion = past sexual aggression engaged in using verbal tactics (arguments and pressure; lies or promises; shown you were unhappy or making a woman feel guilty by sulking, swearing, or getting angry), but not using physical tactics; Physical Sexual Aggression = past sexual aggression engaged in using physical tactics (giving a woman drugs or alcohol, waiting until a woman was too drunk or passed out, using physical force).

* $p < .05$

Discussion

The purpose of this study was to replicate and expand upon the findings of Study 2. Consistent with Study 2, the majority of measures demonstrated good internal consistency and the measures of explicit evaluations of rape were moderately and positively correlated, suggesting they may be measuring aspects of the same construct or that they may be measuring distinct, but closely related, constructs. Of the four measures of implicit evaluations of rape, however, only two demonstrated adequate internal consistency in the student sample. The RCPN IAT and RNGB IAT demonstrated lower internal consistency than would be expected based on prior research (e.g., Hoffman et al., 2005; Lane et al., 2007); consequently, the results for these measures were not interpreted. For the remaining measures, these results suggest implicit and explicit measures of evaluations of rape demonstrate acceptable reliability when administered online.

Generally, the same pattern of results as observed in Study 2 was found in the current study. Consistent with what was hypothesized, there were no relationships and/or small positive relationships between the implicit measures of evaluations of rape and explicit measures of evaluations of rape. As well, explicit evaluations of rape had moderate to strong positive associations with past sexually aggressive behaviour and proclivity to rape in both samples of students and community men. This pattern of results was also evident when comparing groups of non-sexually aggressive and sexually aggressive men. Furthermore, almost half of participants reported committing at least one sexually coercive or aggressive act since the age of 16 years old. To commit these sexually aggressive acts, approximately 25% of participants used sexually coercive

tactics (e.g., arguments and pressure), and approximately 10% used sexually aggressive tactics (e.g., drugs or alcohol, physical force) to engage in sexual activity. As a whole, these results are consistent with what was hypothesized, and the results of Study 2. Further they suggest that explicit evaluations of rape are associated with sexually aggressive behaviour and that participants are willing to report engaging in sexually aggressive behaviour online.

Contrary to what was hypothesized, the relationships between implicit evaluations of rape and indicators of sexually aggressive behaviour were either non-existent or small and non-significant. Furthermore, when comparing groups of non-sexually aggressive and sexually aggressive men, non-sexually aggressive men often reported more positive implicit evaluation of rape. These results are inconsistent with past research that has found implicit evaluations of rape to be associated with indicators of sexually aggressive behaviour (Nunes et al., 2013; Widman & Olson, 2013). More specifically, these results are inconsistent with the work of Nunes and colleagues (2013) that found the RNGB IAT had small to moderate positive significant relationships with past sexually aggressive behaviour and proclivity to rape in a sample of students. More generally, these findings are inconsistent with the notion that implicit evaluations of rape are positively associated with indicators of sexually aggressive behaviour.

One possible explanation for the lack of relationship between implicit evaluations of rape and past sexually aggressive behaviour is the direction of influence for this relationship. Past research has found implicit and explicit attitudes predict subsequent behaviour (Cameron et al., 2012; Glasman & Albarracin, 2006; Greenwald et al., 2009; Kraus, 1995). It is possible that the direction of influence of evaluations of rape on

sexually aggressive behaviour is as follows: evaluations of rape influence subsequent sexually aggressive behaviour, the outcomes of engaging in sexually aggressive behaviour may then influence attitudes by making them more positive, negative, or maintaining their current evaluative state. These updated evaluations then influence future sexually aggressive behaviour. If this were the case, we might expect evaluations of rape to be inconsistently associated with past sexually aggressive behaviour, as this relationship would be dependent on how the outcomes of engaging in past sexually aggressive behaviour impacted subsequent evaluations of rape (i.e., made the evaluations more positive, negative, or maintained current evaluations). For example, if the outcomes of engaging in sexually aggressive behaviour resulted in more negative implicit evaluations of rape for some people, then we would expect to see a negative relationship between implicit evaluations of rape and past sexually aggressive behaviour for these individuals. If the opposite were true for some people, and the outcomes of engaging in sexually aggressive behaviour resulted in more positive implicit evaluations of rape, then we would expect to see a positive relationship between implicit evaluations of rape and past sexually aggressive behaviour for these individuals. Thus, depending on the sample of people who have engaged in past sexually aggressive behaviour, the relationship between implicit evaluations of rape and past sexually aggressive behaviour may be positive, negative, or there may be no relationship observed.

But what about the positive relationship observed between explicit evaluations of rape and past sexually aggressive behaviour? It is unknown why a fairly consistent positive relationship between explicit evaluations of rape and sexually aggressive behaviour has been observed, if the direction of influence is as it has been proposed

above. As noted earlier, what distinguishes between implicit and explicit evaluations of rape is the process of deliberation. One possible explanation for this consistent relationship is that when deliberating on evaluations of rape (i.e., considering evaluative and non-evaluative information), sexually aggressive men consider and incorporate other non-evaluative information that is positively associated with engaging in sexually aggressive behaviour, resulting in more positive consistent relationships between explicit evaluations of rape and past sexually aggressive behaviour. For example, sexually aggressive men tend to endorse more rape-supportive cognition (e.g., RAPE scale) than non-sexually aggressive men. It is possible that these non-evaluative rape-supportive cognitions influence explicit evaluations of rape in men who have engaged in sexually aggressive behaviour. As previously noted, few studies to date have examined evaluations of rape; as a result, more research examining the relationship between implicit and explicit evaluations of rape is needed. In particular, research examining the direction of influence (e.g., longitudinal designs) would be most useful in understanding the relationships between implicit and explicit evaluations of rape and sexually aggressive behaviour.

Study 3: Wave 2

The primary purpose of Study 3 Wave 2 was to examine the relationship between implicit and explicit evaluations of rape and sexually aggressive behaviour using a longitudinal research design. The secondary purpose of this study was to examine the exact match rate and uniqueness of the SGICs using a longitudinal research design.

Research Questions and Hypotheses

- (1) Do implicit evaluations of rape assessed at Time 1 predict sexually aggressive behaviour assessed at Time 2 in samples of students and community men?

H1: It is expected that implicit evaluations of rape at Time 1 will significantly predict sexually aggressive behaviour at Time 2. Past research has found implicit attitudes predict subsequent behaviour (e.g., Cameron et al., 2012; Greenwald et al., 2009), and some research has found a positive relationship between implicit evaluations of rape and sexually aggressive behaviour in students and community men (Nunes et al., 2013; Widman & Olson, 2013).

- (2) Do explicit evaluations of rape assessed at Time 1 predict sexually aggressive behaviour assessed at Time 2 in samples of male students and community men?

H1: It is expected that explicit evaluations of rape at Time 1 will significantly predict sexually aggressive behaviour at Time 2. Past research has found explicit attitudes predict behaviour (e.g., Kraus, 1995; Glasman & Albarracín, 2006), and research has found a positive relationship between explicit evaluations of rape and sexually aggressive behaviour in student samples (Maimone et al., 2013; Nunes et al., 2013; Nunes, Hermann, White et al., 2015).

- (3) If implicit and explicit evaluations of rape assessed at Time 1 significantly predict sexually aggressive behaviour at Time 2, do they independently predict sexually aggressive behaviour?

H1: It is expected that implicit and explicit evaluations of rape assessed at Time 1 will independently predict sexually aggressive behaviour assessed at Time 2, and that they will explain significantly more variance in sexually aggressive behaviour together, rather than alone. Past research has found implicit and explicit attitudes

and cognitions independently predicted criterion variables (Cameron et al., 2012; Greenwald et al., 2009), and past research has found implicit and explicit evaluations of rape were independently associated with past sexually aggressive behaviour and proclivity to rape in a sample of students (Nunes et al., 2013).

(4) The research questions and hypotheses from Study 1B were also explored.

Methods

Participants

Student sample. Student participants who completed Wave 1 of testing were invited to complete Wave 2 approximately four months after Wave 1 (Appendix W). The sample of students who agreed to participate in Wave 2 of this study was too small for further analyses ($n = 25$)²³.

Community sample. Participants were 263 community men recruited through Qualtrics from the panel participants who completed Wave 1 of Study 3²⁴. Participants were contacted approximately four months after Wave 1, and received \$2.00 as compensation for completing this study. Of the 354 participants from Wave 1 who were not included in Wave 2, 81 were excluded for only partially completing the survey and 273 refused to complete the second survey. Differences between participants who only completed Wave 1 and those who completed both Wave 1 and 2 were examined (see Table 27). The groups generally did not differ in their implicit and explicit evaluations of

²³ Student participants were invited/reminded to participate three times (January 25th, 2015, January 29th, 2015, February 16th, 2015).

²⁴ The original budget for this wave of data collection was for approximately 250 participants (each participant cost \$4.00 CAD, for a total of \$1000.00). However, Qualtrics was informed during Wave 2 data collection that if more participants were interested in participating the budget could be increased to include these participants in the sample. Qualtrics recruited participants from the 617 participants who completed the survey in Wave 1.

rape, rape-supportive cognition, or self-reported likelihood to rape. There were small group differences in age, implicit evaluations of rape as measured by the RCPN IAT, and self-reported past sexually aggressive behaviour, such that participants who completed both waves 1 and 2 were older, had more negative implicit evaluations of rape, and self-reported less past sexually aggressive behaviour.

Participants were excluded if they did not identify as male ($n = 0$), failed the quality control questions ($n = 4$), did not identify as heterosexual ($n = 0$), reported they could not understand written English or were missing data on this item ($n = 3$), or responded too quickly on the Implicit Association Tests (Wave 1 $n = 6$; Wave 2 $n = 7$) (i.e., if more than 10% of trials are less than 300ms). Of note, the exclusion categories are not mutually exclusive. This resulted in a final sample size of 248 participants. On average, participants were between 40 and 49 years old (15.3%, $n = 38$), identified as White (86.3%, $n = 214$), and were married (54.4%, $n = 135$) (see Table 28).

SGICs and participant matching across waves of data collection. The SGICs were designed to track participants anonymously online in the current longitudinal study. As noted above, the student sample was too small in Wave 2 to allow for further analyses so the SGICs were not required for this sample. For the Qualtrics participants, each participant was assigned an identification code by Qualtrics' partner online panel company that was used to track participants across waves of data collection. This identification code protects anonymity as participants' identification codes and associated identifying information (e.g., contact information) are only known by the partner online panel company; Qualtrics does not have access to any identifying information about participants and the partner online panel company cannot access any of the collected data

(T. Day [Qualtrics], personal communication, November 25th, 2013). Thus, participants in the Qualtrics sample were matched across waves of data collection using the identification code provided by the online partner panel company. To further investigate the use of SGICs in anonymous online longitudinal research, analyses exploring the reliability of the SGICs are presented below (Table 38).

Table 27

Group Differences Between Participants who Completed Wave 1 and Those who Completed Wave 1 and 2 in the Sample of Community Men

	Wave 1		Wave 1 and 2		<i>d</i> (95% CI)
	<i>M</i> (<i>SD</i>)	<i>n</i>	<i>M</i> (<i>SD</i>)	<i>n</i>	
Demographic Characteristics					
Age ^a	6.98 (1.92)	340	7.39 (1.65)	248	-0.23* (-0.39 to -0.06)
Implicit Evaluations of Rape					
RCPN IAT	-1.16 (0.49)	80	-1.31 (0.49)	248	0.30* (0.05 to 0.56)
RCGB IAT	-1.15 (0.56)	84	-1.22 (0.54)	248	0.13 (-0.12 to 0.38)
RNPN IAT	-1.11 (0.57)	87	-1.07 (0.56)	248	-0.07 (-0.32 to 0.17)
RNGB IAT	-1.13 (0.64)	89	-1.09 (0.63)	248	-0.06 (-0.30 to 0.18)
IAT ^b	-1.13 (0.59)	340	-1.18 (0.56)	248	0.08 (-0.08 to 0.25)
Explicit Evaluations of Rape					
Evaluation of Rape Scale	1.14 (0.59)	168	1.16 (0.61)	123	-0.04 (-0.27 to 0.20)
ROE Evaluation	1.74 (1.42)	159	1.56 (1.19)	118	0.13 (-0.11 to 0.37)
SES-TFR Attitudes	1.28 (0.75)	335	1.22 (0.45)	235	0.10 (-0.07 to 0.26)
Rape-Supportive Cognition					
RAPE Scale	59.84 (19.55)	137	58.42 (17.38)	91	0.08 (-0.19 to 0.34)
Proclivity to Rape					
SES-TFR Proclivity	0.27 (0.76)	333	0.17 (0.44)	244	0.15 (-0.01 to 0.32)
LR	1.13 (0.44)	340	1.11 (0.36)	247	0.05 (-0.12 to 0.21)
Past Sexually Aggressive Behaviour					
SES-TFR	38.27 (99.49)	340	16.76 (42.22)	248	0.27* (0.10 to 0.43)

Note. Bolded values are $d \geq 0.20$. After excluding participants who did not meet the exclusion criteria there were 588 participants with Wave 1 data (340 participants with no Wave 2 data) and 248 participants with data on Wave 1 and 2. ^a Age was coded as an ordinal variable, the means presented above represent the mean age category of participants. A chi-square test produced the same pattern of results. ^b IAT = all four of the IAT measures were combined into one variable. RNPN IAT categories = RAPE, NOT RAPE, positive, negative. RCPN IAT categories = RAPE, CONSENTING SEX, positive, negative. RCGB IAT categories = RAPE, CONSENTING SEX, good, bad. RNGB IAT categories = RAPE, NOT RAPE, good, bad. * $p < .05$

Table 28

Demographic Characteristics of the Sample of Community Men

Demographic Characteristics	% (n)
Age	
18-19	0.4% (1)
20-24	1.2% (3)
25-29	5.6% (14)
30-34	11.3% (28)
35-39	6.0% (15)
40-49	15.3% (38)
50-59	28.6% (71)
60 or older	31.5% (78)
Race	
White	86.3% (214)
Black	4.8% (12)
Asian	4.0% (10)
Aboriginal	0.4% (1)
East Indian	0.4% (1)
Hispanic/Latino	2.8% (7)
Arab	-
Other	1.2% (3)
Relationship Status	
Married	54.4% (135)
Living With Romantic Partner	4.4% (11)
In a Romantic Relationship	4.0%(10)
Single	28.2% (70)
Separated	0.8% (2)
Divorced	7.7% (19)
Other	0.4% (1)
Full Time Employment ^a	
Yes	46.4% (115)
No	53.2% (132)
Part Time Employment ^b	
Yes	14.9% (37)
No	83.9% (208)
Currently Attending University or College ^a	
Yes	4.0% (10)
No	95.6% (237)
Completed University or College ^a	
Yes	60.9% (151)
No	38.7% (96)

Note. ^a n = 1 missing. ^b n = 3 missing.

Measures

Descriptions of the Demographic questionnaire (appendix L), RCPN-IAT (Appendix M), Self-Generated Identification Code (SGIC) questions (Table 4), Sexual Experience Survey – Tactics First Revised (SES-TFR) Attitudes (appendix O), Sexual Experience Survey – Tactics First Revised (SES-TFR) Proclivity (Appendix O), Likelihood to Rape question (Appendix P), RAPE Scale (appendix R), and Evaluation of Rape Scale (appendix S) are available in Study 2.

RCPN IAT. The RCPN IAT was used in Study 3 Wave 2 (RCPN = *RAPE, CONSENTING SEX, positive, negative*) (Appendix M). This version of the IAT adapted to assess implicit evaluations of rape was selected as it had the most positive and consistent relationships with past sexually aggressive behaviour and proclivity to rape in Study 3 Wave 1.

Sexual Experience Survey-Tactics First Revised (SES-TFR). The SES-TFR was modified for the current study to assess sexually aggressive behaviour engaged in over the four-month period between Wave 1 and Wave 2 (Appendix O). Specifically, participants were asked “how many times in the PAST FOUR MONTHS (or since you last completed this survey)...” have they engaged in sexual activity using a number of different sexually coercive and sexually aggressive tactics. The same tactics, sexual activity, and scoring method as presented in Study 2 were used in the current study.

Follow-up Period. The length of time between Wave 1 and Wave 2 was four months. When requesting data from Qualtrics they estimate the amount of attrition between waves of data collection for longitudinal research. Four months between Wave 1 and 2 was selected as, based on the budget for data collection, it was the maximum

amount of time between waves that would still allow for an adequate sample size in Wave 2.

Procedure

Community men were recruited through Qualtrics from the panel participants who completed Wave 1 of Study 3. Participants were asked to complete Wave 2 approximately four months after Wave 1. Participants completed all of the measures as an online survey. Participants were first presented with a consent form outlining the study (Appendix V). If participants agreed to participate, they were then asked to read a pre-debriefing form (Appendix U), complete the demographic questionnaire (Appendix L), and the SGIC questions. Following this, participants were asked to complete the RCPN IAT (*RAPE, CONSENTING SEX, positive, negative*) (Appendix M). After this participants were asked to complete the SES-TFR measures (modified instructions for SES-TFR; Appendix O). Participants were then asked to complete the Evaluation of Rape Scale (Appendix S), RAPE Scale (Appendix R), LR question (Appendix P), and then to complete the SGIC questions for a second time. Participants completed quality control questions throughout the survey (Appendix H). After participants completed the measures, they were presented with a debriefing form (Appendix U).

Results

Descriptive statistics and internal consistency for community men in Wave 2 are presented in Table 29. The implicit measure of attitudes towards rape had moderate to good internal consistency, consistent with what is typically found in the literature (e.g., Hoffman et al., 2005; Lane et al., 2007). The measures of explicit evaluations of rape, rape-supportive cognition, past sexually aggressive behaviour, and proclivity to rape all

had excellent internal consistency. The exception to this was the SES-TFR measure, which only had moderate to good internal consistency. Test-retest reliability was also examined for each measure. The implicit measure of attitudes toward rape had moderate test re-test reliability; consistent with what is typically found in the literature (Hoffmann et al., 2005). The measures of explicit evaluations of rape and proclivity to rape demonstrated low to moderate test retest reliability. The measure of rape-supportive cognition demonstrated good test retest reliability. Test retest reliability was not computed for the measure of self-reported sexually aggressive behaviour as the measure differed between Wave 1 and 2. As in Study 2 and Study 3 Wave 1, data were often not normally distributed. The same approach to statistical analysis used in these previous studies was used in the current study.

Table 29

Descriptive Statistics and Internal Consistency for the Measures of Evaluation of Rape, Rape-Supportive Cognition, and Indicators of Sexually Aggressive Behaviour for the Sample of Community Men

	α	Range	$M (SD)$	Test Retest Reliability	n
Implicit Evaluations of Rape					
RCPN IAT	.70	-3.09 to 0.77	-1.15 (0.572)	.44*	248
Explicit Evaluations of Rape					
Evaluation of Rape Scale	.87	1.00 to 5.67	1.14 (0.483)	.69** ^a	235
SES-TFR Attitudes	.98	1.00 to 4.44	1.17 (0.434)	.49*	239
Rape Supportive Cognition					
RAPE Scale	.96	36.00 to 131.00	53.503 (16.516)	.87*	189
Past Sexually Aggressive Behaviour					
SES-TFR	.73	0.00 to 190.00	6.315 (23.966)	-	248
Proclivity to Rape					
SES-TFR Proclivity	.96	0.00 to 2.86	0.109 (0.311)	.50*	236
LR	-	1.00 to 5.00	1.15 (0.565)	.55*	246

Note. ^a Spearman rho correlation reported (Pearson correlation $r = .26, p < .01$). RCPN IAT categories = RAPE, CONSENTING SEX, positive, negative.

* $p < .001$

The proportion of participants who reported engaging in sexually aggressive behaviour over the four-month period is presented in Table 30. In total, 15.7% ($n = 38$) of participants reported committing a new sexually coercive or aggressive act over the four-month period. Approximately 8% of community men reported using verbally coercive tactics to obtain sexual activity, 2.1% reported giving a woman drugs or alcohol to obtain sexual activity, 3.7% reported engaging in sexual activity when a woman was passed out or too drunk to stop what was happening, and 2.5% of participants reported using physical force to obtain sexual activity.

Table 30

Self-Reported Frequency of Sexually Aggressive Behaviour by Tactic Used Over a Four-Month Period for the Sample of Community Men in Wave 2

SES-Tactic	Community Men ($N = 242$)	
	%	n
Arguments and pressure	8.3%	20
Made promises you knew were untrue	5.0%	12
Shown you were not happy by making a woman feel guilty, swearing, sulking, or getting angry	8.3%	20
Giving a woman drugs or alcohol without her permission	2.1%	5
Woman passed out or too drunk to stop what was happening	3.7%	9
Used physical force	2.5%	6

Note. $n = 6$ participants were missing data on one or more items of the SES-TFR and were excluded from these analyses. A total SES-TFR score was still computed for participants with missing data.

Participants were then divided into three groups using their self-reported sexually aggressive behaviour at Wave 1 and Wave 2. Participants were classified as non-assaulters if they reported no sexually aggressive behaviour at Wave 1 and 2 ($n = 116$); past assaulters if they reported sexually aggressive behaviour at Wave 1, but not Wave 2 ($n = 82$); current assaulters if they reported some sexually aggressive behaviour at Wave

2 ($n = 38$)²⁵. The descriptive statistics for each group on the measures of attitudes towards rape, rape-supportive cognition, and proclivity to rape are presented in Table 31 and group comparisons are presented in Table 32.

²⁵ Past research has typically divided participants into 4 groups: *non-assaulters*, *past-assaulters*, *repeat assaulters* (report sexually aggressive behaviour at Time 1 and Time 2), and *new assaulters* (only report sexually aggressive behaviour at Time 2) (e.g., Abbey & McAuslan, 2004; Abbey et al., 2012; Hall et al., 2006). In the current study, the *repeat assaulters* and *new assaulters* group were combined into a *current assaulters* group due to small sample sizes.

Table 31

Means and Standard Deviations for Three Groups of Non-Sexually Aggressive and Sexually Aggressive Community Men

	Non-Assaulters		Past Assaulters		Current Assaulters	
	<i>M (SD)</i>	<i>n</i>	<i>M (SD)</i>	<i>n</i>	<i>M (SD)</i>	<i>n</i>
Implicit Evaluations of Rape (Wave 1)						
RCPN IAT	-1.27 (0.47)	36	-1.43 (0.48)	28	-1.13 (.63)	8
RCGB IAT	-1.07 (0.48)	29	-1.26 (.57)	24	-1.48 (.67)	7
RNPN IAT	-1.21 (0.60)	27	-1.01 (.59)	22	-.93 (.45)	11
RNGB IAT	-0.99 (0.60)	24	-1.47 (0.69)	8	-.87 (.54)	12
IAT ^a	-1.15 (0.54)	116	-1.27 (0.58)	82	-1.05 (.58)	38
Explicit Evaluations of Rape (Wave 1)						
Evaluation of Rape Scale	1.09 (0.29)	56	1.10 (0.27)	36	1.22 (.40)	24
ROE Evaluation	1.41 (0.95)	55	1.36 (0.80)	45	2.52 (2.13)	14
SES-TFR Attitudes	1.08 (0.20)	112	1.26 (0.33)	78	1.48 (.65)	35
Rape-Supportive Cognition (Wave 1)						
RAPE Scale	54.84 (16.95)	45	62.73 (15.98)	30	60.33 (20.61)	15
Proclivity to Rape (Wave 1)						
SES-TFR Proclivity	0.04 (0.16)	116	0.19 (0.31)	81	.43 (.78)	37
LR	1.04 (0.21)	115	1.09 (0.32)	82	1.34 (.63)	38

Note. *n* = 12 participants were missing data and as a result were not classified into one of the three groups. ^a IAT = all four IAT measures combined into one variable. RNPN IAT categories = RAPE, NOT RAPE, positive, negative. RCPN IAT categories = RAPE, CONSENTING SEX, positive, negative. RCGB IAT categories = RAPE, CONSENTING SEX, good, bad. RNGB IAT categories = RAPE, NOT RAPE, good, bad.

Group differences on measures of attitudes towards rape, rape-supportive cognition, and proclivity to rape were examined using Cohen's d (see Table 32). Effect sizes equal to or greater than 0.20 were interpreted, as some of the sample sizes were very small. For implicit evaluations of rape, current assaulters tended to endorse more positive implicit evaluations of rape than non-assaulters and past assaulters. The exception to this was on the RCGB IAT, where non-assaulters endorsed more positive implicit evaluations of rape than current and past assaulters. Past assaulters tended to endorse more negative implicit evaluations of rape than non-assaulters. A similar trend was found for explicit evaluations of rape; current assaulters tended to endorse more positive explicit evaluations of rape than non-assaulters and past assaulters. Past assaulters did not differ from non-assaulters on two of three measures of explicit evaluations of rape, but on the SES-TFR Attitudes scale past assaulters endorsed more positive explicit evaluations of rape than non-assaulters. Current assaulters also tended to report more proclivity to rape than non-assaulters and past assaulters. Past assaulters reported more proclivity to rape on the SES-TFR Proclivity scale, but not on the LR scale. Current and past assaulters tended to endorse more rape-supportive cognition than non-assaulters, and there were no differences between current and past assaulters in rape-supportive cognition.

Table 32

Group Differences Between Non-Sexually Aggressive and Sexually Aggressive Community Men on Evaluations of Rape, Rape-Supportive Cognition, and Proclivity to Rape

	Non-Assaulters vs. Current Assaulters^a d (95%CI)	Non-Assaulters vs. Past Assaulters^a d (95%CI)	Current Assaulters vs. Past Assaulters^b
Implicit Evaluations of Rape (Wave 1)			
RCPN IAT	0.28 (-0.49 to 1.05)	-0.34 (-0.84 to 0.16)	0.58 (-0.22 to 1.38)
RCGB IAT	-0.79 (-1.64 to 0.05)	-0.37 (-0.92 to 0.18)	-0.37 (-1.21 to 0.48)
RNPN IAT	0.50 (-0.21 to 1.21)	0.34 (-0.23 to 0.90)	0.14 (-0.58 to 0.87)
RNGB IAT	0.21 (-0.48 to 0.91)	-0.77 (-1.59 to 0.05)	1.00* (0.06 to 1.95)
IAT ^c	0.17 (-0.19 to 0.54)	-0.22 (-0.51 to 0.06)	0.38 (-0.01 to 0.76)
Explicit Evaluations of Rape (Wave 1)			
Evaluation of Rape Scale	0.40 (-0.08 to 0.88)	0.06 (-0.36 to 0.48)	0.35 (-0.17 to 0.87)
ROE Evaluation	0.88* (0.28 to 1.49)	-0.05 (-0.44 to 0.35)	0.94* (0.32 to 1.56)
SES-TFR Attitudes	1.10* (0.70 to 1.50)	0.69* (0.39 to 0.99)	0.48* (0.08 to 0.88)
Rape Supportive Cognition (Wave 1)			
RAPE Scale	0.31 (-0.28 to 0.89)	0.48* (0.01 to 0.94)	-0.14 (-0.76 to 0.48)
Proclivity to Rape (Wave 1)			
SES-TFR Proclivity	0.95* (0.57 to 1.34)	0.62* (0.33 to 0.91)	0.48* (0.09 to 0.87)
LR	0.83* (0.45 to 1.21)	0.16 (-0.13 to 0.44)	0.58* (0.19 to 0.97)

Note. Bolded values are $d \geq 0.20$. ^a Cohen's d computed such that positive d values represent non-assaulters having lower/more negative scores than comparison group, and negative d values represent non-assaulters having higher/more positive scores than comparison group. ^b Cohen's d computed such that positive d values represent past assaulters having lower/more negative scores than current assaulters group, and negative d values represent past assaulters having higher/more positive scores than current assaulters group. ^c IAT = all four IAT measures combined into one variable. RNPN IAT categories = RAPE, NOT RAPE, positive, negative. RCPN IAT categories = RAPE, CONSENTING SEX, positive, negative. RCGB IAT categories = RAPE, CONSENTING SEX, good, bad. RNGB IAT categories = RAPE, NOT RAPE, good, bad.

* $p < .05$

Cross-lagged panel path analysis models were used to examine whether implicit evaluations of rape, explicit evaluations of rape, and rape-supportive cognition measured at Wave 1 could predict subsequent sexually aggressive behaviour at Wave 2 (see Fig. 4). Cross-lagged panel models are beneficial when examining longitudinal data because they control for the relationship between predictor and outcome variables measured at Time 1, and thus control for prior levels of the outcome variable. This is important because it rules out the relationship between predictor and outcome as an alternate explanation for significant findings (see Selig & Little, 2012). There are two types of effects in cross-lagged panel models, autoregressive effects and cross-lagged effects. Autoregressive effects are the effect of a construct on itself measured at a later time; this type of effect represents the stability of the construct over time. Small autoregressive effects indicate that there is substantial change in individuals' rank on a construct over time. Cross-lagged effects are the effect of one construct on another construct measured at a later time (Selig & Little, 2012).

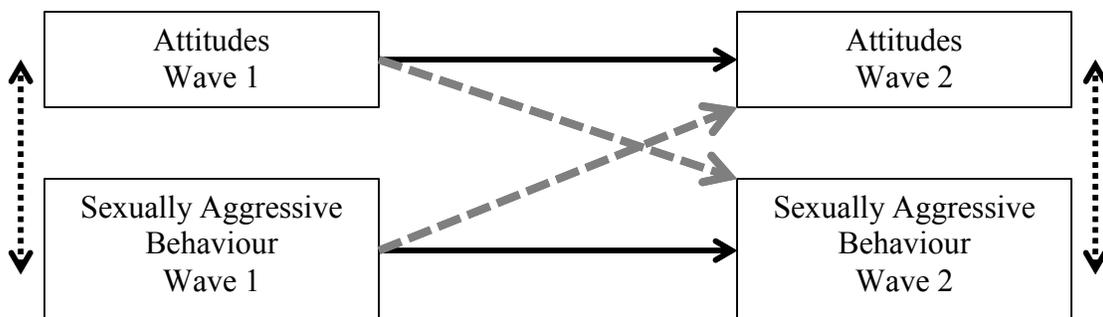


Figure 4. Cross-lagged panel model. The solid black arrows represent autoregressive effects. The larger dashed grey arrows represent cross-lagged effects. The smaller dashed black arrows represent the covariance between the measures at a single time point.

Prior to computing the cross-lagged panel models, data were screened for univariate outliers, multivariate outliers, normality, and multicollinearity in SPSS version 22. Univariate outliers were reduced while maintaining rank order of participants. Multivariate outliers were examined and decisions about their retention were made; all of the multivariate outliers were retained for the analyses below, as they were participants who were considered to be part of the population of interest (e.g., participants who reported sexually aggressive behaviour, participants who reported positive evaluations of rape). In terms of normality, the measures of implicit evaluations of rape were normally distributed at Waves 1 and 2. The measures of explicit evaluations of rape, rape-supportive cognition, and sexually aggressive behaviour at Waves 1 and 2 were positively skewed. To correct for this, the measures of past and subsequent sexually aggressive behaviour were trichotomized, such that a score of 0 represented no subsequent sexually coercive/aggressive behaviour, a score of 1 represented subsequent verbal sexual coercion, but no physical sexual aggression, and a score of 2 represented subsequent physical sexual aggression, with or without verbal sexual coercion. Furthermore, the cross-lagged panel models were estimated using the robust Weighted Least Squares-Mean and Variance adjusted estimator (WLSMV). The WLSMV estimator was used as it is robust against violations of normality and is appropriate for use with ordinal dependent variables (Muthén & Muthén, 2012; Wang & Wang, 2012). Multicollinearity was not an issue for the variables included in the models below.

Cross-lagged panel models were computed using MPlus version 7.3. The models were computed using path analysis (Muthén & Muthén, 2012). When computing path analysis models with both ordinal and continuous dependent variables, and using the

WLSMV estimator, the parameter estimates for ordinal dependent variables are probit regression coefficients, and the parameter estimates for continuous dependent variables are linear regression coefficients (Muthén & Muthén, 2012). Probit regression assumes there is a latent continuous response distribution underlying the ordinal dependent variable. Unstandardized probit regression coefficients represent the amount of standard deviation change in the latent dependent variable for a one-unit change in the predictor variable, while holding all other predictor variables constant. The standardized probit regression coefficients represent the amount of standard deviation change in the latent dependent variable for one standard deviation change in the predictor variable, while holding all other predictor variables constant (A. Howard, personal communication, August 6th, 2015; Tabachnick & Fidell, 2007). More generally, positive probit regression coefficients mean an increase in the predictor variable leads to an increase in the predicted probability of the dependent variable, and negative probit regression coefficients mean an increase in the predictor variable leads to a decrease in the predicted probability of the dependent variable. For the linear regression coefficients, unstandardized coefficients represent the change in the dependent variable for a one-unit change in the predictor variable while holding all other predictor variables constant. The standardized linear regression coefficients represent the change in the dependent variable for one standard deviation change in the predictor variable, while holding all of the other predictor variables constant (Tabachnick & Fidell, 2007).

Five models were estimated. In all five models, sexually aggressive behaviour at Wave 2 was treated as an ordinal dependent variable; all of the other dependent variables were treated as continuous variables. Model 1 examined whether explicit evaluations of

rape (SES-TFR Attitudes) measured at Wave 1 predicted sexually aggressive behaviour at Wave 2. Model 2 examined whether implicit evaluations of rape (all four implicit measures) measured at Wave 1 predicted self-reported sexually aggressive behaviour at Wave 2. Model 3 examined whether implicit evaluations of rape assessed with the RCPN IAT measured at Wave 1 predicted self-reported sexually aggressive behaviour at Wave 2. Model 4 examined whether rape-supportive cognition (RAPE Scale) measured at Wave 1 predicted sexually aggressive behaviour at Wave 2. Model 5 examined whether implicit (all four implicit measures) and explicit evaluations of rape (SES-TFR Attitudes) at Wave 1 independently predicted sexually aggressive behaviour at Wave 2.

Model 1: Explicit Evaluations of Rape and Subsequent Sexually Aggressive Behaviour

The results for Model 1 are presented in Table 33. Each of the variables included in Model 1 had 5% or less missing data, and Little's MCAR test was non-significant ($X^2 [2] = 3.73, p = .16$) suggesting the data are missing completely at random. As a result, missing data were imputed. The autoregressive effects for explicit evaluations of rape and sexually aggressive behaviour were significant suggesting adequate stability across waves of data collection. In terms of the cross-lagged effects, explicit evaluations of rape at Wave 1 significantly predicted sexually aggressive behaviour at Wave 2. Sexually aggressive behaviour at Wave 1, did not significantly predict explicit evaluations of rape at Wave 2. Moderate to large positive significant correlations were found between explicit evaluations of rape and sexually aggressive behaviour at Wave 1 and at Wave 2. This model accounted for a significant amount of variance in sexually aggressive behaviour at Wave 2.

Model 2: Implicit evaluations of rape (all four IAT measures) and Subsequent Sexually Aggressive Behaviour

The results for Model 2 are presented in Table 34. Each of the variables included in Model 2 each had 5% or less missing data, and Little's MCAR test was non-significant ($X^2 [2] = 2.44, p = .30$) suggesting the data are missing completely at random. As a result, missing data were imputed. The autoregressive effects for implicit evaluations of rape, as measured by the four IAT measures²⁶, and sexually aggressive behaviour were significant suggesting adequate stability across waves of data collection. In terms of the cross-lagged effects, implicit evaluations of rape at Wave 1 significantly predicted sexually aggressive behaviour at Wave 2. Sexually aggressive behaviour at Wave 1, did not significantly predict implicit evaluations of rape at Wave 2. A small positive (non-significant) relationship was found between implicit evaluations of rape and sexually aggressive behaviour at Wave 2. This model accounted for a significant amount of variance in sexually aggressive behaviour at Wave 2.

²⁶ Participants were randomly assigned to one of four IATs in Wave 1. These four IAT measures were used to create an overall IAT variable to increase the sample size for the model examining implicit evaluations of rape.

Table 33

Explicit Evaluations of Rape (Wave 1) Predicting Subsequent Sexually Aggressive Behaviour (Wave 2): Cross Lagged Panel Analyses for Community Men (N = 248)

	Unstand. Est. (S.E.)	Unstand. Est. 95%CI	Standardized Est. (S.E.)	<i>p</i>
Stability (Autoregressive) Paths				
Explicit Evaluations of Rape ₁ → Explicit Evaluations of Rape ₂	0.41 (0.04)***	0.33 to 0.49	0.52 (0.04)	< .001
Sexually Aggressive Behaviour ₁ → Sexually Aggressive Behaviour ₂	<i>0.31 (0.12)**</i>	<i>0.08 to 0.54</i>	<i>0.22 (0.08)</i>	0.008
Cross Lagged Paths				
Explicit Evaluations of Rape ₁ → Sexually Aggressive Behaviour ₂	<i>0.72 (0.23)**</i>	<i>0.26 to 1.17</i>	<i>0.24 (0.08)</i>	0.002
Sexually Aggressive Behaviour ₁ → Explicit Evaluations of Rape ₂	0.01 (0.02)	-0.02 to 0.04	0.02 (0.05)	0.626
Covariance/Correlations				
	Covariance	Correlation		<i>p</i>
Explicit Evaluations of Rape ₁ with Sexually Aggressive Behaviour ₁	0.08 (0.02)***	.37		< .001
Explicit Evaluations of Rape ₂ with Sexually Aggressive Behaviour ₂	0.05 (0.02)**	.24		0.001
Variance Accounted for in Endogenous Variables				
		R²		<i>p</i>
Explicit Evaluations of Rape ₂		.28**		< 0.001
Sexually Aggressive Behaviour ₂		.14*		0.019

Note. ₁ Measure at Wave 1. ₂ Measure at Wave 2. Probit regression coefficients are italicized.

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 34

Implicit Evaluations of Rape (Wave 1) Predicting Subsequent Sexually Aggressive Behaviour (Wave 2): Cross Lagged Panel Analyses for Community Men (N = 248)

	Unstand. Est. (S.E.)	Unstand. Est. 95%CI	Standardized Est. (S.E.)	<i>p</i>
Stability (Autoregressive) Paths				
Implicit Evaluations of Rape ₁ → Implicit Evaluations of Rape ₂	0.49 (0.06)***	0.38 to 0.60	0.48 (0.05)	< .001
Sexually Aggressive Behaviour ₁ → Sexually Aggressive Behaviour ₂	<i>0.46 (0.11)***</i>	<i>0.24 to 0.68</i>	<i>0.32 (0.08)</i>	< .001
Cross Lagged Paths				
Implicit Evaluations of Rape ₁ → Sexually Aggressive Behaviour ₂	<i>0.37 (0.15)*</i>	<i>0.07 to 0.66</i>	<i>0.20 (0.08)</i>	.015
Sexually Aggressive Behaviour ₁ → Implicit Evaluations of Rape ₂	-0.05 (0.05)	-0.14 to 0.04	-0.06 (0.06)	.297
Covariance/Correlations				
	Covariance	Correlation	<i>p</i>	
Implicit Evaluations of Rape ₁ with Sexually Aggressive Behaviour ₁	-0.03 (0.02)	-.08	.165	
Implicit Evaluations of Rape ₂ with Sexually Aggressive Behaviour ₂	0.08 (0.04)	.16	.088	
Variance Accounted for in Endogenous Variables				
	R²		<i>p</i>	
Implicit Evaluations of Rape ₂	.24***		< .001	
Sexually Aggressive Behaviour ₂	.13*		.025	

Note. Participants were randomly assigned to one of four IATs in Wave 1. These four IAT measures were used to create an overall IAT variable to increase the sample size for the model examining implicit evaluations of rape. ₁ Measure at Wave 1. ₂ Measure at Wave 2. Probit regression coefficients are italicized.

* $p < .05$, ** $p < .01$, *** $p < .001$

Model 3: Implicit evaluations of rape Measured with the RCPN IAT and Subsequent Sexually Aggressive Behaviour

The results for Model 3 are presented in Table 35. Only one participant was missing data for one measure; as a result missing data were imputed. The pattern of results is generally consistent with those from Model 2. The autoregressive effects for implicit evaluations of rape, as measured by the RCPN IAT, and sexually aggressive behaviour were significant suggesting adequate stability across waves of data collection. The cross-lagged effect for implicit evaluations of rape at Wave 1 significantly predicted sexually aggressive behaviour at Wave 2. Sexually aggressive behaviour at Wave 1, did not significantly predict implicit evaluations of rape at Wave 2. There was no relationship found between implicit evaluations of rape and sexually aggressive behaviour at Wave 1 or Wave 2. This model accounted for a significant amount of variance in sexually aggressive behaviour at Wave 2.

Model 4: Rape-Supportive Cognition and Subsequent Sexually Aggressive Behaviour

The results for Model 4 are presented in Table 36. The measure of rape-supportive cognition at Wave 2 was missing 22% of data. All of the other measures had less than 5% of missing data. Little's MCAR test was non-significant ($X^2 [1] = 0.61, p = .44$) suggesting the data are missing completely at random. As a result, missing data were imputed²⁷. The autoregressive effect for rape-supportive cognition was significant, but the autoregressive effect for sexually aggressive behaviour was non-significant. Neither of the cross-lagged effects was significant. There was a moderate positive (non-significant) relationship between rape-supportive cognition and sexually aggressive

²⁷ Of note, the same pattern of results was obtained when listwise deletion was used for missing data.

behaviour at Wave 1. This model did not account for a significant amount of variance in sexually aggressive behaviour at Wave 2.

Table 35

Implicit Evaluations of Rape (RCPN IAT, Wave 1) Predicting Subsequent Sexually Aggressive Behaviour (Wave 2): Cross Lagged Panel Analyses for Community Men (n = 73)

	Unstand. Est. (S.E.)	Unstand. Est. 95% CI	Standardized Est. (S.E.)	p
Stability (Autoregressive) Paths				
RCPN IAT ₁ → RCPN IAT ₂	0.45 (0.14)**	0.18 to 0.72	0.42 (0.12)	.001
Sexually Aggressive Behaviour ₁ → Sexually Aggressive Behaviour ₂	<i>0.61 (0.17)***</i>	<i>0.28 to 0.94</i>	<i>0.43 (0.13)</i>	< .001
Cross Lagged Paths				
RCPN IAT ₁ → Sexually Aggressive Behaviour ₂	<i>0.74 (0.22)**</i>	<i>0.32 to 1.16</i>	<i>0.36 (0.11)</i>	.001
Sexually Aggressive Behaviour ₁ → RCPN IAT ₂	-0.06 (0.09)	-0.25 to 0.12	-0.08 (0.13)	.523
Covariance/Correlations				
	Covariance	Correlation		p
RCPN IAT ₁ with Sexually Aggressive Behaviour ₁	-0.07 (0.04) ⁺	-.20 (0.11)		.087
RCPN IAT ₂ with Sexually Aggressive Behaviour ₂	-0.01 (0.08)	-.01 (0.13)		.942
Variance Accounted for in Endogenous Variables				
		R²		p
RCPN IAT ₂		.20 (0.12)*		.020
Sexually Aggressive Behaviour ₂		.25 (0.09)*		.030

Note. RCPN IAT categories = RAPE, CONSENTING SEX, positive, negative. ₁ Measure at Wave 1. ₂ Measure at Wave 2. Probit regression coefficients are italicized.

⁺ $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$

Table 36

Rape-Supportive Cognition (Wave 1) Predicting Subsequent Sexually Aggressive Behaviour (Wave 2): Cross Lagged Panel Analyses for Community Men (n = 91)

	Unstand. Est. (S.E.)	Unstand. Est. 95% CI	Standardized Est. (S.E.)	p
Stability (Autoregressive) Paths				
Rape-Supportive Cognition ₁ → Rape-Supportive Cognition ₂	0.92 (0.09)***	0.75 to 1.09	0.92 (0.04)	< .001
Sexually Aggressive Behaviour ₁ → Sexually Aggressive Behaviour ₂	<i>0.29 (0.19)</i>	<i>-0.09 to 0.67</i>	<i>0.19 (0.13)</i>	.130
Cross Lagged Paths				
Rape-Supportive Cognition ₁ → Sexually Aggressive Behaviour ₂	<i>0.004 (0.01)</i>	<i>-0.01 to 0.02</i>	<i>0.07 (0.12)</i>	.569
Sexually Aggressive Behaviour ₁ → Rape-Supportive Cognition ₂	-2.92 (2.32)	-7.46 to 1.62	-0.11 (0.09)	.207
Covariance/Correlations				
	Covariance	Correlation	p	
Rape-Supportive Cognition ₁ with Sexually Aggressive Behaviour ₁	3.36 (1.27)**	.31	.008	
Rape-Supportive Cognition ₂ with Sexually Aggressive Behaviour ₂	-1.14 (2.53)	-.15	.652	
Variance Accounted for in Endogenous Variables				
		R²	p	
Rape-Supportive Cognition ₂		.80***	< .001	
Sexually Aggressive Behaviour ₂		.05	.419	

Note. ₁ Measure at Wave 1. ₂ Measure at Wave 2. Probit regression coefficients are italicized.

* $p < .05$, ** $p < .01$, *** $p < .001$

Model 5: Implicit and Explicit evaluations of rape and Subsequent Sexually Aggressive Behaviour

The results for Model 5 are presented in Table 37. Each of the variables included in Model 5 had 5% or less missing data, and Little's MCAR test was non-significant ($X^2 [8] = 8.73, p = .37$) suggesting the data are missing completely at random. As a result, missing data were imputed. The autoregressive effects for implicit evaluations of rape (all four IAT measures), explicit evaluations of rape, and sexually aggressive behaviour were significant suggesting adequate stability across waves of data collection. In terms of the cross-lagged effects, implicit and explicit evaluations of rape at Wave 1 significantly and independently predicted sexually aggressive behaviour at Wave 2. Sexually aggressive behaviour at Wave 1 did not significantly predict implicit evaluations of rape at Wave 2. Explicit evaluations of rape at Wave 1 did not predict implicit evaluations of rape at Wave 2. As well, implicit evaluations of rape at Wave 1 did not predict explicit evaluations of rape at Wave 2. A small positive significant relationship was found between implicit evaluations of rape and explicit evaluations of rape at Wave 1. A moderate positive significant relationship was also found between explicit evaluations of rape and sexually aggressive behaviour at Wave 1 and 2. This model accounted for a significant amount of variance in sexually aggressive behaviour at Wave 2.

Explicit Evaluations of Rape ₁			
Explicit Evaluations of Rape ₁ with Sexually Aggressive Behaviour ₁	0.08 (0.02)***	.37	< .001
Implicit Evaluations of Rape ₂ with Sexually Aggressive Behaviour ₂	0.08 (0.04)	.19	.051
Implicit Evaluations of Rape ₂ with Explicit Evaluations of Rape ₂	0.004 (0.01)	.04	.605
Explicit Evaluations of Rape ₂ with Sexually Aggressive Behaviour ₂	0.05 (0.02)**	.24	.001
Variance Accounted for in Endogenous Variables		R²	p
Implicit Evaluations of Rape ₂		.24***	< .001
Sexually Aggressive Behaviour ₂		.17*	.012
Explicit Evaluations of Rape ₂		.28***	< .001

Note. Participants were randomly assigned to one of four IATs in Wave 1. These four IAT measures were used to create an overall IAT variable to increase the sample size for the model examining implicit evaluations of rape. ₁ Measure at Wave 1. ₂ Measure at Wave 2. Probit regression coefficients are italicized.

* $p < .05$, ** $p < .01$, *** $p < .001$

SGICs: Matching Participants Across Waves of Data Collection

Percent agreement was computed for each SGIC question; each question was completed at the beginning and end of the survey (see Table 38). The majority of SGIC questions achieved good percent agreement within and across the surveys, with the majority of items achieving higher than 80% agreement. The exact match rate for participants in Wave 1 was good, this was true when participants with missing data were included (70.4%) and excluded (78.8%). Similarly, the exact match rate for participants in Wave 2 was also good, this was true when participants with missing data were included (71.8%) and excluded (83.0%). The exact match rate for participants across waves was generally poor, however, with match rates ranging between 28.2% and 40.5%. Of the 597 participants in Wave 1, 177 (29.6%) did not have an exact match in their SGIC codes within the survey. Of the 177 participants, 123 had one error or missing value, 36 had 2 errors and/or missing values, and 18 had 3 or more errors and/or missing values in their SGIC responses. If the one-off rule were employed, then 543 of the 597 participants would be classified correctly (91.0%). Of the 248 participants in Wave 2, 70 (28.2%) did not have an exact match in their SGIC codes within the survey. Of the 70 participants, 44 had one error or missing value, 18 had two errors and/or missing values, and 8 had three or more errors and/or missing values in their SGIC responses. If the one-off rule were employed, then 222 of the 248 participants would be classified correctly (89.5%). When examining match rates across surveys, 178 (71.8%) did not have an exact match in their SGIC codes across the four sets of SGIC questions (Wave 1a, 1b, Wave 2a, 2b). Of the 178 participants, 67 had one error or missing value, 47 had two errors and/or missing values, and 64 had three or more errors and/or missing values in their

SGIC responses. If the one-off rule were employed, then 137 of the 248 participants would be classified correctly (55.2%). All of the 420 participants who had an exact match rate for their SGIC codes in Wave 1 had unique SGIC codes. As well, all of the 178 participants who had an exact match rate for their SGIC codes in Wave 2 had unique SGIC codes.

Table 38

Percent Agreement for SGIC Questions for the Sample of Community Men Across Waves 1 and 2

SGIC Question	Wave 1a and 1b (N = 597)	Wave 2a and 2b (N = 248)	Wave 1a and Wave 2a (N = 248)	Wave 1b and Wave 2b (N = 248)	Wave 1a, 1b, 2a, 2b (N = 248)
Height – Feet and Inches	98.0%	97.6%	86.7%	84.3%	83.9%
Birth Month	98.2%	98.4%	96.4%	97.6%	95.2%
Birth Day	96.8%	98.8%	95.2%	94.0%	93.5%
Mother’s Birth Month	97.0%	97.2%	83.1%	83.1%	81.5%
Father’s Birth Month	96.8%	97.2%	85.5%	83.5%	82.7%
Last Number of Birth Year	96.5%	94.4%	91.5%	94.4%	89.1%
Number of Older Brothers	96.8%	96.4%	90.3%	91.1%	87.9%
First Letter of Middle Name	94.3%	95.2%	91.5%	88.3%	86.7%
Last Letter of Last Name	86.1%	85.5%	67.7%	71.0%	58.5%
Number of Letters in First Name	96.3%	98.0%	91.1%	89.1%	87.9%
Eye Colour	97.7%	97.2%	89.9%	89.5%	87.9%
Shoe Size	98.5%	97.6%	79.0%	79.0%	77.4%
SGIC Code Exact Match Rate	70.4%	71.8%	31.0%	34.7%	28.2%
SGIC Code Exact Match Rate (No Missing Data)	78.8% ^a	83.0% ^b	36.9% ^c	40.5% ^c	35.9% ^c
SGIC Code One Off Match Rate	91.0%	89.5%	66.1%	64.9%	55.2%
SGIC Code One Off Match Rate (No Missing Data)	94.5% ^a	94.0% ^b	73.3% ^c	73.9% ^c	65.1% ^c

Note. ^a n = 529. ^b n = 218. ^c n = 195. 1a = SGIC questions completed at the beginning of the online survey in Wave 1. 1b = SGIC questions completed at the end of the online survey in Wave 1. 2a = SGIC questions completed at the beginning of the online survey in Wave 2. 2b = SGIC questions completed at the end of the online survey in Wave 2.

Discussion

In Study 3 Wave 2 the relationship between implicit and explicit evaluations of rape and sexually aggressive behaviour was examined in a sample of community men using a longitudinal research design. Specifically, cross-lagged panel models were used to explore the relationships between implicit and explicit evaluations of rape reported at Wave 1 and sexually aggressive behaviour at Wave 2, while controlling for the relationship between evaluations of rape and sexually aggressive behaviour at Wave 1. In all four of the models examining implicit and/or explicit evaluations of rape, evaluations of rape at Wave 1 significantly predicted sexually aggressive behaviour at Wave 2. These results are noteworthy as they speak to the direction of influence between evaluations of rape and sexually aggressive behaviour, and they are consistent with the notion that implicit and explicit evaluations of rape play a causal role in sexually aggressive behaviour. More generally, these results are consistent with the social psychology literature that suggests attitudes can be important determinants of behaviour (e.g., Ajzen, 1991, 2001; Glasman & Albarracín, 2006; Kraus, 1995; Olson & Fazio, 2009) and with the meta-analytic work that has found attitudes predict subsequent behaviour (Cameron et al., 2012; Glasman & Albarracín, 2006; Greenwald et al., 2009; Kraus, 1995).

In the current study implicit evaluations of rape predicted sexually aggressive behaviour; in Study 2 and Study 3 Wave 1, however, implicit evaluations of rape were generally unrelated to past sexually aggressive behaviour. In Study 3 Wave 1 it was suggested that the lack of relationship between implicit evaluations of rape and past sexually aggressive behaviour could be attributed to the direction of influence for the relationship between evaluations of rape and sexually aggressive behaviour. As noted

previously, it is possible that the direction of influence of evaluations of rape on sexually aggressive behaviour is as follows: evaluations of rape influence subsequent sexually aggressive behaviour, the outcomes of engaging in sexually aggressive behaviour may then influence attitudes by making them more positive, negative, or maintaining their current evaluative state. These updated evaluations then influence future sexually aggressive behaviour. The findings of the current study (Study 3 Wave 2) are consistent with this notion. Implicit evaluations of rape significantly predicted subsequent sexually aggressive behaviour. Furthermore, participants who reported committing sexually aggressive behaviour over the four-month time period between Wave 1 and 2 (current assaulters) endorsed more positive implicit evaluations of rape (on three of the four implicit measures) than participants who did not commit sexually aggressive behaviour over this time period (non-assaulters and past assaulters). Past assaulters, participants who only committed sexually aggressive behaviour prior to Wave 1 endorsed more negative implicit evaluations of rape than current assaulters and non-assaulters. Therefore, of the participants who had engaged in past sexually aggressive behaviour, it was only the participants who had more positive implicit evaluations of rape that engaged in subsequent sexually aggressive behaviour.

The second purpose of Study 3 Wave 2 was to further examine the consistency in reporting, and exact match rate for the SGICs. There was good percent agreement for the individual SGIC items within each of the surveys and across Waves 1 and 2. The exception to this was the item asking participants to report the last letter of their last name; across surveys the percent agreement for this item was low to moderate. The exact match rate in SGICs within surveys was excellent (Wave 1 78.8%, no missing data;

Wave 2 83.0% no missing data), however across surveys it was unacceptably low (approximately 30%). When the one-off rule was employed the exact match rate across surveys increased to levels consistent with the previous studies and past research (approximately 70%). The SGICs were all unique in both Wave 1 and Wave 2. Generally these results suggest that SGICs can be used in longitudinal research to anonymously track participants online, but when feasible, they should be supplemented with other methods of anonymously tracking participants online.

In this study, a longitudinal research design was used to explore the relationship between implicit and explicit evaluations of rape and sexually aggressive behaviour. The results suggest implicit and explicit evaluations of rape independently predicted subsequent sexually aggressive behaviour in a large sample of community men. These results are consistent with past research and what was hypothesized. Importantly, these results are novel in that this is the first study to examine the relationship between evaluations of rape and sexually aggressive behaviour using a longitudinal research design. Furthermore, these results are novel in that this study was conducted online with a sample of community men. If replicated, these findings have important implications for theory, research, and correctional practice.

General Discussion

Cognitions supportive of rape are thought to play an important role in the initiation and maintenance of sexually aggressive behaviour (e.g., Beech et al., 2013; Helmus et al., 2013; Mann et al., 2010; Ó Ciardha & Gannon, 2011; Ward & Beech, 2006; Ward et al., 2006). To date, most research examining cognition in the sexual offender literature has focused on assessing rape-supportive cognition more generally, and has not specifically focused on evaluations of rape (see Nunes et al., 2013; Nunes, Hermann, White et al., 2015). Theory and research from social psychologists, suggests implicit and explicit attitudes (i.e., evaluations) can be important determinants of behaviour (Ajzen, 1991, 2001, Cameron et al., 2012; Glasman & Albarracín, 2006; Greenwald et al., 2009; Kraus, 1995), and some recent research has found implicit and explicit evaluations of rape are positively associated with indicators of sexually aggressive behaviour (Nunes et al., 2013; Nunes, Hermann, White et al., 2015; Widman & Olson, 2013). Thus, the primary purpose of this dissertation was to expand upon past research by exploring the relationship between implicit and explicit evaluations of rape and sexually aggressive behaviour using a longitudinal research design. Furthermore, to increase the generalizability of the results, online panels were used to obtain more representative samples of community men to complement samples of students used in the current dissertation.

In this dissertation, implicit and explicit evaluations of rape independently predicted subsequent sexually aggressive behaviour in a sample of community men recruited online. These results are consistent with what was hypothesized, past research (Nunes et al., 2013; Nunes, Hermann, White et al., 2015; Widman & Olson, 2013), and

the notion that implicit and explicit evaluations of rape play a role in sexually aggressive behaviour. It is noteworthy that this is the first study in the published literature to explore the relationship between evaluations of rape and sexually aggressive behaviour using a longitudinal research design. If replicated, these results have important implications for theory, research, and correctional practice.

From a theoretical perspective, the current findings suggest evaluations of rape should be considered in theories of sexual offending against adults. As noted previously, several theories explaining sexual aggression against adults theorize rape-supportive cognition plays a role in sexually aggressive behaviour (e.g., Malamuth's [1986; 2003] hierarchical-mediational confluence model; Ward et al.'s [2006] judgement model of sexual offending). The findings of the current study suggest evaluations of rape should be considered as one type of rape-supportive cognition that may influence subsequent sexually aggressive behaviour. Thus, future research should examine the role of evaluations of rape within the framework of these theories by modelling the relationship between evaluations of rape, other theoretical risk factors for sexual aggression against adults, and sexually aggressive behaviour.

As previously noted, very few studies to date have empirically examined evaluations of rape. Of the studies that have examined evaluations of rape, all of them have used correlational cross-sectional research designs (Nunes et al., 2013; Nunes, Hermann, White et al., 2015; Widman & Olson, 2013). To the best of my knowledge, this is the first study in the literature to examine the relationship between implicit and explicit evaluations of rape and sexually aggressive behaviour using a longitudinal research design. Thus, we know very little about how evaluations of rape influence sexually

aggressive behaviour. From a research perspective, it is important then that future research replicates and expands upon these results with larger samples of participants recruited from different sources (e.g., incarcerated participants, participants recruited for in-lab studies, participants recruited online), using varying research methodology (e.g., experimental designs, longitudinal designs). For example, future research could examine the relationship between evaluations of rape and official indicators of sexually aggressive behaviour (i.e., charges and convictions for sexual offending) using longitudinal research designs. Results from these types of studies would address any concerns regarding the use of self-reported sexually aggressive behaviour.

In order to provide causal evidence for the relationship between evaluations of rape and sexually aggressive behaviour, future research could employ experimental designs and manipulate evaluations of rape (i.e., manipulate evaluations of rape to be more negative) in incarcerated and non-incarcerated samples of sexually aggressive men. In this type of research design, it would be possible to examine change in evaluations of rape, the impact of the manipulation on short-term outcomes (e.g., proclivity to rape, proxy measures for sexually aggressive behaviour), and the impact of the manipulation on long-term outcomes (e.g., sexual recidivism). Results from these types of studies would speak to the causal role evaluations of rape may play in sexually aggressive behaviour.

If the results of the current dissertation are replicated and expanded upon and there is empirical support for a causal relationship between evaluations of rape and sexually aggressive behaviour, then there are important implications for correctional practice. Theoretically, evaluations of rape are dynamic (changeable) risk factors for

sexual offending (Andrews & Bonta, 2010; Douglas & Skeem, 2005). If future research finds evaluations of rape can demonstrate meaningful change, and that this change is associated with change in sexually aggressive behaviour, then it would be important to target evaluations of rape in the assessment, management, and treatment of sexual offenders against adults. For example, measures of evaluations of rape could be incorporated into intake assessment batteries at correctional institutions; this would highlight any offender needs for interventions targeting evaluations of rape. As well, methods commonly used to change attitudes in the social psychology literature could be adapted to change evaluations of rape (e.g., evaluative conditioning, Hoffmann, De Houwer, Perugini, Baeyens, & Crombez, 2010; presenting negative outcomes and logical arguments against sexual aggression, Sritharan & Gawronski, 2010), and these methods for changing attitudes could be incorporated into current correctional programs for sexual offenders against adults. In sum, the findings of the current dissertation suggest that implicit and explicit evaluations of rape may be important factors that influence whether someone engages in sexually aggressive behaviour. Future research should continue to investigate the role evaluations of rape play in sexually aggressive behaviour, as this can have important implications for theory, research, and correctional practice.

It is noteworthy that often on the measures of explicit evaluations of rape and rape-supportive cognition the sexually aggressive men tended to respond negatively (e.g., reported negative evaluations of rape and/or disagreed with items on the RAPE scale); they just did so to a lesser degree than the non-sexually aggressive men. This same pattern of findings has also been observed in other research examining sexual offenders' sexual offense-supportive cognitions (Gannon & Polaschek, 2006; Gannon, Keown, &

Polaschek, 2007) and is important because it impacts the interpretation of these results. One possible explanation for these results is that sexually aggressive men are responding in a socially desirable manner (i.e., not fully endorsing items on these measures due to social desirability). In support of this notion, Gannon et al. (2007) found sexual offenders against children endorsed more offence-supportive cognitions when they believed they were attached to a lie detector than when they were not. Interestingly, however, in Gannon et al. (2007) their measure of social desirability was not correlated with the measure of offence-supportive cognitions. As an alternate explanation for the change in offence-supportive cognition, Gannon and colleagues (2007) suggest their results could also be due to the lie detector (and methodology used) increasing the perceived importance of the offenders' responses leading them to more carefully consider and pay attention to their responses.

Notably, in the current dissertation the same pattern of results was also found for implicit evaluations of rape; that is sexually aggressive men (current assaulters) reported less negative (not positive) implicit evaluations of rape than non-sexually aggressive men. Measures of implicit attitudes are more resistant to socially desirable responding as they do not require self-report, meaning social desirability is less likely to be a viable alternate explanation for these results. It is possible that instead of sexually aggressive men having positive evaluations of rape, some have less negative or ambivalent evaluations of rape that may become more positive when situational information (e.g., sexual arousal) is considered (see Hermann et al., 2015). It is also possible that what is important is that sexually aggressive men have more positive evaluations of rape relative to non-sexually aggressive men, not that they have absolute positive evaluations of rape.

In terms of interpretation, these findings suggest that although evaluations of rape predict subsequent sexually aggressive behaviour, sexually aggressive men do not necessarily have positive evaluations of rape.

Rape-Supportive Cognition

As noted previously, a number of studies have examined the relationship between rape-supportive cognition and sexually aggressive behaviour. As a whole, these research findings have been mixed. For example, some studies have found sexually aggressive men endorse more rape supportive cognition than non-sexually aggressive men (e.g., Abbey & McAuslan, 2004; Bumby, 1996; DeGue & DiLillo, 2004; DeGue et al., 2010; Lanier, 2001), whereas other studies have not (e.g., Blumenthal et al., 1999; Pervan & Hunter, 2007; Seto & Lalumière, 2010). In the current study, there were moderate to large differences between sexually aggressive men and non-sexually aggressive men, such that sexually aggressive men endorsed more rape-supportive cognition. Also consistent with past research, moderate to large positive correlations were found between rape-supportive cognition and past sexually aggressive behaviour and proclivity to rape (e.g., Anderson et al., 1997; Bernat et al., 1997; Blake & Gannon, 2010; Bohner et al., 2005; Burgess, 2007; Lanier, 2001; Malamuth, 1981; Murnen et al., 2002; Suarez & Gadalla, 2010). In addition, consistent with past longitudinal research with students and community men (e.g., Abbey & McAuslan, 2004; Abbey et al., 2012), there was a small difference in rape-supportive cognition between current assaulters and non-sexually aggressive men, such that current assaulters endorsed more rape-supportive cognition than non-sexually aggressive men. The results of the cross-lagged panel analyses, however, suggest that rape-supportive cognition does not predict subsequent sexually aggressive behaviour.

These results are consistent with Helmus and colleagues' meta-analysis (2013) that found rape-supportive cognition did not significantly predict sexual recidivism in samples of sexual offenders against adults. Thus, consistent with the more general literature on rape-supportive cognition, the findings from the current research are mixed.

Earlier it was suggested that rape-supportive cognition is commonly defined as encompassing a number of cognitive constructs such as attitudes, beliefs, stereotypes, excuses, and justifications about rape, women, and victims of rape (e.g., Helmus et al., 2013; Hermann et al., 2012; Maruna & Mann, 2006; Nunes et al., 2013; Nunes, Hermann, White et al., 2015). If rape-supportive cognition is measured as a unitary construct, then this could possibly explain the inconsistencies in past research and the current results. It is possible that some of the cognitive constructs encompassed within measures of rape-supportive cognition are causal factors for sexual aggression, whereas others are not. To date, the relationships between different rape-supportive cognitive constructs and sexually aggressive behaviour have not yet been explored in research. Future research should explore the different types of cognitive constructs that are encompassed within popular measures of rape supportive cognition, and then examine their individual relationships with sexually aggressive behaviour.

As noted previously, if rape-supportive cognition is a correlate instead of a causal factor for sexual aggression, we would expect to see similar levels of rape-supportive cognition endorsed by past and current assaulters. In the current research, past assaulters and current assaulters reported more rape-supportive cognition than non-sexually aggressive men, but no difference was found between these two groups in rape-supportive cognition. These results are consistent with the notion that rape-supportive

cognition, as measured by the RAPE Scale, is a correlate of sexually aggressive behaviour. These results, in conjunction with the results of the cross-lagged panel analysis, suggest rape-supportive cognition, as measured by the RAPE Scale, may not cause sexually aggressive behaviour. More generally, these results are consistent with past research that found treatment change in rape-supportive cognition measured using the RAPE Scale does not predict sexual recidivism in incarcerated samples of sexually aggressive men (Nunes et al., 2014; Olver et al., 2014). More research clarifying the cognitive constructs that are encompassed within measures of rape-supportive cognition and their relationship with sexually aggressive behaviour is needed to fully understand the role of rape-supportive cognition in the perpetration of sexually aggressive behaviour.

Community Based Samples of Sexually Aggressive Men

Samples of students and community men were recruited in the current dissertation to explore the relationships between implicit and explicit evaluations of rape and sexually aggressive behaviour. As noted above, prior research on predictors of sexually aggressive behaviour has primarily used incarcerated or student samples that may not be fully representative of sexually aggressive men (e.g., Abbey et al., 2007; Greene & Cue Davis, 2011). Community samples can be used to address this limitation by providing non-incarcerated and non-student based samples of men and, as a result, potentially provide more generalizable results. Additionally, research suggests that community samples recruited online can provide more diversity in terms of ethnicity (Casler et al., 2013; Paolacci et al., 2010), employment status and history (Behrend et al., 2011), age (Behrend et al., 2011; Casler et al., 2013; Paolacci et al., 2010), and education (Paolacci et al., 2010), than student samples (Buhrmester et al., 2011). In Study 2 and Study 3

Wave 1, differences between the samples of students and community men were examined. In both studies, the student and community samples significantly differed in their demographic characteristics. Participants in the community samples tended to be older, White, married, and were more likely to be employed full time, whereas participants in the student samples tended to be younger, more ethnically diverse, single, and were less likely to have full time employment. Approximately half of the participants in each of the community samples had completed a university and/or college degree. Consistent with prior research on online samples, the samples of community men provided more diversity in terms of age, relationship status, education status, and employment status. The community samples did not, however, provide more ethnic diversity. As expected, the student and community samples differed in their demographic characteristics, and importantly, studying both samples increased the generalizability of the results of the current dissertation.

Interestingly, there were also differences between the samples of students and community men in their implicit evaluations of rape, such that students had significantly more positive implicit evaluations of rape than community participants. No differences were observed in explicit evaluations of rape, self-reported past sexually aggressive behaviour, or proclivity to rape. As noted above, the student and community samples significantly differed in age, employment, and marital status, with the student sample being, on average, younger, less likely to have full time employment, and more likely to be single, than participants in the community samples. As with most crime, sexually aggressive behaviour tends to occur most often in late adolescence and early adulthood (Lalumière et al., 2005). The literature suggests that young men are more willing to take

risks to achieve goals such as resources, status, and mates as, from an evolutionary perspective, this increases their chances of reproducing (i.e., young male syndrome; see Lalumière et al., 2005 for an overview). As men age, important life events such as employment and marriage reduce the need for, and increase the costs of, risk taking and this results in desistance from antisocial behaviour such as sexual aggression. It is possible that participants in the community sample have more negative implicit associations with rape as a result of the increased costs associated with engaging in this type of behaviour at this stage in their life (e.g., full time employment, marriage). It is unknown why this difference is evident only in implicit evaluations of rape; one possible explanation is that when participants report their deliberative evaluation of rape (explicit evaluations), other non-evaluative information is considered that results in comparable explicit evaluations of rape.

Despite the differences between samples noted above, the pattern of relationships between evaluations of rape and indicators of sexually aggressive behaviour are very similar across the samples of students and community men. This is important because it suggests that research exploring the relationship between evaluations of rape and sexually coercive and aggressive behaviour in student samples is generalizable to men in the community. Future research should try to replicate these findings with incarcerated samples of sexual offenders against adults to determine if research conducted with students and community men also generalizes to this population. In sum, the samples of community men differed from the samples of students in their demographic characteristics, and as expected, increased the generalizability of the results of the current dissertation.

Online Research Methodology

Research suggests that conducting studies online is a viable option for studying sexually aggressive behaviour. An important aspect of the current dissertation was developing and testing self-generated identification codes (SGICs) that could be used to track participants' data anonymously online. Past research on SGICs has found exact match rates range from 40% to 90%, with the majority falling in the low to mid 60% range (see Schnell et al., 2010 for an overview; e.g., DiIorio et al., 2000; Grube et al., 1989; Kearney et al., 1984; Kristjansson et al., 2014). In the current dissertation, acceptable exact match rates were found when the SGIC questions were asked within the same survey, but unacceptably low exact match rates (approximately 30%) were found when SGIC questions were asked across waves of data collection. This is surprising as the majority of the SGIC items achieved good percent agreement across surveys (approximately 80% or higher). One possible explanation for these findings was the use of 12 SGIC questions instead of seven SGIC questions, the number typically used in past research (Schnell et al., 2010). As the number of questions increases, so does the number of opportunities for participants to make mistakes. Thus, there may be an optimal number of SGIC questions that maximizes the chance of an exact match and that minimizes error. Consistent with past research, implementing the one-off rule often increased the match rate to the low to mid 70% range (see Schnell et al., 2010; DiIorio et al., 2000; Grube et al., 1989; Kearney et al., 1984). These findings suggest that SGICs can be used to anonymously track participants online; however, if alternate options are available then they should be used instead of, or in conjunction with, SGICs.

Limitations

There are several limitations in this dissertation worthy of discussion. The first is the use of self-report measures to assess sexually aggressive behaviour and proclivity to rape. Although research generally suggests using self-report methodology to assess engagement in delinquency and crime, including sexual aggression, is reliable and valid (see Piquero et al., [2014] and Thornberry & Krohn, [2000] for overviews; Weinrott & Saylor, 1991; Woods et al., 2011), there are concerns about the accuracy of these data (e.g., Lalumière et al., 2005). Particularly, there are concerns that participants may not be able to accurately recall their past sexually aggressive behaviour and/or estimate their own proclivity to rape. To address this limitation future research should try to replicate the current findings using additional indicators of sexually aggressive behaviour, such as official charges and convictions, to supplement self-reports.

Another important consideration is the validity of the implicit and explicit measures of evaluations of rape used in this dissertation. The methodology used to assess implicit and explicit evaluations of rape is commonly used in social psychology research and has demonstrated good reliability and validity (semantic differential scales, Implicit Association Test [IAT], Single Category IAT; e.g., Gawronski & Bodenhausen, 2006; Greenwald et al., 1998; Greenwald et al., 2009; Hofmann et al., 2005; Karpinski & Steinman, 2006; Lane et al., 2007; Nosek et al. 2007). However, the validity of the adaptations of these measures to assess evaluations of rape has yet to be examined in research. Although it was not the purpose of the current dissertation to examine the validity of these measures, some preliminary evidence supporting the validity of explicit measures of evaluations of rape was found. Specifically, in Study 2 and Study 3 Wave 1 moderate positive relationships were found between the measures of explicit evaluations

of rape suggesting they may be measuring aspects of the same construct or they may be measuring distinct, but closely related, constructs. Future research should thoroughly explore the validity of these measures of implicit and explicit evaluations of rape.

Another possible cause for concern was the use of the word 'rape' as a category in the implicit measures of evaluations of rape. The implicit measures used in the current research rely on automatic associations between the concept categories *RAPE* and *CONSENTING SEX* (or *NOT RAPE*) and the attribute categories *positive/good* and *negative/bad* (Greenwald et al., 1998). Although measures assessing sexually aggressive behaviour, sexual victimization, and/or constructs thought to be relevant to sexual aggression often use the word 'rape,' this can be problematic as research has demonstrated that both victims of sexual assault and perpetrators of sexually aggressive behaviour may not define, and as a result underreport, their experiences as rape (see Koss et al., 2007; Koss, 1993). This is problematic because it means that the concept category *RAPE* in the implicit measures of evaluations of rape used in the current study may not be fully representative of the behaviour that the measures were designed to assess implicit evaluations towards. For example, if a participant does not classify engaging in sexual activity with someone who is too drunk or passed out to consent to and/or stop the sexual activity as rape, then any *positive/good* or *negative/bad* associations with this behaviour may not impact their implicit evaluations of rape, or may impact their implicit evaluations of rape in an unintended way, when using the current measures of implicit evaluations of rape. Future research should explore this notion using alternate measures of implicit evaluations of rape, such as the evaluative priming procedure, that do not rely on using the term 'rape' to assess implicit attitudes towards sexually aggressive

behaviour (Fazio et al., 1995; see Widman & Olson [2013] for an adaption of the evaluative priming procedure to assess implicit evaluations of rape).

Lastly, a large number of significance tests were run on each of the samples of students and community men. Although effect sizes were the primary focus in many of the analyses, the number of significance tests conducted does increase the chance that a Type 1 error was made. In psychology, there have been increased calls for replication as a foundation for knowledge development (e.g., Koole & Lakens, 2012; Nosek, Spies, & Motyl, 2012]). As such, replication of the current results is essential before these findings are applied to theory and correctional practice.

Conclusion

In the current dissertation, the relationship between implicit and explicit evaluations of rape and sexually aggressive behaviour was examined with samples of students and community men recruited online, using cross-sectional and longitudinal research designs. Implicit and explicit evaluations of rape independently predicted subsequent sexually aggressive behaviour in the community sample. Furthermore, in the student and community samples there were moderate to large positive relationships between explicit evaluations of rape and past sexually aggressive behaviour and proclivity to rape. Importantly, these results are novel in that this is the first study to examine the relationship between evaluations of rape and sexually aggressive behaviour using a longitudinal research design. Furthermore, these results are novel in that this study was conducted online with a sample of community men. These results suggest that evaluations of rape may play an important role in sexually aggressive behaviour, and have important implications for theory, research, and correctional practice. Future

research should attempt to replicate and expand upon these findings to better understand the role evaluations of rape play in sexual aggression against adults.

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Appendix A

Study 1A: Demographic Questionnaire

How old are you? (15 or younger, 16-17, 18-19, 20-24, 25-29, 30-34, 35-39, 40-49, 50-59, 60 or older)

What is your gender? (male/female)

What race do you identify with? (White, Black, Asian, Aboriginal, East Indian, Hispanic/Latino, Arab, Other)

Do you speak English fluently? (yes/no)

Do you understand written English? (yes/no)

Do you understand spoken English? (yes/no)

Is English your first language? (yes/no)

Did you attend an English grade school (grades 1 to 8)? (yes/no)

Did you attend an English high school? (yes/no)

Did you complete high school? (yes/no)

Did you attend college or university? (yes/no)

Did you complete college or university? (yes/no)

Are you currently attending college or university? (yes/no)

Do you have a part-time job? (yes/no)

Do you have a full-time job? (yes/no)

What is your relationship status? (married/single/divorced/separated/living with partner/other)

Appendix B

Study 1A: Student Participant Consent Form

Sexual Behaviour: Opinions and Experiences

A consent form tells you what we want you to do as a participant and allows you to make an informed decision about whether you want to participate or not. Consent forms also list any potential bad consequences and they tell you who to contact in case you have any questions or concerns after the research is finished or in case you have any questions or concerns that cannot be answered by the researcher.

The purpose of this study is to find out what men think about sexual behaviour. Participation takes about 45 minutes. You will be asked to answer some questions about non-aggressive and aggressive sexual behaviour. All of your answers will be anonymous, meaning no one will know how you responded to our questions. You will receive 0.5% credit for participating in this study and will be entered into a draw for one \$250.00 Amazon gift card.

In a separate survey, you will also be asked whether you would like to complete a follow-up survey one month from now. If you would like to participate in the follow up survey, you will be asked to provide contact information so that we can remind you to participate. Your contact information will be confidential. This information will be recorded and stored separately from your survey responses. It will **not** be possible to link your contact information to your survey responses, which ensures that your survey answers remain anonymous. Your contact information will only be kept for the duration of data collection, which is no longer than 3 years from now. Following data collection your contact information will be destroyed. **[Removed in follow-up survey]**

The questions asked may be embarrassing or offensive because of their explicit detail, the words used, and the topics covered. You are free to stop the project at any time, not participate, and refuse to answer any of the questions **without penalty**.

The information you provide will be accessed for the current study and for follow-up studies up to a maximum of 10 years from now. Your answers will be used only for research and teaching purposes and your confidentiality will be respected and protected, meaning your answers will not be shared with anyone outside of the research project. No one will know you participated in the publication or presentation of the results. The information collected will be kept in a secure manner at Carleton University for a period of 10 years in a locked filing cabinet and password-protected computer and will be accessible only to the researchers working on this research.

The present study is being conducted by Chantal Hermann (Ph.D. student, Department of Psychology, Carleton University, 613-520-2600 ext. 2261;

chermann@connect.carleton.ca) and Mandie Woods (Honours student, Department of Psychology, Carleton University, 613-520-2600 ext. 2261, Mwoods3@connect.carleton.ca) under the supervision of Dr. Kevin Nunes (Professor, Department of Psychology, Carleton University, 613-520-2600, ext 1545; kevin_nunes@carleton.ca). If you have any questions or concerns about this study please contact Chantal Hermann, Mandie Woods, or Kevin Nunes. If you are concerned about the ethics of this study, please contact Dr. Monique Sénéchal, at monique_senechal@carleton.ca (613-520-2600 ext. 1155). For any other concerns, please contact, Dr. Anne Bowker (Chair, Department of Psychology, 613-520-2600, ext. 8218, psychchair@carleton.ca).

This study has been approved by the Carleton University Ethics Committee for Psychological Research (12-222).

Click “I Agree” to indicate that you understand the information above and would like to participate in this study.

Appendix C

Study 1A: Debriefing Form

Thank you very much for participating in my study. Without your participation, this research would not have been possible. I hope the following information answers any questions and concerns you may have.

Is There Anything I Can Do if I Found This Experiment to be Emotionally Draining?

If you experience any distress (e.g., feel sad or mad) as a result of this study, please seek help from one of the following resources as soon as possible:

University Health and Counselling Services 613-520-6674

Distress Centre of Ottawa and Region 613-238-3311

Ottawa Police Service Victim Crisis Unit 613- 236-1222, ext. 5822

Rape, Abuse, & Incest National Network: 1-800-656-4673 or <http://www.rainn.org/>

Mental Health Today: <http://www.mental-health-today.com/resources/toll.htm>

What is sexual assault?

Sexual assault usually involves verbal threats or physical force in order to carry out sexual acts or to get sexual pleasure. Forcing a woman to do sexual things, such as have sex, when she does not want to is a crime that causes serious problems for both the man and the woman. For the man, one of the main problems is going to prison. For the woman, some of the problems that are linked with being sexually assaulted are anxiety, depression, and relationship problems, not to mention worries about sexually transmitted infections and pregnancy. In sum, forcing sexual activity on a woman against her will not only hurts her, but can also hurt the man.

What Are We Trying to Learn in this Research?

In the testing you did, everyone answers the same questions and completes the same measures. We want to see if there is a relationship between answers on some of the questionnaires. Also, if there is a relationship, we want to know the strength and direction of the relationship.

Why Is This Important to Scientists or the General Public?

Sexual assault is a serious violation that has many negative consequences for victims. In order for us to do the best research that we can on sexual assault we need to understand

how our measures relate to each other and if they measure similar aspects of sexual assault.

What are our Hypotheses and Predictions?

We expect the questionnaires to measure separate but related beliefs about sexual assault.

Where Can I Learn More?

Below is a short list of articles and conference presentations that provide information about cognition in general and the role cognition plays in sex offending. All of the articles are available through Google Scholar (<http://scholar.google.ca/schhp?hl=en&tab=ws>). The link for each article is also provided below each reference.

Cognition in General:

Ajzen, I. (1991). Theory of planned behaviour. *Organizational Behaviour and Human Decision Processes*, 50 (2), 179-211. doi 10.1016/0749-5978(91)90020-T
<https://www.hse.ru/data/816/479/1225/Oct%2019%20Cited%20%231%20Manag e%20THE%20THEORY%20OF%20PLANNED%20BEHAVIOR.pdf>

Ajzen, I. (2001). Nature and operation of attitudes. *Annual Review of Psychology*, 52, 27-58. doi 10.1146/annurev.psych.52.1.27
<http://www.uic.edu/classes/psych/Health/Readings/Ajzen,%20Attitude%20theory,%20AnnRevPsy,%202001.pdf>

Fazio, R. H. (2007). Attitudes as object-evaluation associations of varying strength. *Social Cognition*, 25, 664-703. doi: 10.1521/soco.2007.25.5.603
<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2677817/>

Glasman, L., & Albarracín, D. (2006). Forming attitudes that predict future behavior: A meta-analysis of the attitude-behavior relation. *Psychological Bulletin*, 132, 778-822. doi: 10.1037/0033-2909.132.5.778
<http://www.heplerlabs.com/SAL/publications/25.pdf>

Cognition and Sex Offending:

Hermann, C. A., & Nunes, K. L. (2011, June). Evaluating rape: Do self-report measures of rape-related cognition reflect evaluations of rape? In K. L. Nunes (Chair), *A closer look at criminal attitudes*. Symposium conducted at the 2nd North American Correctional and Criminal Justice Psychology Conference, Toronto, Ontario. <http://www.carleton.ca/acbrlab/past-research/conference-presentations/>

Maruna, S., & Mann, R. E. (2006). A fundamental attribution error? Rethinking cognitive distortions. *Legal and Criminological Psychology*, 11, 155-177. doi 10.1348/1355

32506X114608

<http://www.shaddmaruna.info/pdf/2%20Maruna%20and%20Mann%20FINAL.pdf>

Gannon, T. A., & Polaschek, D. L. L. (2006). Cognitive distortions in child molesters: A re-examination of key theories and research. *Clinical Psychology Review, 26*, 1000-1019.

<http://www.sciencedirect.com/science/article/pii/S0272735805001650>

Ward, T., Gannon, T. A., & Keown, K (2006). Beliefs, values, and actions: The judgment model of cognitive distortions in sexual offenders. *Aggression and Violent Behavior, 11*, 323-340.

<http://www.sciencedirect.com/science/article/pii/S1359178905000704>

What if I Have Questions Later?

The present study is being conducted by Chantal Hermann (Ph.D. student, Department of Psychology, Carleton University, 613-520-2600 ext. 2261; chermann@connect.carleton.ca) and Mandie Woods (Honours student, Department of Psychology, Carleton University, 613-520-2600 ext. 2261, Mwoods3@connect.carleton.ca) under the supervision of Dr. Kevin Nunes (Professor, Department of Psychology, Carleton University, 613-520-2600, ext 1545; kevin_nunes@carleton.ca). If you have any questions or concerns about this study please contact Chantal Hermann, Mandie Woods, or Kevin Nunes. If you are concerned about the ethics of this study, please contact Dr. Monique Sénéchal, at monique_senechal@carleton.ca (613-520-2600 ext. 1155). For any other concerns, please contact, Dr. Anne Bowker (Chair, Department of Psychology, 613-520-2600, ext. 8218, psychchair@carleton.ca).

Thank you very for making this research possible

Appendix D

Study 1A: Follow-Up Survey

Please remember your contact information is confidential. This information will be recorded and stored separately from your survey responses. It will not be possible to link your contact information to your survey responses, which ensures that your survey answers remain anonymous. Your contact information will only be kept for the duration of data collection, which is no longer than 3 years from now. Following data collection your contact information will be destroyed.

In order to receive your gift card please provide one of the following:

1. E-mail Address: _____
2. Mailing Address: _____

Are you interested in participating in the follow up survey one month from now?

1. Yes
2. No

What is the best way for us to remind you to participate in the follow up survey? Please provide the appropriate contact information.

1. E-mail: _____
2. Telephone: _____
3. Mail: _____
4. Not interested in participating a second time.

Thank you very for making this research possible

Appendix E

Study 1A: Follow-Up Survey Contact Script

Dear Participant,

Thank you for participating in our survey “Sexual Behaviour: Opinions and Experiences” and for agreeing to participate in our follow up study. We are contacting you to remind you to please complete the follow up study at this time. This survey will ask you to complete several questionnaires about non-aggressive and aggressive sexual behaviour and will take about 45 minutes to complete. All of your answers will be anonymous, meaning no one will know how you responded to our questions.

To proceed to the study overview, please click on the following link:

<http://www.carleton.ca/acbrlab/>

Thank you for your time,

Chantal Hermann

This study has received clearance by the Carleton University Psychology Research Ethics Board

(Reference #12-222).

Appendix F

Study 1B: Demographic Questionnaire

How old are you? (15 or younger, 16-17, 18-19, 20-24, 25-29, 30-34, 35-39, 40-49, 50-59, 60 or older)

What is your gender? (male/female)

What race do you identify with? (White, Black, Asian, Aboriginal, East Indian, Hispanic/Latino, Arab, Other)

Do you understand written English? (yes/no)

Did you complete high school? (yes/no)

Did you attend college or university? (yes/no)

Did you complete college or university? (yes/no)

Are you currently attending college or university? (yes/no)

Do you have a part-time job? (yes/no)

Do you have a full-time job? (yes/no)

What is your relationship status? (married/single/divorced/separated/living with partner/other)

Where did you find the recruitment notice for this survey?

What is your first and last name?

What is your e-mail address?

Appendix G
Student Participant Consent Form
1B Pilot Study: Internet-Based Research Methodology

A consent form tells you what we want you to do as a participant and allows you to make an informed decision about whether you want to participate or not. Consent forms also list any potential bad consequences and they tell you who to contact in case you have any questions or concerns after the research is finished or in case you have any questions or concerns that cannot be answered by the researcher.

The purpose of this study is to investigate online research methodology. You will be asked to complete some questionnaires about your demographic information, e-mail address, name, and some personal non-identifying information (e.g., shoe size, birth month, father's birth year). This survey will take approximately 15 minutes to complete. In this survey you will be asked to report your name and your e-mail address, this means your responses to our questions will not be anonymous. Your responses to these questions will be confidential. Your contact information will only be kept for the duration of data collection, which is no longer than 3 years from now. Following data collection your contact information will be destroyed.

Please note that the online survey tool used in this study (Qualtrics) is hosted by a server in the USA. The United States Patriot Act permits U.S. law enforcement officials, for the purpose of anti-terrorism investigation, to seek a court order that allows access to the personal records of any person without that person's knowledge. In terms of this study, that means it would be possible for U.S. law enforcement to access the data collected in this study. To protect confidentiality, we do not record IP addresses and we remove data from the U.S. server after 6 months. In view of this we cannot absolutely guarantee the full confidentiality of your data.

You will receive 0.25% course credit for participating in this study. There are no known risks to participating in this research. You are free to stop the project at any time, not participate, and refuse to answer any of the questions **without penalty**. If you withdraw from this study, you will still receive your 0.25% course credit.

The information you provide will be accessed for the current study and for follow-up studies up to a maximum of 10 years from now. Your answers will be used only for research and teaching purposes and your confidentiality will be respected and protected, meaning your answers will not be shared with anyone outside of the research project. No one will know you participated in the publication or presentation of the results. The information collected will be kept in a secure manner at Carleton University for a period of 10 years in a locked filing cabinet and password-protected computer and will be accessible only to the researchers working on this research.

The present study is being conducted by Chantal Hermann (Ph.D. student, Department of Psychology, Carleton University, 613-520-2600 ext. 2261) under the supervision of Dr. Kevin Nunes (Professor, Department of Psychology, Carleton

University, 613-520-2600, ext 1545; kevin_nunes@carleton.ca). If you have any questions or concerns about this study please contact Chantal Hermann or Kevin Nunes. If you are concerned about the ethics of this study, please contact the Psychology Ethics Chair (psychology.ethics@carleton.ca). For any other concerns, please contact, Dr. Anne Bowker (Chair, Department of Psychology, 613-520-2600, ext. 8218, psychchair@carleton.ca).

This study has been approved by the Carleton University Ethics Committee for Psychological Research (11-xxx).

Click “I Agree” to indicate that you understand the information above and would like to participate in this study.

[Note: this section was removed for the follow-up survey]

We would also like to ask you to complete a follow-up survey one week from now. In this follow-up survey you will be asked to complete some questionnaires about your demographic information, e-mail address, name, and some personal non-identifying information (e.g., shoe size, birth month, father’s birth year). This survey will take approximately 15 minutes to complete. Would you like to participate in a **follow-up study** one week from now?

Click “ yes” to indicate that you would like to participate in the follow-up survey and please provide your e-mail address in the box:

Click “no” if you are not interested in participating in the follow-up survey

Community Participant Consent Form

1B Pilot Study: Internet-Based Research Methodology

A consent form tells you what we want you to do as a participant and allows you to make an informed decision about whether you want to participate or not. Consent forms also list any potential bad consequences and they tell you who to contact in case you have any questions or concerns after the research is finished or in case you have any questions or concerns that cannot be answered by the researcher.

The purpose of this study is to investigate online research methodology. You will be asked to complete some questionnaires about your demographic information, e-mail address, name, and some personal non-identifying information (e.g., shoe size, birth month, father's birth year). This survey will take approximately 15 minutes to complete. In this survey you will be asked to report your name and your e-mail address, this means your responses to our questions will not be anonymous. Your responses to these questions will be confidential. You will also be asked if you would like to complete a follow-up survey asking you about the same information [insert time period] from now. Your contact information will only be kept for the duration of data collection, which is no longer than 3 years from now. Following data collection your contact information will be destroyed.

Please note that the online survey tool used in this study (Qualtrics) is hosted by a server in the USA. The United States Patriot Act permits U.S. law enforcement officials, for the purpose of anti-terrorism investigation, to seek a court order that allows access to the personal records of any person without that person's knowledge. In terms of this study, that means it would be possible for U.S. law enforcement to access the data collected in this study. To protect confidentiality, we do not record IP addresses and we remove data from the U.S. server after 6 months. In view of this we cannot absolutely guarantee the full confidentiality of your data.

There are no known risks to participating in this research. You are free to stop the project at any time, not participate, and refuse to answer any of the questions **without penalty**.

The information you provide will be accessed for the current study and for follow-up studies up to a maximum of 10 years from now. Your answers will be used only for research and teaching purposes and your confidentiality will be respected and protected, meaning your answers will not be shared with anyone outside of the research project. No one will know you participated in the publication or presentation of the results. The information collected will be kept in a secure manner at Carleton University for a period of 10 years in a locked filing cabinet and password-protected computer and will be accessible only to the researchers working on this research.

The present study is being conducted by Chantal Hermann (Ph.D. student, Department of Psychology, Carleton University, 613-520-2600 ext. 2261) under the supervision of Dr. Kevin Nunes (Professor, Department of Psychology, Carleton

University, 613-520-2600, ext 1545; kevin_nunes@carleton.ca). If you have any questions or concerns about this study please contact Chantal Hermann or Kevin Nunes. If you are concerned about the ethics of this study, please contact the Psychology Ethics Chair (psychology.ethics@carleton.ca). For any other concerns, please contact, Dr. Anne Bowker (Chair, Department of Psychology, 613-520-2600, ext. 8218, psychchair@carleton.ca).

This study has been approved by the Carleton University Ethics Committee for Psychological Research (11-xxx).

Click “I Agree” to indicate that you understand the information above and would like to participate in this study.

[Note: this section was removed for the follow-up survey]

We would also like to ask you to complete a follow-up survey one week from now. In this follow-up survey you will be asked to complete some questionnaires about your demographic information, e-mail address, name, and some personal non-identifying information (e.g., shoe size, birth month, father’s birth year). This survey will take approximately 15 minutes to complete. Would you like to participate in a **follow-up study** one week from now?

Click “ yes” to indicate that you would like to participate in the follow-up survey and please provide your e-mail address in the box:

Click “no” if you are not interested in participating in the follow-up survey.

Appendix H

Quality Control Questions

1. Please respond to this question by pressing 5.
2. Please respond to this question by selecting the colour blue.
3. Please respond to this question by leaving this question blank.
4. Please respond to this question by selecting the number 10.
5. Please respond to this question by selecting the month of May.
6. Please respond to this question by selecting C.
7. Please respond to this question by selecting 99.
8. Please respond to this question by selecting X.
9. Please respond to this question by selecting the colour red.
10. Please respond to this question by selecting the game poker.

Appendix I
Student Recruitment Notice

Study Name:

Internet-Based Research Methodology

Seeking Participants:

Adult **male** participants who are fluent in English.

Details about Participating:

You will be asked to complete some questionnaires about your demographic information, e-mail address, name, and some personal non-identifying information (e.g., shoe size, birth month, father's birth year). This survey will take approximately 15 minutes to complete. Your responses to these questions will be confidential. You will also be asked if you would like to complete a follow-up survey asking you about the same information one week from now.

Benefits to Participating:

Participants will receive a 0.25% raise in their course grade for participation.

Potential Negative Consequences to Participating:

There are no negative consequences to participating in this study. The types of questions you will be asked are clearly identified in the consent form to permit you the opportunity to refuse to participate, skip any questions you do not wish to answer, or withdraw participation. If you do participate and become disturbed by the study, you will be directed to various sources of support in the debriefing form.

Researchers: Chantal Hermann E-mail: chantalhermann@cmail.carleton.ca
Kevin Nunes E-mail: kevin_nunes@carleton.ca

Participant Sign-Up Deadline: 24 hours before study is to occur.

Participant Cancellation Deadline: 24 hours before study is to occur.

This study has received clearance by the Carleton University Psychology Research Ethics Board

(Reference #11-xxx, insert your ethics reference number once obtained)

Community Men – Recruitment Notice

Researchers at Carleton University WANT your help! We are conducting a survey to test our methods for conducting research online. You will be asked to complete some questionnaires about your demographic information, e-mail address, name, and some personal non-identifying information (e.g., shoe size, birth month, father's birth year). This survey will take approximately 15 minutes to complete. Your responses to these questions will be confidential. You will also be asked if you would like to complete a follow-up survey asking you about the same information one week from now.

Potential Negative Consequences to Participating:

There are no negative consequences to participating in this study. The types of questions you will be asked are clearly identified in the consent form to permit you the opportunity to refuse to participate, skip any questions you do not wish to answer, or withdraw participation. If you do participate and become disturbed by the study, you will be directed to various sources of support in the debriefing form.

If you would like to participate, please click on the link below:

<http://www.carleton.ca/acbrlab/>

This study has received clearance by the Carleton University Psychology Research Ethics Board

(Reference #11-xxx, insert your ethics reference number once obtained)

Appendix J

Debriefing Form

Thank you very much for participating in my study. Without your participation, this research would not have been possible. I hope the following information answers any questions and concerns you may have.

If you have agreed to participate in our follow-up study and have provided us with your contact information then you may receive an e-mail at a later date with instructions on how to participate in this research.

Is There Anything I Can Do if I Found This Experiment to be Emotionally Draining?

If you experience any distress (e.g., feel sad or mad) as a result of this study, please seek help from one of the following resources as soon as possible:

Carleton University Health and Counselling Services: 613-520-6674

Distress Centre of Ottawa and Region: 613-238-3311

Mental Health Today: <http://www.mental-health-today.com/resources/toll.htm>

Canadian Mental Health Association: <http://www.cmha.ca/mental-health/>

Suicide prevention lifeline: 1-800-273-8255 (TALK)
www.suicidepreventionlifeline.org/

What Are We Trying to Learn in this Research?

In the testing you did, everyone answers the same questions and completes the same measures. We want to see if there is a reliable way to identify people across multiple online surveys anonymously.

Why Is This Important to Scientists or the General Public?

If we can link participants' answers across multiple online surveys without having to ask them to provide identifying information (e.g., name, e-mail address), then this would increase our ability to collect data anonymously. Collecting data anonymously could lead to more honest responding and more accurate data.

What are our Hypotheses and Predictions?

We expect to be able to identify participants across multiple surveys reliably.

Where Can I Learn More?

Yurek, L. A., Vasey, J., & Sullivan Havens, D. (2008). The use of self-generated identification codes in longitudinal research. *Evaluation Review*, 32, 435-452. doi: 10.1177/0193841X0831667
<http://erx.sagepub.com/content/32/5/435.short>

What if I Have Questions Later?

The present study is being conducted by Chantal Hermann (Ph.D. student, Department of Psychology, Carleton University, 613-520-2600 ext. 2261) under the supervision of Dr. Kevin Nunes (Professor, Department of Psychology, Carleton University, 613-520-2600, ext 1545; kevin_nunes@carleton.ca). If you have any questions or concerns about this study please contact Chantal Hermann or Kevin Nunes. If you are concerned about the ethics of this study, please contact the Psychology Ethics Chair (psychology.ethics@carleton.ca). For any other concerns, please contact, Dr. Anne Bowker (Chair, Department of Psychology, 613-520-2600, ext. 8218, psychchair@carleton.ca).

Thank you very much for making this research possible

Appendix K
Follow Up Contact Script

Students:

Dear Participant,

Thank you for participating in our survey “Internet-Based Research Methodology” and for agreeing to participate in our follow up study. We are contacting you to ask you to please complete the follow up study at this time.

Study Name:

Internet-Based Research Methodology

Details about Participating:

You will be asked to complete some questionnaires about your demographic information, e-mail address, and some personal non-identifying information (e.g., shoe size, birth month, father’s birth year). This survey will take approximately 15 minutes to complete. Your responses to these questions will be confidential

Benefits to Participating:

Participants will receive a 0.25% raise in their course grade for participation.

Potential Negative Consequences to Participating:

There are no negative consequences to participating in this study. The types of questions you will be asked are clearly identified in the consent form to permit you the opportunity to refuse to participate, skip any questions you do not wish to answer, or withdraw participation. If you do participate and become disturbed by the study, you will be directed to various sources of support in the debriefing form.

To proceed to the study, please sign-up for the following study on SONA:

*Link to SONA study

Thank you for your time,

Chantal Hermann

This study has received clearance by the Carleton University Psychology Research Ethics Board

(Reference #11-xxx, insert your ethics reference number once obtained).

Community men:

Dear Participant,

Thank you for participating in our survey “Internet-Based Research Methodology” and for agreeing to participate in our follow up study. We are contacting you to ask you to please complete the follow up study at this time.

Study Name:

Internet-Based Research Methodology

Details about Participating:

You will be asked to complete some questionnaires about your demographic information, e-mail address, and some personal non-identifying information (e.g., shoe size, birth month, father’s birth year). This survey will take approximately 15 minutes to complete. Your responses to these questions will be confidential

Potential Negative Consequences to Participating:

There are no negative consequences to participating in this study. The types of questions you will be asked are clearly identified in the consent form to permit you the opportunity to refuse to participate, skip any questions you do not wish to answer, or withdraw participation. If you do participate and become disturbed by the study, you will be directed to various sources of support in the debriefing form.

To proceed to the study, please click in the following link:

*Link to study

Thank you for your time,

Chantal Hermann

This study has received clearance by the Carleton University Psychology Research Ethics Board

(Reference #11-xxx, insert your ethics reference number once obtained).

Appendix L

Study 2: Demographic Questionnaire

How old are you? (15 or younger, 16, 17, 18-19, 20-24, 25-29, 30-34, 35-39, 40-49, 50-59, 60 or older)

What is your gender? (male/female)

What race do you identify with? (White, Black, Asian, Aboriginal, East Indian, Hispanic/Latino, Arab, Other)

Do you speak English fluently? (yes/no)

Do you understand written English? (yes/no)

Do you understand spoken English? (yes/no)

Is English your first language? (yes/no)

Did you attend an English grade school (grades 1 to 8)? (yes/no)

Did you attend an English high school? (yes/no)

Did you complete high school? (yes/no)

Did you attend college or university? (yes/no)

Did you complete college or university? (yes/no)

Are you currently attending college or university? (yes/no)

Do you have a part-time job? (yes/no)

Do you have a full-time job? (yes/no)

What is your relationship status? (married/single/divorced/separated/living with partner/other)

Appendix M

RE-IAT

Overview

Implicit Association Test (IAT) measures are computer based tasks that use response latencies to measure the implicit associations between two concept (e.g., *rape* and *consenting sex*) and two attribute (e.g., *positive* and *negative*) categories. The basic task participants are asked to complete when administered an IAT measure is to classify a selected stimulus (word or picture) into its respective concept or attribute category using two buttons on a computer keyboard (e.g., *d* and *k*; Greenwald et al., 1998). The time it takes for the participant to classify the stimulus correctly is known as the response latency. There are two types of blocks of the IAT task; *practice* blocks and *critical* blocks. For the practice blocks each of the buttons on the keyboard represents a single concept or attribute category (e.g., *d* represents *rape* and *k* represents *consenting sex* OR *d* represents *positive* and *k* represents *negative*). Stimuli representative of each category are presented on the screen and the participant must categorize the stimuli using the *d* and *k* keyboard buttons (Greenwald et al., 1998). For the critical blocks each of the buttons on the keyboard represents a target concept and attribute category pair (e.g., *d* represents *rape* AND *positive* and *k* represents *consenting sex* AND *negative*; see Figure 1). A stimulus representative of one of the four possible categories is presented on the screen, participants are asked to categorize the stimulus using the two keyboard buttons (see Figure 1; Greenwald et al., 1998). When a concept and attribute category pair are more compatible for a participant (i.e., associated) and share a response key, the participant will classify the stimulus more quickly and with less error than when a less compatible concept and attribute category pair share a response key (Greenwald et al., 1998). For example, an individual who associates *rape* with *positive* more so than *rape* with *negative* will classify stimuli more quickly when the *rape* and *positive* categories share the same response key. From average response latencies for each type of critical block (i.e., more compatible and less compatible) a difference score can be calculated that allows researchers to make inferences about participants' implicit associations.

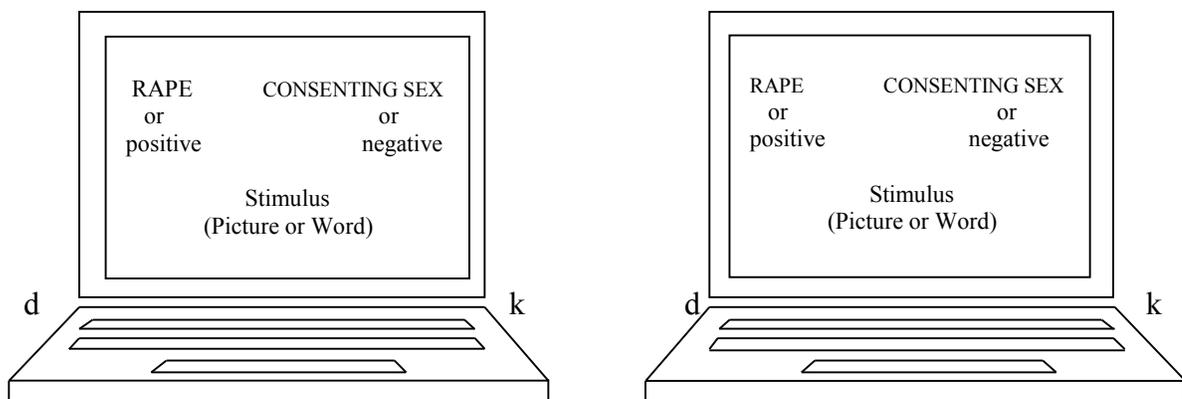
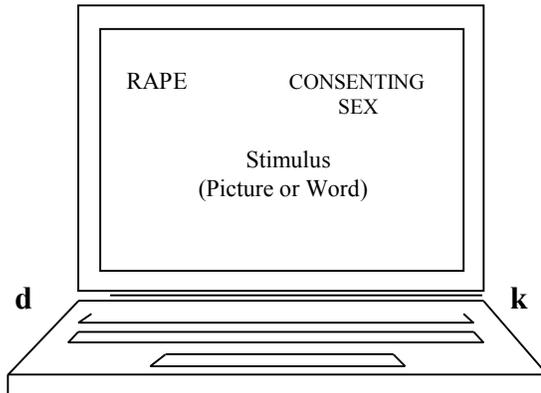


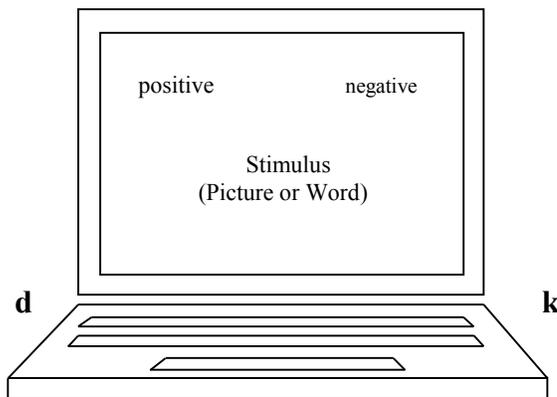
Figure 1. An Example of an IAT Measure Adapted to Assess Attitudes Towards Rape.

Procedure Details

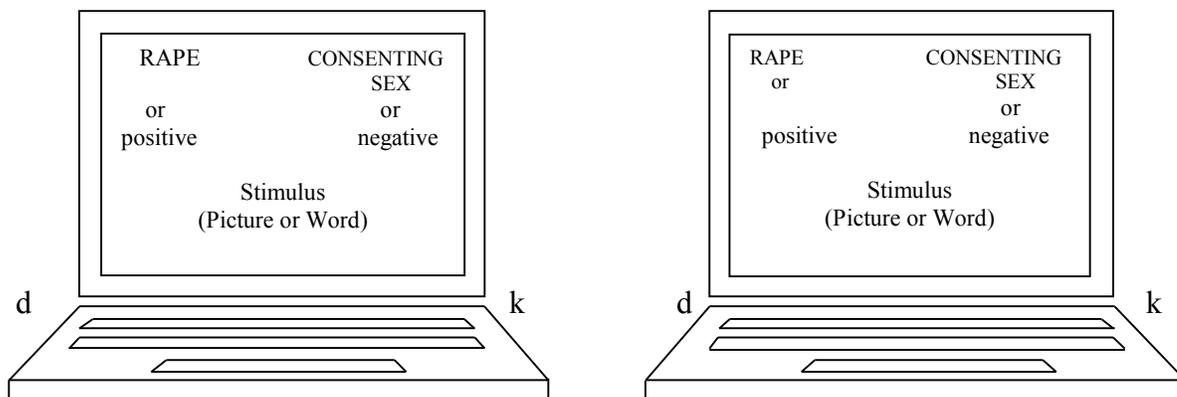
- 1) Participants see instruction screens (see below)
- 2) **Block 1:** 20 practice trials where participants classify RAPE and CONSENTING SEX stimuli



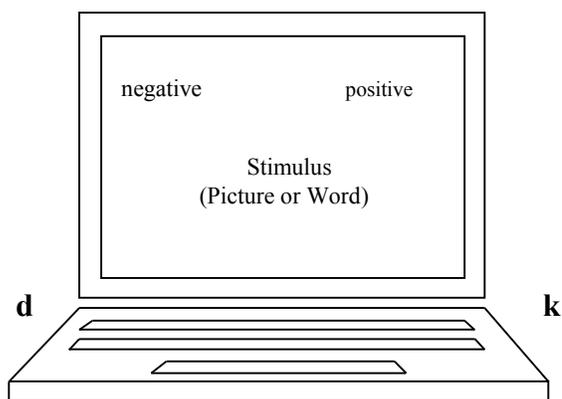
- 3) **Block 2:** 20 practice trials where participants classify positive and negative stimuli



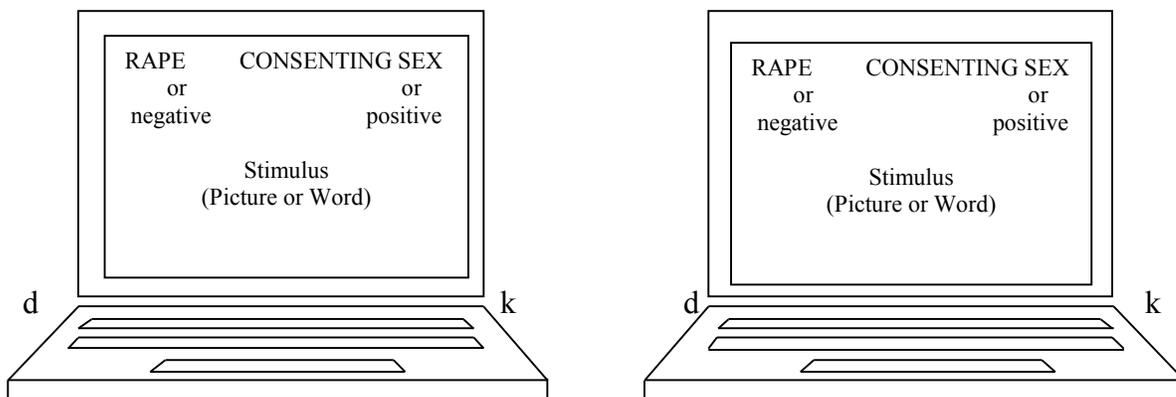
- 4) **Block 3:** 20 critical trials where participants classify stimuli into one of four categories (RAPE, CONSENTING SEX, positive, negative). **RAPE and positive** share a response key OR **RAPE and negative** share a response key. **This is the first block of trials where a concept and attribute share a response key (e.g., RAPE and positive share *d* response key).**



- 5) **Block 4:** 40 critical trials where participants classify stimuli into one of four categories (RAPE, CONSENTING SEX, positive, negative). The critical trials have the same concept and attribute pairing as Block 3 (e.g., if RAPE and positive shared a response key in Block 3 then they share a response key in Block 4).
- 6) **Block 5:** 40 practice trials where participants classify positive and negative stimuli. **Note: negative and positive switch sides (e.g., if positive stimuli were classified as positive using the *d* key they will now be classified as positive using the *k* key).**



- 7) **Block 6:** 20 critical trials where participants where participants classify stimuli into one of four categories (RAPE, CONSENTING SEX, positive, negative). These critical trails are the **opposite** of Blocks 3 and 4. If **RAPE and positive** shared a response key in blocks 3 and 4 then **RAPE and negative** share a response key for these trials.



- 8) **Block 7:** 40 critical trials where participants classify stimuli into one of four categories (RAPE, CONSENTING SEX, positive, negative). The critical trials have the same concept and attribute pairing as Block 6 (e.g., if RAPE and negative shared a response key in Block 6 then they share a response key in Block 7).

Instructions for IAT

BEFORE BLOCK 1:

*First Screen:

You will be asked to complete some grouping tasks.

You will be presented with a word and asked to choose whether it belongs to one category or another.

The categories will be shown at the top corners of the screen.

To choose the category in the left corner, press the “d” key. To choose the category in the right corner, press the “k” key.

PRESS THE SPACEBAR TO CONTINUE

*Second Screen:

It will take about 5 minutes to complete all the grouping tasks.

Please keep your index fingers over the "d" and "k" keys to allow fast responses.

PRESS THE SPACEBAR TO CONTINUE

*Third Screen:

Each word belongs to one of the two categories.

Please try to go as FAST as possible, while also being as ACCURATE as possible.

When you make a mistake, a red X will be shown. You will have to press the correct key to move on to the next word.

Expect to make a few mistakes because you're trying to go fast - it's OK.

PRESS THE SPACEBAR TO CONTINUE

BEFORE BLOCK 3:***First Screen:**

At the top left and right you'll see:

RAPE	CONSENTING SEX
or	or
positive	negative

Words will be shown to you one at a time.

Press the "d" key for each word that relates to RAPE or that is "positive".

Press the "k" key for each word that relates to CONSENTING SEX or that is "negative".

PRESS THE SPACEBAR TO CONTINUE

***Second Screen:**

RAPE	CONSENTING SEX
or	or
positive	negative

RAPE

This is a RAPE word, so you would press "d"

PRESS THE SPACEBAR TO CONTINUE

***Third Screen:**

RAPE	CONSENTING SEX
or	or
positive	negative

good

"good" is a positive word, so you would press "d"

PRESS THE SPACEBAR TO CONTINUE

***Fourth Screen:**

RAPE	CONSENTING SEX
or	or
positive	negative

CONSENT

This is a CONSENTING SEX word, so you would press "k"

PRESS THE SPACEBAR TO CONTINUE

***Fifth Screen:**

RAPE	CONSENTING SEX
or	or
positive	negative

rotten

"rotten" is a negative word, so you would press "k"

When you are ready,

PRESS THE SPACEBAR TO BEGIN

NO INSTRUCTIONS BEFORE BLOCK 4**BEFORE BLOCK 5:*****First Screen:**

At the top left and right you'll see:	
CONSENTING SEX	RAPE
Words will be shown to you one at a time.	
Press the "d" key for each word that relates to CONSENTING SEX and the "k" key for each word that relates to RAPE.	
PRESS THE SPACEBAR TO CONTINUE	

***Second Screen:**

CONSENTING SEX	RAPE
CONSENT	
This is a CONSENTING SEX word, so you would press "d"	
PRESS THE SPACEBAR TO CONTINUE	

***Third Screen:**

CONSENTING SEX	RAPE
RAPE	
This is a RAPE word, so you would press "k"	
PRESS THE SPACEBAR TO CONTINUE	

BEFORE BLOCK 6:***First Screen:**

At the top left and right you'll see:

CONSENTING SEX	RAPE
or	or
positive	negative

Words will be shown to you one at a time.

Press the "d" key for each word that relates to CONSENTING SEX or that is "positive".

Press the "k" key for each word that relates to RAPE or that is "negative".

PRESS THE SPACEBAR TO CONTINUE

***Second Screen:**

CONSENTING SEX	RAPE
or	or
positive	negative

CONSENT

This is a CONSENTING SEX word, so you would press "d"

PRESS THE SPACEBAR TO CONTINUE

***Third Screen:**

CONSENTING SEX	RAPE
or	or
positive	negative

good

"good" is a positive word, so you would press "d"

PRESS THE SPACEBAR TO CONTINUE

***Fourth Screen:**

CONSENTING SEX	RAPE
or	or
positive	negative

RAPE

This is a RAPE word, so you would press "k"

PRESS THE SPACEBAR TO CONTINUE

***Fifth Screen:**

CONSENTING SEX	RAPE
or	or
positive	negative

rotten

"rotten" is a negative word, so you would press "k"

When you are ready,

PRESS THE SPACEBAR TO BEGIN

Appendix N

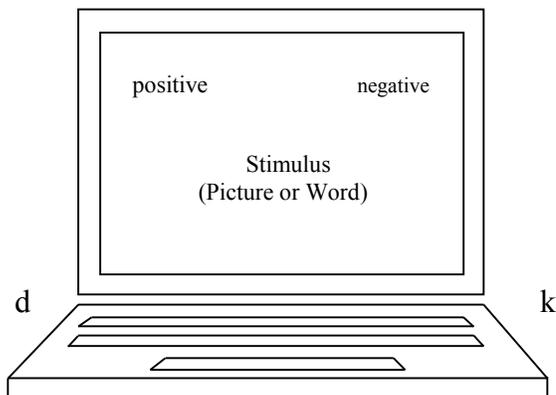
Single Category IAT (SC-IAT)

Overview

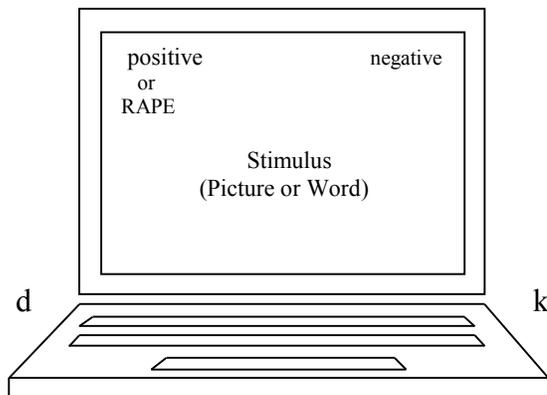
The IAT procedure is modified so that only one target concept is evaluated by participants. The basic task participants are asked to complete when administered an SC-IAT measure is to classify selected stimuli (words or pictures) into their respective concept or attribute categories using two buttons on a computer keyboard (e.g., *d* and *k*). The time it takes for the participant to classify each stimulus correctly is known as the response latency. There are two types of blocks of the SC-IAT task; *practice* blocks and *critical* blocks. For the practice blocks each of the buttons on the keyboard represents a single attribute category (e.g., *d* represents *positive* and *k* represents *negative*). One stimulus representative of either category is presented on the screen and the participant must categorize the stimulus using the *d* and *k* keyboard buttons. For the critical blocks each of the buttons on the keyboard represents either a target concept and attribute category pair (e.g., *d* represents **RAPE and positive**) or just an attribute category (e.g., **negative**). One stimulus representative of one of the three possible categories is presented on the screen, participants are asked to categorize the stimulus using the two keyboard buttons. When a concept and attribute category pair are more compatible for a participant (i.e., associated) and share a response key, the participant will classify stimuli more quickly and with less error than when a less compatible concept and attribute category pair share a response key. From average response latencies for each type of critical block (i.e., more compatible and less compatible) a difference score can be calculated that allows researchers to make inferences about participants' implicit associations.

Procedure Overview:

- 1) Participants see instruction screens (see below)
- 2) **Block 1:** 20 practice trials where participants classify positive and negative stimuli

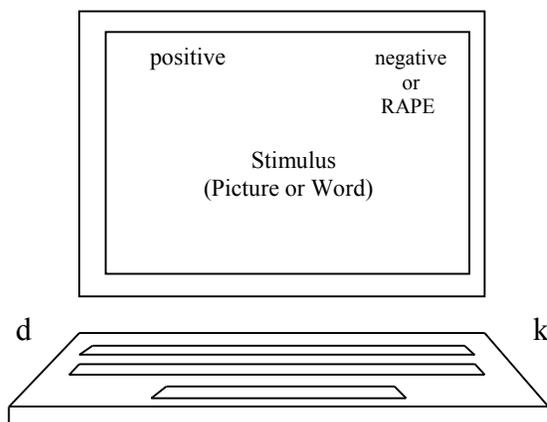


- 3) **Block 2:** 24 critical trials where participants classify stimuli into one of three categories (RAPE, positive, negative). **RAPE and positive** share a response key OR **RAPE and negative** share a response key.



- 4) **Block 3:** 72 critical trials where participants classify stimuli into one of three categories (RAPE, positive, negative). RAPE and positive share a response key OR RAPE and negative share a response key. The critical trials have the **same** concept and attribute pairing as Block 3 (e.g., if RAPE and positive shared a response key in Block 2 then they share a response key in Block 3).

- 5) **Block 4:** 24 critical trials where participants classify stimuli into one of three categories (RAPE, positive, negative). **RAPE and positive** share a response key OR **RAPE and negative** share a response key. These critical trials are the **opposite** of Blocks 2 and 3. If RAPE and positive shared a response key in blocks 2 and 3 then RAPE and negative share a response key for these trials.



- 6) **Block 5:** 72 critical trials where participants classify stimuli into one of three categories (RAPE, positive, negative). RAPE and positive share a response key OR RAPE and negative share a response key. The critical trials have the **same** concept and attribute pairing as Block 4 (e.g., if RAPE and positive shared a response key in Block 4 then they share a response key in Block 5).

Single Category IAT (SC-IAT) Instructions

BEFORE BLOCK 1:

*First Screen:

You will be asked to complete some grouping tasks.

You will be presented with a word and asked to choose whether it belongs to one category or another.

The categories will be shown at the top corners of the screen.

To choose the category in the left corner, press the “d” key.
To choose the category in the right corner, press the “k” key.

PRESS THE SPACEBAR TO CONTINUE

*Second Screen:

It will take about 5 minutes to complete all the grouping tasks.

Please keep your index fingers over the "d" and "k" keys to allow fast responses.

PRESS THE SPACEBAR TO CONTINUE

*Third Screen:

Each word belongs to a category.

Please try to go as FAST as possible, while also being as ACCURATE as possible.

When you make a mistake, a red X will be shown. You will have to press the correct key to move on to the next picture or word.

Expect to make a few mistakes because you're trying to go fast - it's OK.

PRESS THE SPACEBAR TO CONTINUE

BEFORE BLOCK 2:***First Screen:**

At the top left and right you'll see:

positive	negative
or	
RAPE	

Words will be shown to you one at a time.

Press the "d" key for each word that relates to RAPE
or that is "positive".

Press the "k" key for each word that is "negative".

PRESS THE SPACEBAR TO CONTINUE

***Second Screen:**

positive	negative
or	
RAPE	

RAPE

This is a RAPE word, so you would press "d"

PRESS THE SPACEBAR TO CONTINUE

***Third Screen:**

positive or RAPE	negative
good	
"good" is a positive word, so you would press "d"	
PRESS THE SPACEBAR TO CONTINUE	

***Fourth Screen:**

positive or RAPE	negative
rotten	
"rotten" is a negative word, so you would press "k"	
When you are ready,	
PRESS THE SPACEBAR TO BEGIN	

NO INSTRUCTIONS BEFORE BLOCK 3

BEFORE BLOCK 4:***First Screen:**

At the top left and right you'll see:

positive	negative or RAPE
----------	------------------------

Words will be shown to you one at a time.

Press the "d" key for each word that is "positive".

Press the "k" key for each word that relates to RAPE
or that is "negative".

PRESS THE SPACEBAR TO CONTINUE

***Second Screen:**

positive	negative or RAPE
----------	------------------------

RAPE

This is a RAPE word, so you would press "k"

PRESS THE SPACEBAR TO CONTINUE

***Third Screen:**

positive	negative or RAPE
good	
"good" is a positive word, so you would press "d"	
PRESS THE SPACEBAR TO CONTINUE	

***Fourth Screen:**

positive	negative or RAPE
rotten	
"rotten" is a negative word, so you would press "k"	
When you are ready,	
PRESS THE SPACEBAR TO BEGIN	

Appendix O

Sexual Experiences Survey-TFR (SES-TFR)

Sexual Experiences Survey-TFR (SES-TFR) Attitudes

Sexual Experiences Survey-TFR (SES-TFR) Proclivity

Instructions:

We are now going to ask you some questions about:

- (a) your **past** experiences with different types of sexual behaviour,
- (b) how **likely** you would be do these different sexual behaviours in the future, and
- (c) how you **evaluate** these different types of sexual behaviour.

Please answer the following questions by choosing an answer from the drop down menus for each item.

By “woman” we mean any female close to your age or older at the time of the sexual experience.

SES-TFR Response Scale

How many times SINCE YOU WERE 16 years old...

0 = *Never* to 9 = *9 times or more*

SES-TFR Attitudes Response Scale

How POSITIVE or NEGATIVE do you think the behaviour below is?

1 = *Very Negative* to 7 = *Very Positive*

SES-TFR-Proclivity Response Scale

How LIKELY would you be to do the behaviour below?

1 = *Not at all likely* to 7 = *Very likely*

SES-TFR Behaviours and Tactics

[How many times SINCE YOU WERE 16 years old.../How LIKEY would you be to do the behaviour below?/ How POSITIVE or NEGATIVE do you think the behaviour below is?]

Have you ever overwhelmed a woman with arguments and pressure, although she indicated she didn't want to, in order to . . .

1. fondle, kiss, or sexually touch her without her permission?
2. attempt to make her have sexual intercourse with you, but for some reason intercourse didn't happen?
3. make her have oral sex with you?
4. make her have sexual intercourse with you?
5. make her have anal sex with you?
6. insert an object into her?

[How many times SINCE YOU WERE 16 years old.../How LIKEY would you be to do the behaviour below?/ How POSITIVE or NEGATIVE do you think the behaviour below is?]

Have you ever told a woman lies or made promises that you knew were untrue (after she indicated she didn't want to, in order to . . .

1. fondle, kiss, or sexually touch her without her permission?
2. attempt to make her have sexual intercourse with you, but for some reason intercourse didn't happen?
3. make her have oral sex with you?
4. make her have sexual intercourse with you?
5. make her have anal sex with you?
6. insert an object into her?

[How many times SINCE YOU WERE 16 years old.../How LIKEY would you be to do the behaviour below?/ How POSITIVE or NEGATIVE do you think the behaviour below is?]

Have you ever shown you were not happy by making a woman feel guilty, swearing, sulking, or getting angry (after she indicated she didn't want to), in order to . . .

1. fondle, kiss, or sexually touch her without her permission?
2. attempt to make her have sexual intercourse with you, but for some reason intercourse didn't happen?
3. make her have oral sex with you?
4. make her have sexual intercourse with you?
5. make her have anal sex with you?
6. insert an object into her?

[How many times SINCE YOU WERE 16 years old.../How LIKEY would you be to do the behaviour below?/ How POSITIVE or NEGATIVE do you think the behaviour below is?]

Have you ever given a woman drugs or alcohol without her permission in order to . . .

1. fondle, kiss, or sexually touch her without her permission?
2. attempt to make her have sexual intercourse with you, but for some reason intercourse didn't happen?
3. make her have oral sex with you?
4. make her have sexual intercourse with you?
5. make her have anal sex with you?
6. insert an object into her?

[How many times SINCE YOU WERE 16 years old.../How LIKEY would you be to do the behaviour below?/ How POSITIVE or NEGATIVE do you think the behaviour below is?]

When a woman was passed out or too drunk to give permission or stop what was happening, have you ever...

1. fondled, kissed, or sexually touched her without her permission?
2. attempted to make her have sexual intercourse with you, but for some reason intercourse didn't happen?
3. made her have oral sex with you?
4. made her have sexual intercourse with you?
5. make her have anal sex with you?
6. insert an object into her?

[How many times SINCE YOU WERE 16 years old.../How LIKEY would you be to do the behaviour below?/ How POSITIVE or NEGATIVE do you think the behaviour below is?]

Have you ever used some degree of physical force (twisting her arm, holding her down) or in any other way held down or physically hurt a woman in order to . . .

1. fondle, kiss, or sexually touch her without her permission?
2. attempt to make her have sexual intercourse with you, but for some reason intercourse didn't happen?
3. make her have oral sex with you?
4. make her have sexual intercourse with you?
5. make her have anal sex with you?
6. insert an object into her?

Likelihood to Rape Questions

How likely is it that you would commit rape if you would not get caught and/or punished?

1 = Not at all likely

2

3

4

5 = Very likely

Appendix Q

Rape Outcome Expectancies (ROE) - Evaluation Scale

A person's behaviour can result in a number possible outcomes - some positive and some negative. For example, watching a movie instead of studying for an important exam could result in many outcomes. Some positive outcomes might be that you would (a) enjoy a good movie, (b) have fun with friends, (c) avoid studying, and (d) relax. Some negative outcomes might be that you would (a) worry about the fact that you're not studying, (b) do poorly on the exam, (c) do poorly in the course, and (d) disappoint your parents.

Some of these outcomes may seem more or less likely to you. For example, you may believe that it is very likely that you are going to enjoy the movie because you've heard that it is excellent from a lot of people. Relatedly, these outcomes may be viewed as positive or negative by you. For example, enjoying yourself would probably be a positive outcome for you.

Forcing a woman to have sex could also result in a number of possible outcomes. List three things that you think could happen if you were to force a woman to have sex with you. For each outcome, (a) indicate how likely you think that outcome is and (b) indicate how positive or negative that outcome would be for you if it did happen.

Outcome #1 _____

How likely is it that this outcome would happen?

Never Happen			Might Happen			Guaranteed to happen
0	1	2	3	4	5	6

How positive or negative would this outcome be for you if it did happen?

Very negative			Neutral			Very positive
-3	-2	-1	0	1	2	3

Outcome #2 _____

How likely is it that this outcome would happen?

Never Happen				Might Happen			Guaranteed to happen
0	1	2	3	4	5	6	

How positive or negative would this outcome be for you if it did happen?

Very negative				Neutral			Very positive
-3	-2	-1	0	1	2	3	

Outcome #3 _____

How likely is it that this outcome would happen?

Never Happen				Might Happen			Guaranteed to happen
0	1	2	3	4	5	6	

How positive or negative would this outcome be for you if it did happen?

Very negative				Neutral			Very positive
-3	-2	-1	0	1	2	3	

Appendix R

The RAPE Scale

Response Scale:

1= *Strongly Disagree*

2

3

4= *Strongly Agree*

1. Men who commit rape are probably responding to a lot of stress in their lives, and raping helps to reduce that stress.
2. Women who get raped probably deserved it.
3. Women generally want sex no matter how they can get it.
4. Since prostitutes sell their bodies for sexual purposes anyway, it is not as bad if someone forces them into sex.
5. If a woman does not resist strongly to sexual advances, she is probably willing to have sex.
6. Women often falsely accuse men of rape
7. A lot of women who get raped had "bad reputations" in the first place.
8. If women did not sleep around so much, they would be less likely to get raped.
9. If a woman gets drunk at a party, it is really her own fault if someone takes advantage of her sexually.
10. When women wear tight clothes, short skirts, and no bra or underwear, they are asking for sex.
11. A lot of women claim they were raped just because they want attention.
12. Victims of rape are usually a little bit to blame for what happens.
13. If a man has sex with a woman before, then he should be able to have sex with her any time he wants.
14. Just fantasizing about forcing someone to have sex isn't all that bad since no one is really being hurt.
15. Women who go to bars a lot are mainly looking to have sex.
16. A lot of times when women say "no" they are just playing are just playing hard to get, and really mean "yes".
17. Part of a wife's duty is to satisfy her husband sexually whenever he wants it, whether or not she is in the mood.
18. Often a woman reports rape long after the fact because she gets mad at the man she had sex with and is just trying to get back at him.
19. As long as a man does not slap or punch or punch a woman in the process, forcing her to have sex is not as bad.
20. When a woman gets raped more than once, she is probably doing something to cause it.
21. Women who get raped will eventually forget about it and get on with their lives.

22. On a date, when a man spends a lot of money on a woman, the woman ought to at least give the man something in return sexually.
23. I believe that if a woman lets a man kiss her and touch her sexually, she should be willing to go all the way.
24. When women act like they are too good for men, most men probably think about raping the women to put them in their place.
25. I believe that society and the courts are too tough on rapists.
26. Most women are sluts and get what they deserve.
27. Before the police investigate a woman's claim of rape, it is a good idea to find out what she was wearing, if she had been drinking, and what kind of person she is.
28. Generally, rape is not planned- a lot of times it just happens.
29. If a person tells himself that he will never rape again, then he probably won't.
30. A lot of men who rape do so because they are deprived of sex.
31. The reason a lot of women say "no" to sex is because they don't want to seem loose
32. If a woman goes to the home of a man on the first date, she probably wants to have sex with him.
33. Many women have a secret desire to be forced into having sex.
34. Most of the men who rape have stronger sexual urges than other men.
35. I believe that any woman can prevent herself from being raped if she really wants to.
36. Most of the time, the only reason a man commits rape is because he was sexually assaulted as a child.

Appendix S

Evaluation of Rape Scale

Raping a woman is:

Negative					Neutral	Positive
1	2	3	4	5	6	7
Bad					Neutral	Good
1	2	3	4	5	6	7
Wrong					Neutral	Right
1	2	3	4	5	6	7
Immoral					Neutral	Moral
1	2	3	4	5	6	7
Not Enjoyable					Neutral	Enjoyable
1	2	3	4	5	6	7

Having consenting sex with a woman is:

Negative					Neutral	Positive
1	2	3	4	5	6	7
Bad					Neutral	Good
1	2	3	4	5	6	7
Wrong					Neutral	Right
1	2	3	4	5	6	7
Immoral					Neutral	Moral
1	2	3	4	5	6	7
Not Enjoyable					Neutral	Enjoyable
1	2	3	4	5	6	7

Appendix T

Student Participant Consent Form

A consent form tells you what we want you to do as a participant and allows you to make an informed decision about whether you want to participate or not. Consent forms also list any potential bad consequences and they tell you who to contact in case you have any questions or concerns after the research is finished or in case you have any questions or concerns that cannot be answered by the researcher.

Present study: Sexually Aggressive Behaviour: Opinions and Experiences

Research personnel: The present study is being conducted by Chantal Hermann (Ph.D. student, Department of Psychology, Carleton University, 613-520-2600 ext. 2261); under the supervision of Dr. Kevin Nunes (Associate Professor, Department of Psychology, Carleton University, 613-520-2600, ext. 1545; kevin_nunes@carleton.ca).

Concerns: If you have any questions or concerns about this study please contact Chantal Hermann or Kevin Nunes. If you are concerned about the ethics of this study, please contact Dr. Shelley Brown at Shelley.Brown@carleton.ca (613-520-2600 ext. 1505). For any other concerns, please contact, Dr. Anne Bowker (Chair, Department of Psychology, 613-520-2600, ext. 8218, psychchair@carleton.ca).

Purpose: The purpose of this study is to find out what men think about non-aggressive and aggressive sexual behaviour (e.g., rape).

Task requirements: Participation in this study takes about 20 minutes. You will be asked to complete an online survey. In the online survey, you will be asked to complete some questionnaires and reaction time measures about your opinion and experiences with non-aggressive and aggressive sexual behaviour (e.g., rape). You will also be asked to complete some questions about your demographic information and some questions about non-identifying personal information (e.g., shoe size). Your responses to these questionnaires will be completely anonymous.

Benefits/compensation: You will receive 0.5% credit for participating in this study.

Potential risk/discomfort: The questions asked may be embarrassing or offensive because of their sexual nature, explicit detail, the words used, and the topics covered. You are free to stop the project at any time, not participate, and refuse to answer any of the questions **without penalty**. More specifically, full credit (0.5%) will be granted for starting the survey, whether or not you answer all the questions or finish it.

Anonymity/confidentiality. No information that could be used to identify you can be connected with your survey responses, so your answers will be anonymous. In other

words, nobody will be able to link your answers to your identity and we will not know who said what. The information you provide will be used only for research and teaching purposes.

Right to withdraw. Your participation in this study is **entirely voluntary**. At any point during the study, you have the right to not complete certain questions, or to withdraw without penalty.

This study has been approved by the Carleton University Ethics Committee for Psychological Research (13-xxx).

Click “I Agree” to indicate that you understand the information above and would like to participate in this study or “I Disagree” if you do not want to do the survey.

Qualtrics Panel Consent Form

A consent form tells you what we want you to do as a participant and allows you to make an informed decision about whether you want to participate or not. Consent forms also list any potential bad consequences and they tell you who to contact in case you have any questions or concerns after the research is finished or in case you have any questions or concerns that cannot be answered by the researcher.

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Benefits/compensation: You will receive the incentive outlined in the invitation for this study for participating in this study.

Potential risk/discomfort: The questions asked may be embarrassing or offensive because of their sexual nature, explicit detail, the words used, and the topics covered. You are free to stop the project at any time, not participate, and refuse to answer any of the questions **without penalty**.

Anonymity/confidentiality. No information that could be used to identify you can be connected with your survey responses, so your answers will be anonymous. In other words, nobody will be able to link your answers to your identity and we will not know

who said what. The information you provide will be used only for research and teaching purposes.

Right to withdraw. Your participation in this study is **entirely voluntary**. At any point during the study, you have the right to not complete certain questions, or to withdraw without penalty.

This study has been approved by the Carleton University Ethics Committee for Psychological Research (13-xxx).

Click “I Agree” to indicate that you understand the information above and would like to participate in this study or “I Disagree” if you do not want to do the survey.

Appendix U

Pre-Debriefing Form and Debriefing Form

[Information presented to participants prior to participating in the study:]

Thank you very much for agreeing to participate in my study. Without your participation, this research would not be possible.

You will be able to withdraw from this study at any time using the withdraw button located at the bottom of each survey page. If you withdraw you will automatically be re-directed to some important debriefing information – **please do not close your browser window until you have read this information.**

If you complete this study, at the end of the survey you will be presented with some important debriefing information – **please do not close your browser window until you have read this information.**

Please read and take note of the information below carefully as it contains resources for you in case you feel distressed by this study.

I hope the following information answers any questions and concerns you may have.

Is There Anything I Can Do if I Found This Experiment to be Emotionally Draining?

If you experience any distress (e.g., feel sad or mad) as a result of this study, please seek help from one of the following resources as soon as possible:

Canadian Resources:

Carleton University Health and Counselling Services: 613-520-6674

Distress Centre of Ottawa and Region: 613-238-3311

Ottawa Police Service Victim Crisis Unit: 613- 236-1222, ext. 5822

Mental Health Crisis Service: (613) 722-6914; 1-866-996-0991

The Men's Project: 1-877-677-6532

List of a variety of resources: <http://www.carleton.ca/health/emergencies-and-crisis/emergency-numbers/>

American Resources:

Rape, Abuse, & Incest National Network: 1-800-656-4673 or
<http://www.rainn.org/>

Mental Health Today: <http://www.mental-health-today.com/resources/toll.htm>

Suicide prevention lifeline: 1-800-273-8255 (TALK)
www.suicidepreventionlifeline.org/

Stop It Now: http://www.stopitnow.org/resources_comprehensive

International Resources:

International resources about sexual abuse: <http://www.rainn.org/get-help/sexual-assault-and-rape-international-resources>

Mental health crisis help United Kingdom: call: 111,
<http://www.rethink.org/about-us/our-mental-health-advice/crisis-contacts>

Mind, mental health crisis line, United Kingdom: 0300-123-3393
<http://www.mind.org.uk/information-support/helplines/>

Befrienders Worldwide, suicide prevention: <http://www.befrienders.org>

Shanghai International Mental Health Association: <http://www.s-imha.org/en/about-us/crisis-resources.html>

List of resources by country:
<http://www.suicideforum.com/showthread.php?42096-Crisis-Hotline-Numbers-International>

What if I Have Questions Later?

The present study is being conducted by Chantal Hermann (Ph.D. student, Department of Psychology, Carleton University, 613-520-2600 ext. 2261) under the supervision of Dr. Kevin Nunes (Professor, Department of Psychology, Carleton University, 613-520-2600, ext. 1545; kevin_nunes@carleton.ca). If you have any questions or concerns about this study please contact Chantal Hermann or Kevin Nunes. If you are concerned about the ethics of this study, please contact Dr. Shelley Brown at Shelley.Brown@carleton.ca (613-520-2600 ext. 1505). For any other concerns, please contact, Dr. Anne Bowker (Chair, Department of Psychology, 613-520-2600, ext. 8218, psychchair@carleton.ca).

Thank you very for making this research possible

[Information to be presented to participants following the completion of the study or if they withdraw from the study:]

Thank you very much for participating in my study. Without your participation, this research would not have been possible. I hope the following information answers any questions and concerns you may have.

What Are We Trying to Learn in this Research?

In the testing you did, everyone answers the same questions and completes the same measures. We want to see if there is a relationship between answers on some of the questionnaires. Also, if there is a relationship, we want to know the strength and direction of the relationship.

Why Is This Important to Scientists or the General Public?

Sexual assault is a serious violation that has many negative consequences for victims. In order for us to do the best research that we can on sexual assault we need to understand how our measures relate to each other and if they measure similar aspects of sexual assault.

What are our Hypotheses and Predictions?

We expect the questionnaires to measure separate but related cognitions about sexual assault.

Is There Anything I Can Do if I Found This Experiment to be Emotionally Draining?

If you experience any distress (e.g., feel sad or mad) as a result of this study, please seek help from one of the following resources as soon as possible:

Canadian Resources:

Carleton University Health and Counselling Services: 613-520-6674

Distress Centre of Ottawa and Region: 613-238-3311

Ottawa Police Service Victim Crisis Unit: 613- 236-1222, ext. 5822

Mental Health Crisis Service: (613) 722-6914; 1-866-996-0991

The Men's Project: 1-877-677-6532

List of a variety of resources: <http://www.carleton.ca/health/emergencies-and-crisis/emergency-numbers/>

American Resources:

Rape, Abuse, & Incest National Network: 1-800-656-4673 or
<http://www.rainn.org/>

Mental Health Today: <http://www.mental-health-today.com/resources/toll.htm>

Suicide prevention lifeline: 1-800-273-8255 (TALK)
www.suicidepreventionlifeline.org/

Stop It Now: http://www.stopitnow.org/resources_comprehensive

International Resources:

International resources about sexual abuse: <http://www.rainn.org/get-help/sexual-assault-and-rape-international-resources>

Mental health crisis help United Kingdom: call: 111,
<http://www.rethink.org/about-us/our-mental-health-advice/crisis-contacts>

Mind, mental health crisis line, United Kingdom: 0300-123-3393
<http://www.mind.org.uk/information-support/helplines/>

Befrienders Worldwide, suicide prevention: <http://www.befrienders.org>

Shanghai International Mental Health Association: <http://www.s-imha.org/en/about-us/crisis-resources.html>

List of resources by country:
<http://www.suicideforum.com/showthread.php?42096-Crisis-Hotline-Numbers-International>

What is sexual assault?

Sexual assault usually involves verbal threats or physical force in order to carry out sexual acts or to get sexual pleasure. Forcing a woman to do sexual things, such as have sex, when she does not want to is a crime that causes serious problems for both the man and the woman. For the man, one of the main problems is going to prison. For the woman, some of the problems that are linked with being sexually assaulted are anxiety, depression, and relationship problems, not to mention worries about sexually transmitted infections and pregnancy. In sum, forcing sexual activity on a woman against her will not only hurts her, but can also hurt the man.

Please follow the links below for more information about sexual violence, violence, and trauma from the American Psychological Association:

<http://www.apa.org/topics/sexual-abuse/index.aspx>

<http://www.apa.org/topics/trauma/index.aspx>

<http://www.apa.org/topics/violence/>

For more information about the negative effects of sexual assault, please follow the following link:

<http://www.rainn.org/get-information/effects-of-sexual-assault>

For more information about different types of sexual assault, please follow the following link:

<http://www.rainn.org/get-information/types-of-sexual-assault>

For further information about mental health please see:

Canadian Mental Health Association: <http://www.cmha.ca/mental-health/>

Where Can I Learn More?

Below is some information where you can learn more about rape-supportive cognition and sexually aggressive behaviour.

You can also visit our website that provides more information about who we are as researchers and some of our recent research: <http://www.carleton.ca/acbrlab/>

She asked for it: The impact of rape myths:

<http://www.psychologytoday.com/blog/in-love-and-war/201211/she-asked-it-the-impact-rape-myths>

Common rape myths debunked: <http://www.wavaw.ca/mythbusting/rape-myths/>

Statistics on sexual assault in Canada:

<http://www.statcan.gc.ca/pub/85f0033m/2008019/hl-fs-eng.htm>

Information about sexual offenders:

http://www.csom.org/pubs/needtoknow_fs.pdf

What if I Have Questions Later?

The present study is being conducted by Chantal Hermann (Ph.D. student, Department of Psychology, Carleton University, 613-520-2600 ext. 2261) under the supervision of Dr. Kevin Nunes (Professor, Department of Psychology, Carleton University, 613-520-2600, ext. 1545; kevin_nunes@carleton.ca). If you have any questions or concerns about this study please contact Chantal Hermann or Kevin Nunes. If you are concerned about the

ethics of this study, please contact Dr. Shelley Brown at Shelley.Brown@carleton.ca (613-520-2600 ext. 1505). For any other concerns, please contact, Dr. Anne Bowker (Chair, Department of Psychology, 613-520-2600, ext. 8218, psychchair@carleton.ca)

Thank you very for making this research possible

Appendix V

Student Participant Consent Form

A consent form tells you what we want you to do as a participant and allows you to make an informed decision about whether you want to participate or not. Consent forms also list any potential bad consequences and they tell you who to contact in case you have any questions or concerns after the research is finished or in case you have any questions or concerns that cannot be answered by the researcher.

Present study: Sexually Aggressive Behaviour: What do you think?

Research personnel: The present study is being conducted by Chantal Hermann (Ph.D. student, Department of Psychology, Carleton University, 613-520-2600 ext. 2261); under the supervision of Dr. Kevin Nunes (Associate Professor, Department of Psychology, Carleton University, 613-520-2600, ext. 1545; kevin_nunes@carleton.ca).

Concerns: If you have any questions or concerns about this study please contact Chantal Hermann or Kevin Nunes. If you are concerned about the ethics of this study, please contact the Psychology Ethics Chair at psychology.ethics@carleton.ca. For any other concerns, please contact, Dr. Anne Bowker (Chair, Department of Psychology, 613-520-2600, ext. 8218, psychchair@carleton.ca).

Purpose: The purpose of this study is to find out what men think about non-aggressive and aggressive sexual behaviour (e.g., rape).

Participant requirement: To participate in this study you need to be an adult heterosexual man.

Task requirements: Participation in this study takes about 30 minutes. In this online survey, you will be asked to complete some measures of your opinion and experiences with non-aggressive and aggressive sexual behaviour with women (e.g., rape). Your responses to these measures will be completely anonymous.

[Modified based on survey being administered (e.g., survey 1 or survey 2)]: In addition you will be asked if you would be willing to complete 1 follow-up survey later on.

Benefits/compensation: You will receive 0.5% credit for participating in this study.

Potential risk/discomfort: The questions asked may be embarrassing or offensive because of their sexual nature, explicit detail, the words used, and the topics covered. You are free to stop the project at any time, not participate, and refuse to answer any of the questions **without penalty**. More specifically, full credit (0.5%) will be granted for starting the survey, whether or not you answer all the questions or finish it.

Anonymity/confidentiality. No information that could be used to identify you can be connected with your survey responses, so your answers will be anonymous. In other words, nobody will be able to link your answers to your identity and we will not know who said what. The information you provide will be used only for research and teaching purposes.

Right to withdraw. Your participation in this study is **entirely voluntary**. At any point during the study, you have the right to not complete certain questions, or to withdraw without penalty.

This study has been approved by the Carleton University Ethics Committee for Psychological Research (14-xxx).

Click “I Agree” to indicate that you understand the information above and would like to participate in this study or “I Disagree” if you do not want to do the survey.

Qualtrics Panel Consent Form

A consent form tells you what we want you to do as a participant and allows you to make an informed decision about whether you want to participate or not. Consent forms also list any potential bad consequences and they tell you who to contact in case you have any questions or concerns after the research is finished or in case you have any questions or concerns that cannot be answered by the researcher.

Present study: Sexually Aggressive Behaviour: What do you think?

Research personnel: The present study is being conducted by Chantal Hermann (Ph.D. student, Department of Psychology, Carleton University, 613-520-2600 ext. 2261); under the supervision of Dr. Kevin Nunes (Associate Professor, Department of Psychology, Carleton University, 613-520-2600, ext. 1545; kevin_nunes@carleton.ca).

Concerns: If you have any questions or concerns about this study please contact Chantal Hermann or Kevin Nunes. If you are concerned about the ethics of this study, please contact the Psychology Ethics Chair at psychology.ethics@carleton.ca. For any other concerns, please contact, Dr. Anne Bowker (Chair, Department of Psychology, 613-520-2600, ext. 8218, psychchair@carleton.ca).

Purpose: The purpose of this study is to find out what men think about non-aggressive and aggressive sexual behaviour (e.g., rape).

Participant requirement: To participate in this study you need to be an adult heterosexual man.

Task requirements: Participation in this study takes about 30 minutes. In this online survey, you will be asked to complete some measures of your opinion and experiences with non-aggressive and aggressive sexual behaviour with women (e.g., rape). Your responses to these measures will be completely anonymous.

[Modified based on survey being administered (e.g., survey 1 or survey 2)]: In addition you will be asked if you would be willing to complete 1 survey later on.

Benefits/compensation: You will receive the incentive outlined in the invitation for this study for participating in this study.

Potential risk/discomfort: The questions asked may be embarrassing or offensive because of their sexual nature, explicit detail, the words used, and the topics covered. You are free to stop the project at any time, not participate, and refuse to answer any of the questions **without penalty**.

Anonymity/confidentiality. No information that could be used to identify you can be connected with your survey responses, so your answers will be anonymous. In other words, nobody will be able to link your answers to your identity and we will not know who said what. The information you provide will be used only for research and teaching purposes.

Right to withdraw. Your participation in this study is **entirely voluntary**. At any point during the study, you have the right to not complete certain questions, or to withdraw without penalty.

This study has been approved by the Carleton University Ethics Committee for Psychological Research (14-xxx).

Click “I Agree” to indicate that you understand the information above and would like to participate in this study or “I Disagree” if you do not want to do the survey.

Appendix W

Recruitment Notice - Students

Dear Participant,

Thank you for participating in our survey ‘*Sexually aggressive behaviour: What do you think?*’ We are contacting you to ask you if you would be interested in participating in a follow-up survey at this time? The follow-up survey will ask you the same questions that you answered in the original survey you completed. The survey will take approximately 30 minutes to complete and you will receive a 0.5% raise in your course grade for participation.

Study Name:

Sexually aggressive behaviour: What do you think? – Follow-up survey (2)

Benefits to Participating:

Participants will receive a 0.5% raise in their course grade for participation.

Details about Participating:

We are conducting a follow-up survey asking for your opinions and experiences regarding sexual behaviour for a second time. You will be asked to complete some measures of your opinion and experiences with non-aggressive and aggressive sexual behaviour (e.g., rape). Your responses to these measures will be completely anonymous.

Potential Negative Consequences to Participating:

You may experience anxiety, emotional pain, or embarrassment due to the sensitive topic being studied.

To Participate:

If you would like to participate, please sign-up for ‘*Sexually aggressive behaviour: What do you think? – Follow-up survey (2)*’ on SONA.

Researchers: Chantal Hermann E-mail: chermann@connect.carleton.ca
Kevin Nunes E-mail: kevin.nunes@carleton.ca

Participant Sign-Up Deadline: 24 hours before study is to occur.

Participant Cancellation Deadline: 24 hours before study is to occur.

This study has received clearance by the Carleton University Psychology Research Ethics Board

(Reference #14-xxx, insert your ethics reference number once obtained)