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THESIS

The contribution of STI-related stigma and the Theory of Planned Behaviour to STI testing among young people in New South Wales, Australia

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Abstract

STIs (sexually transmissible infections) rates are increasing among young people. In spite of sexual health programs that promote STI testing, the proportion of young people who test for STIs is considered to be too low. This study explores the barriers and facilitators of STI testing among young people in New South Wales, Australia. A total of 533 adolescents and young adults between 16 and 26 years old were mainly recruited online via advertisement on a social networking website and participants were invited to complete an anonymous online survey. The objective of this study was to assess the contribution of STI-related stigma and variables from the Theory of Planned Behaviour (TPB) in explaining intentions to get tested for STIs in young people. It was hypothesized that STI-related stigma would be substantial in young people and would prevent young people to get tested for STIs. The contribution of STI-related stigma to intentions to test for STIs is expected to exist over and above variables from the TPB (attitudes, perceived behavioural control, subjective norms and past behaviour). These hypotheses were partially supported by the results. STI-related stigma was found to be moderate in this sample. In multivariate analysis, intention to test for STIs was negatively associated with STI-related stigma and positively associated with subjective norms and past testing behaviours. Implications and limitations of the study are discussed.

The prevalence of STIs (sexually transmissible infections) is increasing and heterosexual adolescents and young adults are at increased risk of contracting STIs compared to older heterosexual people, especially when it comes to Chlamydia (Gavin et al., 2009). These trends have been observed in many industrialised countries (WHO, 2010), for instance in Australia, the United States, and the United Kingdom (Department of Health and Ageing, 2010; Gavin et al., 2009; Fenton et al., 2001).

Since STIs can negatively affect people's health and women's fertility, reducing the prevalence of STIs in young people is a public health priority in many countries, including Australia. To reduce STI rates, programs targeting young individuals have been implemented that include increasing awareness of STIs, promoting condom use, as well as STI testing and treatment. Until now however, rates of STI testing are considered to be too low in young people (Fiscus, Ford & Miller, 2004). This situation can be explained by the fact that approaches used to promote STI testing in adolescents and young adults have mainly focused on providing this population with basic information on STIs, for instance on transmission routes and symptoms. Most likely, other factors also influence STI testing that should be addressed by sexual health promotion interventions and campaigns. Central to the approach proposed in this study is the idea that programs aimed at promoting STI testing in young people would benefit from a more comprehensive understanding of the psychological factors affecting the decision to test or not for STIs (Adam, De Wit, Bourne, Story, & Edwards, 2009).

In available literature on the topic of STIs, most papers focused on assessing STI-related knowledge (e.g., Garside, Ayres, Owen, Pearson & Roizen, 2001), the prevalence of STI (e.g., Eggleston et al., 2005) or the prevalence of STI testing (e.g., Bachmann, Richey, Waites, Schwebke, & Hook, 1999) and their epidemiological correlates (e.g., Anschuetz et al, 2009). Relatively little information is available on determinants of STI testing however. According to the literature that is available, major categories of factors that can influence STI testing include: STI testing history (e.g., Baseman, Leonard, Ross, & Hwang, 2001; Zak-Place & Stern, 2004), STI-related information and knowledge (e.g., Barth, Cook, Downs, Switzer, & Fischhoff, 2002; Tilson et al., 2004; Greenberg et al.,

2002), STI-related stigma (e.g., Fortenberry et al., 2002, Goldenberg, Shoveller, Koehoorn, & Ostry, 2008; Barth et al., 2002; Uuskula, Kangur, & McNutt, 2006) and service availability and accessibility (e.g., Lichtenstein, 2003; Banikarim, Chacko, Wiemann, & Smith, 2003; Sosman et al., 2005). Most studies that have assessed determinants of STI testing have used qualitative research methods. While qualitative research provides useful insight in people's perspective on STIs and STI testing, this type of approach also holds limitations. People may for example not have full insight into the reasons why they get tested for STIs. Also, factors influencing the decision to test for STI are rarely appraised systematically using standardized instruments.

To address the current gap in knowledge regarding the determinants of STI testing in young people, a quantitative online study was conducted among young people aged from 16 to 26 years old in the state of New South Wales (NSW), Australia. The objective was to empirically assess the prevalence and contribution of important factors that influence young people's decision to test for STIs. Also, a theoretical framework was used to guide the study.

The Theory of Planned Behaviour (TPB), developed by Ajzen (1991) as an extension of the earlier Theory of Reasoned Action (Fishbein & Ajzen, 1975), is a theoretical framework that is often used to explain health related behaviours. The central variable in the TPB is *behavioural intention*, which is considered the main predictor of behaviour. According to Ajzen, intentions capture the motivational factors that influence a given behaviour. Also, the TPB postulates that the stronger the intention is to engage in a given behaviour, the more likely should be its performance. According to the theory, intentions are predicted by three major variables. *Attitude towards the behaviour* refers to the degree to which a person has a favourable or unfavourable evaluation or appraisal of the behaviour in question. The second variable that affects intentions is *subjective norms*. This refers to the perceived social pressure to perform or not to perform the behaviour. The third variable to affect intentions is *perceived behavioural control (PBC)*. The TPB postulates that it is important that people perceive to have control over their behaviour to actually have the intention to perform the behaviour. According to the TPB,

PBC does not only effects intention but also influences behaviour directly. This can be explained by the fact that effort spent to bring a course of behaviour to a successful conclusion is likely to increase with higher level of PBC. PBC can also often be used as a good substitute for a measure of actual control, depending on the accuracy of the perceptions.

The TPB has been used to explain behaviours such as binge drinking (Johnston & White, 2003; Norman & Conner, 2006), consumption of a low-fat diet (Armitage & Conner, 1999), maintenance of physical activity (Armitage, 2005), condom use (Albarracin, Johnson, Fishbein & Muellerleile, 2001), and HIV testing (Kakoko, Astrøm, Lugoe, & Lie, 2006). However, it has not yet been used to explain STI testing behaviour. In the vast majority of cases the TPB has been able to explain considerable variation in intentions and behaviours across different behaviours (Conner & Sparks, 2005). According to a meta-analysis (Armitage & Conner, 2001), the TPB on average accounts for 39% of the variance in intention and 27% of the variance in behaviour. While the TPB indisputably contributes to explaining a substantial part of the variance in intentions and behaviours, there is still room for capturing influences exerted by factors that are not referred to in the TPB model.

According to Ajzen (1991), the TPB is open to the inclusion of additional predictors if it can be demonstrated that these additional predictors capture a significant proportion of variance in intention or behaviour after the theory's current variables have been taken into account. An additional predictor that has attracted considerable attention is the influence of past behaviour on the TPB variables and on future behaviour (Conner & Sparks, 2005). In an empirical review, Conner and Armitage (1998) have reported relatively large correlations between past behaviour and intentions, and between past behaviour and behaviour. Also correlations were found between past behaviour and the other variables of the TPB. Since past behaviour seems to play an important role in explaining behaviour, this variable is often considered as part of the TPB and will also be included in the set of variables investigated in this study.

Following available research indicating that STI-related stigma may play an important role in STI-testing (e.g., Barth et al., 2002; Goldenberg et al., 2008; Fortenberry et al., 2002), we propose to explore in this study the additional contribution of STI-related stigma to explaining testing for STIs over and above the variables that are included in the TPB. Following the early work of Goffman (1963) who initiated (qualitative) research in this area, Lewis (1999) describes stigma as an attribute or label that sets a person apart from others and links the labelled person to undesirable characteristics. Stigma has already been applied to different circumstances or conditions, for example to people with physical disabilities (Hebl & Kleck, 2002), to people with mental illnesses (Sartorius, 1998), or to people who are HIV positive (Parker & Aggleton, 2003). If we apply Lewis' definition of stigma to STIs, the definition of STI-related stigma is 'an attribute or label that sets a person apart from others and links the labelled person to undesirable characteristics because this person has an STI'.

In the literature a theoretical distinction is often made between social stigma and internal stigma (Rusch et al., 2008). Social stigma refers to the negative judgment people would have of others, for instance those who have an STI. Internal stigma, sometimes called self-stigmatization or referred to as shame (Fortenberry et al., 2002), refers to the negative self-judgement of a person, for instance if they have an STI. This distinction between social stigma and internal stigma is important because it highlights a clear distinction between thoughts either focused on others or focused on one's self. Another category of stigma that often referred to in the literature (Nyblade, 2006; Van Brakel, 2006) is perceived stigma. Perceived stigma does not refer to what individuals think about others, for instance if they have an STI, but refers to what individuals think other people would think of someone, or more specifically, of the individuals themselves, for instance if they contracted an STI in general. In this study it was proposed to include all three categories of stigma, to assess STI-related stigma.

In the literature, more attention has been dedicated to HIV-related stigma than STI-related stigma. In a review of the literature conducted by Adam and De Wit (Adam & De Wit, 2006; De Wit & Adam, 2008) on social and psychological determinants of HIV

testing, HIV-related stigma was identified as a possible barrier to get tested for HIV. Following this idea and the work conducted by Fortenberry et al. (2002) on STI-related stigma and STI testing, we propose that STI-related stigma exerts a strong influence on the decision to test for STIs in young people. While HIV testing and STI testing are distinct behaviours, they have also some communalities. HIV and other STIs are both transmitted sexually mostly through unprotected sex. Also, it is common practice in the medical field to test individuals for both STI and HIV. At a more theoretical level, people's belief that contracting an STI or HIV is the result of having had sex with a high number of partners affect both HIV positive persons and people who have an STI. STI-related stigma could thus also influence testing for STIs, and this has already been explored by previous research (Fortenberry et al., 2002).

Fortenberry et al. (2002) conducted a study on the influence of STI-related stigma on testing for STIs, in particular gonorrhoea and HIV screening. Fortenberry distinguished between shame and stigma, which are considered internal and social stigma respectively in this study. Both gonorrhoea and HIV testing were found to be related to low levels of STI-related stigma, but not to shame. Although interesting, the study conducted by Fortenberry et al. (2002) suffered from several limitations, mainly the fact that there seems to be some overlap between Fortenberry's stigma and shame scales. At face value, some of the items in the stigma scale seem to refer to shame, and some of the items used in the shame scale seem to refer to stigma. Also, Fortenberry et al. (2002) do not address perceived stigma, only social stigma and internal stigma, although this may be an important dimension that could influence STI testing intentions and behaviour. Exploring the impact of STI-related stigma on STI testing may require developing new scales to measure adequately each of the three major indicators of STI-related stigma. In addition, there is a need to assess the relationship between STI-related stigma and the dimensions of the TPB. STI-related stigma may particularly be related to subjective norms, since both variables refer to what other people think (or what individuals think other people think) and how this influences individuals' behaviours.

The present study

The present study explores the influence of the variables of the TPB and the contribution of STI-related stigma on STI testing in young people in NSW, Australia. Due to the cross-sectional nature of the study intention to test for STIs in the future is the outcome variable of interest rather than having ever tested for STIs. This choice can be justified by the fact that associations have been found between past behaviour and the variables of the TPB (Conner & Armitage, 1998). It may be that people got tested for STIs because they had these cognitions, or that STI testing may alter specific cognitions, such as attitudes towards STI testing, subjective norms, and perceived behavioural control. It would thus be difficult to make meaningful statements about factors influencing STI testing behaviour in this study. Intention is a strong predictor of behaviour (Conner & Sparks, 2005), therefore the selection of intention to get tested for STIs, instead of having tested for STIs, is a good substitute.

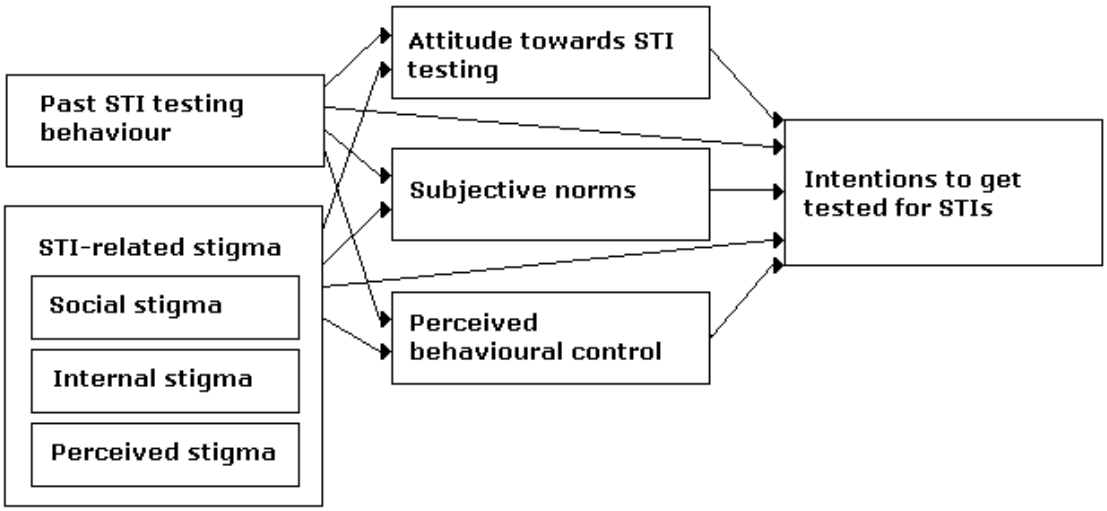
Based on previous research and theorising, this cross-sectional study explores young people's attitudes towards testing for STIs, their perceived subjective norms, their perceived behavioural control, their past STI testing behaviour, as well as their level of stigma about STIs. The study subsequently assesses the influence of the variables of the TPB as well as STI-related stigma on intentions to get tested for STIs among young people in NSW, Australia. The guiding research questions of this study are: what is the prevalence of STI-related stigma among young people and how does STI-related stigma influence intentions to get tested for STIs among young people in NSW, Australia? Do the variables of the TPB explain intentions to get tested for STIs among young people and will STI-related stigma complement the variables of the TPB in explaining intentions to get tested for STIs? Finally, what is the relation between STI-related stigma and the variables of the TPB?

The hypotheses in this study are the following: prevalence of STI-related stigma among young people in Australia is expected to be substantial. Also, STI-related stigma is expected to be negatively associated with intentions to get tested for STIs, because

young people are expected to base their decision to get tested on what they perceive other people will think about them if they have an STI or are symbolically associated with people who have an STI. Furthermore, the variables of the TPB are expected to be positively associated with intentions to get tested for STIs. Positive attitudes, encouraging subjective norms, perceptions of high behavioural control, and having ever tested for STIs in the past are thus expected to facilitate the decision to get tested for STIs. The addition of perceived stigma to the variables of the TPB is expected to contribute to explaining intentions to get tested for STIs among young people. Past STI testing behaviour is expected to be positively associated with attitudes towards STI testing, subjective norms, and perceived behavioural control. Also, STI-related stigma and the variables of the TPB are expected to be negatively associated, which means that high STI-related stigma is expected to be associated with less positive attitudes, perceptions of less encouraging subjective norms towards STI testing, and lower behavioural control. The guiding theoretical model is presented in figure 1.

Figure 1

Theoretical model to explain intentions to get tested for STIs among young people in NSW, Australia.



Methods

Procedures

A cross-sectional study was conducted online through the Internet research platform www.gettingdowntoit.net. The website contained information about the survey and provided potential participants with a direct and secure link to a digital questionnaire. The questionnaire contained questions covering diverse topics such as body image, sexual practices, sexual health and the risk of contracting an STI. Most questions and scales used in the questionnaires were derived from an extensive review of literature on the determinants of STI testing and other related health behaviours.

Most participants (83%) were recruited through (paid) advertisements, placed on Facebook, a popular social networking site. This popular site is often used to make friends and find potential partners among young people in Australia, as well as in other industrialized countries. A visual ad was displayed only to male and female Facebook users between 16 and 26 years old, who speak English, and who live in or 50 miles around Sydney, and other important towns in NSW, Australia. The ad contained the text 'Take the quiz now! Answer questions about your sexuality and help researchers from UNSW to better understand the lives of young people in New South Wales'. Participants included in this study were recruited between the 5th of May 2010 and the 7th of June 2010.

In addition to recruiting through advertisements on Facebook, participants were also recruited through the Facebook group and the Twitter account of the survey, on which regular information about the survey was posted. The survey website also invited people to become a member of the Facebook group and follow the Twitter account.

Ethics approval was provided by the University of New South Wales (UNSW), Sydney, Australia. Participants could only participate to the study after filling in an online informed consent form at the beginning of the questionnaire. Participation was fully anonymous. No personal data was collected that could identify the participants. Participants did not receive incentives by participating to the study.

Participants

To be eligible for this study, male and female participants had to be aged between 16 and 26 years old, had to live in Australia and had to be sexually active. Also the completion of all relevant questions was an eligibility criterion. Of the 896 respondents who accessed the introduction page of the online survey instrument after visiting the survey website, 533 (59%) complied with the eligibility criteria and were subsequently included in the analysis.

The eligible participants were on average 21.2 years old (*SD*=2.60, range 16-26) and 69% of them were aged between 19 and 24 years old (see Table 1). Forty two percent of the respondents were male and 58% were female. Ninety one percent lived in New South Wales, Australia, and 21% of the participants stated that they have a University degree. Two-thirds of the respondents (74%) was Anglo-Australian.

Seventy-three percent of the participants considered themselves heterosexual, 16% reported to be bisexual, 9% homosexual, gay or queer and 2% refused to classify themselves in the previous categories. In total, 8% had no sexual partners during the last 6 months, 53% had oral, vaginal or anal sex with one partner, 15% had sex with two partners and 25% had sex with 3 or more partners. In terms of type of partners, among all participants 74% have had sex with a regular partner in the last 6 months and less than half of the participants have had sex with a casual partner in the last 6 months (39%).

Two-thirds of the participants (67%) had engaged in unprotected vaginal or anal sex in the last 6 months. More than half of the respondents (57%) had unprotected sex with a regular partner and a quarter (24%) with one or more casual partners.

Measures

Socio-demographic characteristics and behavioural factors.

Participants first responded to a number of questions relating to their social demographic characteristics. Participants provided their age in years, as well as their gender (male, female, or transgender) and the state or territory they lived in (Australian

Capital Territory, New South Wales, Queensland, South Australia, Tasmania, Victoria, or Western Australia).

Table 1

Characteristics of the sample (N = 533)

Variables		*N*	*%*
Age	16-18	94	17.6
	19-21	211	39.5
	22-24	155	29.1
	25-26	73	13.7
Gender	Male	222	41.7
	Female	311	58.3
State or territory	New South Wales	483	90.6
	Other state or territory	40	9.4
Education	No university degree	424	79.5
	University degree	109	20.5
Ethnic background	Anglo-Australian	382	73.6
	Other ethnic background	137	26.4
Sexual identity	Heterosexual/straight	391	73.4
	Bisexual	84	15.8
	Gay/homosexual/queer	47	8.8
	Other	11	2.1
Number of partners in the last 6 months	0	42	7.9
	1	280	52.5
	2	79	14.8
	3 or more	132	24.8
Regular partner in the last 6 months	Yes	394	73.9
	No	139	26.1
Casual partner(s) in the last 6 months	Yes	210	39.4
	No	323	60.6
Unprotected sex in the last 6 months	Yes	357	67.0
	No	176	33.0
Unprotected sex with regular partner in the last 6 months	Yes	304	57.0
	No	229	43.0
Unprotected sex with casual partner in the last 6 months	Yes	125	23.5
	No	408	76.5

Participants also provided their ethnic background, from which the dichotomous variable *ethnic background* was derived (0 = having another ethnic background, 1 = being Anglo-Australian).

Participants indicated how important religion was in their life on a 5-point Likert scale (1 = Not at all important, 5 = Very important).

The highest level of education that people completed was also assessed. Participants could indicate if they had completed primary, secondary or tertiary education. From this question, the dichotomous variable *having a university degree* was derived (0 = no university degree, 1 = university degree).

The number of sexual partners of both male and female participants in the last 6 months was assessed with a question that focused on male partners and a question that focused on female partners ('With how many male/female partner(s) have you had sex over the last 6 months?'). The questions were combined and recoded to create the variable *number of sexual partners in the last 6 months.* Since only a small amount of participants had sex with more than 3 partners in the last 6 months, one category was developed including both having had 3 partners as having had more than three partners (0 = not had a partner, 1 = had 1 partner, 2 = had 2 partners, 3 = had 3 or more partners).

Both male and female participants indicated if they had a regular male partner or a regular female partner in the last 6 months (two items: 'Have you had a regular male/female partner in the last 6 months?'). From this data, the dichotomous variable *having had a regular partner in the last 6 months* was derived (0 = not had a regular partner, 1 = had a regular partner). Also, participants indicated whether they had casual male partners or casual female partners in the last 6 months (two items: 'Have you had a casual male/female partner in the last 6 months?'). From this data, a dichotomous variable *having had casual partners in the last 6 months* was derived (0 = not had a casual partner, 1 = not had a casual partner).

If participants had previously indicated that they had sex with a regular male or female partner in the last 6 months, both male and female participants indicated if they

engaged in unprotected vaginal or anal sex with a regular male or female partner in the last 6 months. From this data, a dichotomous variable *having had unprotected vaginal or anal sex with a regular partner in the last 6 months* was derived (0 = not had unprotected vaginal or anal sex with a regular partner, 1 = had unprotected vaginal or anal sex with a regular partner). Also, if applicable, both male and female participants indicated if they engaged in unprotected vaginal or anal sex with casual male or female partners in the last 6 months. From this data, a dichotomous variable *having had unprotected vaginal or anal sex with a casual partner in the last 6 months* was derived (0 = not having had unprotected vaginal or anal sex with a casual partner, 1 = having had unprotected vaginal or anal sex with a casual partner).

A further dichotomous variable *having had unprotected vaginal or anal sex in the last 6 months* (whether with a casual or regular partner) was derived (0 = not had unprotected vaginal or anal sex, 1 = had unprotected vaginal or anal sex).

Past STI testing behaviour was measured with the question: 'Have you ever had a test for STIs or HIV?'. Participants could indicate whether they had a test for either STIs or HIV, a test for both STIs and HIV, or never had a test. The data was recoded into a dichotomous variable (0 = never had an STI test, 1 = ever had an STI test). Participants also indicated when they got tested for STIs.

TPB variables.

The variables of the TPB were assessed according to recommendations provided by Conner and Sparks (2005).

STI testing intentions were measured with a scale of 2 items ('Do you intend to get tested for STIs in the next 6 months?' and 'What is the probability that you will get tested for STIs in the next 6 months?'). Responses were given on a 5-point Likert scale (1 = Certainly not, 5 = Certainly yes). A high score indicated a high intention to get tested for STIs. The internal consistency of the scale was high (Cronbach's α = .94).

Attitudes towards STI testing were measured with a scale that contained 5 items (i.e., 'Testing for STIs is:' 'beneficial', 'unnecessary', 'positive', 'uncomfortable', 'appropriate') on a 5-point Likert scale (1 = Totally disagree, 5 = Totally agree). A high

score indicated a positive attitude towards STI testing. The internal consistency of the scale was low (Cronbach's α = .58). After deleting one item ('uncomfortable'), the internal consistency of the scale was good (Cronbach's α=.76).

Subjective norms were measured with a scale that contained 4 items that followed whether various other people thought that participants should get tested for STIs (e.g., 'People I know believe that getting tested for STIs is something...'). Responses were given on a 5-point Likert scale (1 = I definitely shouldn't do, 5 = I definitely should do). A high score indicated subjective norms that encourage testing for STIs. The internal consistency of the scale was high (Cronbach's α = .86).

Perceived behavioral control was measured with a scale that contained 5 items (e.g., 'When I decide to get tested for STIs nothing will prevent me from getting tested'). A high score indicated a high perceived behavioral control. Responses were given on a 5-point Likert scale (1 = Totally disagree, 5 = Totally agree). The internal consistency of the scale was high (Cronbach's α = .91).

STI-related stigma.

The categories of STI-related stigma (social stigma, internal stigma and perceived stigma) were assessed with 3 scales, derived from De Wit, Murphy, Donohoe, and Adam (2010), that contained 5 items each.

Social stigma was measured with a scale that focused on what participants think of people who have an STI (e.g., 'What do you think of people your age who get an STI? They have only themselves to blame'). Responses were given on a 5-point Likert scale (1 = Totally disagree, 5 = Totally agree), with a high score indicating a high social stigma. The internal consistency of the scale was high (Cronbach's α = .84),

Internal stigma was measured with a scale that contained similar items, with the variation that it focused on what participants would think about themselves if they would have an STI (e.g., 'If I would get an STI, I would only have myself to blame'). Responses were given on a 5-point Likert scale (1 = Totally disagree, 5 = Totally agree), with high score indicating a high internal stigma. The internal consistency of the scale was high (Cronbach's α = .79).

Perceived stigma was measured with a scale that contained similar items, with the variation that it focused on what participants think others would think about people who have an STI (e.g. 'What do you think people in general would think about people your age who get an STI? They have only themselves to blame'), with high score indicating a high perceived stigma. Responses were given on a 5-point Likert scale (1 = Totally disagree, 5 = Totally agree). The internal consistency of the scale was high (Cronbach's α = .94).

A scale to assess STI-related stigma was developed by combining all items of the scales of the three categories of stigma. A high score indicated a high STI-related stigma. The internal consistency of this stigma scale was high (Cronbach's α = .86).

Statistical analyses

The analyses consisted of first describing the average scores of the variables of the TPB and STI-related stigma and its categories. Next, the associations of the variables of the TPB and STI-related stigma and its categories with intentions to get tested for STIs were explored using univariate and multivariate linear regression analyses. The associations of past STI testing behaviour and STI related stigma with the variables of the TPB were also assessed in univariate linear regression analyses. To select relevant socio-demographic and behavioural factors as control variables in the final model, associations of socio-demographic and behavioural factors and intentions to get tested for STIs were explored in both univariate as well as multivariate linear regression analyses. A final model was then tested in a hierarchical linear regression model that included variables that were found to be significantly associated with intentions to get tested for STIs in multivariate analyses. Relevant socio-demographic characteristics and behavioural factors were included as control variables, the relevant variables of the TPB were included, and STI-related stigma was included in the final model. All analyses were conducted using SPSS version 18.

Results

Average scores of TPB variables and STI-related stigma

Overall, intention to get tested for STIs in the next 6 months was moderate (M = 2.90, *SD* = 1.24). Among people who engaged in sexual risk behaviour in the last 6 months, intentions were lower among people who never got tested for STIs (M = 2.38, *SD* = 1.08) than among people who did not get tested in the last 6 months (M = 3.11, *SD* = 1.26).

Attitudes towards STI testing were highly positive among participants (M = 4.39, *SD* = .67). Subjective norms were also above the mid-point of the scale in this sample (M = 3.45, *SD* = .81) and perceived behavioural control was high (M = 4.24, *SD* = .83). More than half of the participants (55%) ever got tested for STIs, including 39% for both HIV and STIs. Half of the participants (50%) who ever had an STI test got tested in the last 6 months, 20% tested between 7 and 12 months ago and 30% tested more than 12 months ago. Among participants who ever had an STI test, 8% reported that they ever had been diagnosed with an STI.

STI-related stigma was moderate among participants (M = 2.66, SD = .77). As can be seen in table 2, social stigma (M = 1.89, *SD* = .88) was found to be lower than internal stigma (M = 3.09, *SD* = 1.05), $t(532) = -25.39$, $p < .001$, and perceived stigma (M = 3.01, *SD* = 1.21), $t(532) = 20.92$, $p < .001$. No difference in average scores of internal stigma and perceived stigma was found, $t(532) = 1.39$, *ns*.

Table 2

Means and standard deviations of the scales of STI-related stigma

Scale	*M*	*SD*
Social stigma	1.89	.88
Internal stigma	3.09	1.05
Perceived stigma	3.01	1.21

Associations of TPB variables and STI-related stigma with STI testing intentions

In univariate regression analysis (see table 3), intentions to get tested for STIs was positively associated with attitudes towards STI testing (β = .14, p < .01), subjective norms (β = .37, p < .001), perceived behavioural control (β = .14, p < .01), and past STI testing behavior (β = .36, p < .001).

STI-related stigma was found to be negatively associated with intention to test for STIs (β = -.17, p < .05) in univariate regression analysis (see table 3), with lower intentions to get tested for STIs among people who experience more STI-related stigma. Not all the sub-dimensions of STI-related stigma bring the same contribution to behavioural intention. Perceived stigma was found to be marginally associated with intentions (β = -.09, p < .05), social stigma was found to be associated with intentions to get tested for STIs (β = -.08, p = .06), and internal stigma was not found to be associated with intentions to get tested for STI (β = -.07, *ns*).

Table 3

Summary of univariate linear regression analysis of intentions to get tested for STIs on TPB variables and STI-related stigma

Variable	*B*	*SE B*	β
Attitudes towards STI testing	.26	.08	.14**
Subjective norms	.56	.06	.37***
Perceived behavioural control	.21	.07	.14**
Past testing behaviour	.91	.10	.36***
STI-related stigma	-.17	.07	-.10*

*p < .05 **p < .01 ***p < .001.

In multivariate regression analysis (see table 4), intentions to get tested for STIs was positively associated with subjective norms (β = .31, p < .001) and past STI testing behavior (β = .31, p < .001). No association was found between intentions to get tested for STIs and attitudes towards STI testing and perceived behavioural control. The TPB variables explained 22% of the variance in intentions to get tested for STIs.

Table 4

Summary of multivariate linear regression analysis of intentions to get tested for STIs on TPB variables

Variable	*B*	*SE B*	β
Attitudes towards STI testing	.02	.08	.01
Subjective norms	.47	.06	.31***
Perceived behavioural control	-.02	.06	-.01
Past testing behaviour	.76	.10	.31***

Note. R^2 = .22.

***p < .001.

Associations of past STI testing behaviour and STI-related stigma with TPB variables

Past STI testing behaviour was positively associated with attitudes towards STI testing (β = .30, p < .001), subjective norms (β = .31, p < .001), as well as perceived behavioural control (β = .45, p < .001).

No association was found between STI-related stigma and attitudes towards STI testing, subjective norms, and perceived behavioural control (βs < -.04, *ns*). Also, no association was found between past STI testing behaviour and STI-related stigma (β = -.11, *ns*).

Associations of socio-demographic characteristics and behavioural factors with STI testing intentions

The influence of socio-demographic characteristics and behavioural factors on intentions to get tested for STIs was explored in univariate and multivariate analysis to identify relevant characteristics and factors to include as control variables in the final model.

In univariate analysis (see table 5), no association was found between intention to test for STIs and age, education, ethnic background, religion, having engaged in unprotected sex with a regular partner, or having engaged in unprotected sex with any sexual partner. Intention to test was found to be positively associated with being female

rather than male (β = .16, p < .001), the number of sexual partners in the last 6 months (β = .37, p < .001), having had sex with casual partners in the last 6 months (β = .31, p < .001), having engaged in unprotected intercourse with casual partners (β = .25, p < .001), and having ever experienced symptoms evocative of an STI (β = .21, p < .001). Also, intention to test was negatively associated with being heterosexual (β = -.14, p < .001) and having had sex with a regular partner in the last 6 months (β = -.09, p < .05).

Table 5

Summary of univariate linear regression analysis of intentions to get tested for STIs on socio-demographic characteristics and behavioural factors

Variable	*B*	*SE B*	*β*
Gender	.39	.11	.16***
Age	.03	.02	.07
Education	.00	.13	.00
Ethnic background	.16	.12	.06
Religion	-.00	.05	-.00
Sexual identity	-.39	.12	-.14***
Regular partner	-.24	.12	-.09*
Casual partners	.77	.11	.31***
Number of partners	.48	.05	.37***
Unprotected sex with regular partners	-.16	.11	-.07
Unprotected sex with casual partners	.72	.12	.25***
Unprotected sex	.05	.11	.02
Symptoms evocative of an STI	.52	.11	.21***

*p < .05 ***p < .001.

In multivariate analysis (see table 6), intention to get tested for STIs was found to be independently associated with gender (β = .17, p < .001), sexual identity (β = -.09, p < .05), number of partners (β = .26, p < .001), and experience of symptoms evocative of an STI (β = .14, p < .001). Intention to get tested for STIs was found to be marginally associated with having a regular partner (β = -.11, p = .07). No association was found between intentions to get tested for STIs and having had casual partners and having engaged in unprotected sex with casual partner. The socio-demographic

characteristics and behavioural factors associated with intention to get tested for STIs in multivariate analysis, explained 19% of the variance in intentions to get tested for STIs.

Table 6

Summary of multivariate linear regression analysis of intentions to get tested for STIs on socio-demographic characteristics and behavioural factors

Variable	*B*	*SE B*	β
Gender	.42	.10	.17***
Sexual identity	-.25	.11	-.09*
Regular partner	-.22	.12	-.08
Casual partners	.22	.17	.09
Number of partners	.34	.09	.26***
Unprotected sex with casual partners	.09	.16	.03
Symptoms evocative of an STI	.36	.10	.14***

Note. $R^2 = .20$.

*$p < .05$ ***$p < .001$.

Final model to explain intentions to get tested for STIs

A three step hierarchical regression model was performed in which relevant socio-demographic characteristics and behavioural factors (i.e., gender, sexual identity, regular partner, number of partners, and symptoms) were included as control variables in step 1, the variables of the TPB that were found to be associated with intentions to get tested for STIs in multivariate analysis were included in step 2, and STI-related stigma was included in step 3 (see table 7).

As can be seen in step 2, the two variables of the theory of planned behaviour, subjective norms ($\beta = .26$, $p < .001$) and past STI testing behaviour ($\beta = .22$, $p < .001$), remained associated with intention in multivariate analysis when controlling for socio-demographic and behavioural factors.

As can be seen in step 3, the influence of STI-related stigma on behavioural intention was found to exist ($\beta = -.08$, $p < .05$) over and above the relevant variables of the TPB and control variables. The model presented in step 3 explains 31% of the variance in intention to test for STIs.

Table 7

Summary of hierarchical linear regression analysis of intentions to get tested for STIs on socio-demographic characteristics, TPB variables, and STI-related stigma

Variable	*B*	*SE B*	β
Step 1			
Gender	.41	.10	.16***
Sexual identity	-.23	.11	-.08*
Regular partner	-.30	.11	-.11*
Number of partners	.45	.05	.34***
Symptoms evocative of an STI	.35	.10	.14***
Step 2			
Gender	.29	.09	.12**
Sexual identity	-.18	.10	-.07
Regular partner	-.25	.10	-.09*
Number of partners	.35	.05	.27***
Symptoms evocative of an STI	.14	.10	.06
Subjective norms	.40	.06	.26***
Past STI testing behaviour	.54	.10	.22***
Step 3			
Gender	.29	.09	.11**
Sexual identity	-.19	.10	-.07
Regular partner	-.26	.10	-.09*
Number of partners	.34	.05	.26***
Symptoms evocative of an STI	.14	.10	.05
Subjective norms	.41	.06	.26***
Past STI testing behaviour	.53	.10	.21***
STI-related stigma	-.12	.06	-.08*

Note. R^2 = .20 for Step 1 (p < .001); ΔR^2 = .12 for Step 2 (p < .001);
ΔR^2 = .01 for Step 3 (p = .03).
*p < .05 **p < .01 ***p < .001.

Discussion

A cross-sectional online study was conducted among male and female adolescents and young adults living in the state of New South Wales (NSW), Australia, to explore their attitudes towards testing for STIs, their perceived subjective norms, their perceived behavioural control, their past STI testing behaviour, as well as their level of stigma about STIs. The study subsequently assessed the influence of the variables of the Theory of Planned Behaviour (TPB) as well as STI-related stigma on intentions to get tested for STIs. STI-related stigma, subjective norms and past STI testing behaviour were found to be major dimensions associated with young people's intention to test for STIs.

Using an advertisement campaign conducted on Facebook the study recruited a diverse sample of sexually active participants. Participants were on average 21 years old with more than two-thirds of the respondents aged between 19 and 24 years. While both genders were represented, more females than males participated to the study, and in terms of education and geography, participants presented various levels of education and almost all participants came from either rural or urban areas in NSW, Australia.

About half of the participants ever tested for STIs and the proportion of participants who had engaged in unprotected vaginal or anal sex with a sexual partner in the last 6 months was high (67%). These data indicate that there is a clear need for testing (or retesting) for STIs among young people who often do not use protection during sexual intercourse. However, intention to get tested in the future was found to be only moderate in this sample and intention to get tested for STIs was even lower among young people who (recently) engaged in unprotected sex but had never tested for STIs.

Young people's attitudes towards STI testing were found to be positive. Subjective norms, which refer to young people's perceptions of whether other people think that they should test or not, were found to be encouraging. Furthermore, young peoples' perceived behavioural control regarding STI testing was high. These data indicate that young people believe that testing for STIs is important and they think it will be easy to get tested for STIs if they would want to. STI-related stigma was also evident

with however variations according to its specific dimensions: social stigma, what participants think of others who have an STI, was lower than perceived stigma, what participants think others would think of them if they would have and STI, and internal stigma, what participants would think about themselves if they would have an STI. The discrepancy between the level of social stigma and the level of perceived stigma may be (partially) explained by social desirability bias. For some participants it may indeed be easier to report that others have negative views of people who have an STI than to admit that they personally share these views. Because of this tendency, the inclusion of the category of perceived stigma, in addition to social and internal stigma appears to be particularly important to obtain a better measurement of the level of STI-related stigma in the surveyed population.

Due to the cross-sectional design of the study, intention to get tested for STIs was selected as dependent variable instead of actual testing behaviour. Past STI testing behaviour was found to be associated with attitudes towards STI testing, subjective norms, and perceived behavioural control, which corresponds to previous research on associations of past behaviour with the variables of the TPB (Conner & Armitage, 1998). People who ever got tested for STIs had more positive attitudes, subjective norms that were more encouraging of STI testing, and a higher perceived behavioural control, than people who never got tested for STIs. People may have had these cognitions before they got tested, or these cognitions may have altered by getting tested for STIs.

Among the variables from the TPB, attitudes towards STI testing, subjective norms, perceived behavioural control, and past STI testing behaviour were all found to be associated with intentions to get tested for STIs in univariate analysis. In multivariate analysis however, only subjective norms and past testing behaviour were independently associated with intentions to get tested for STIs. Participants who believe that others think they should get tested for STIs, were more likely intend to get tested for STIs. Also, intentions to get tested for STIs were higher among participants who had previously tested for STIs. These results support only partially the hypothesis and the idea central of the TPB (Ajzen, 1991) that all variables of the TPB would have an

independent contribution to intentions to get for STIs, including attitudes and perceived behavioural control (Conner & Sparks, 2005).

Consistent with findings from previous qualitative and quantitative research (Fortenberry et al., 2002; Goldenberg et al., 2008, Barth et al., 2002, Uuskula et al., 2006), STI-related stigma was found to explain young peoples' intentions to get tested for STIs and the association with stigma was found to exist over and above the key dimensions of the TPB that were associated with STI testing. A higher level of STI-related stigma was found to be associated with lower intention to test for STIs in the near future. More precisely, our findings suggest that perceived stigma and, to a lesser extent, social stigma explain intention to test for STIs. No association was observed between internal stigma and intentions to test for STIs. These results correspond with those reported by Fortenberry et al. (2002). Altogether, the findings indicate that young adults mostly base their decision to get tested on what they think other people will think about them if they would contract an STI and on what they themselves think about people who contract an STI.

No associations were found between STI-related stigma and the variables of the TPB. Although STI-related stigma and subjective norms would be expected to be related, since they both refer to what other people think, this indicates that STI-related stigma and subjective norms are separate factors. Both subjective norms and STI-related stigma were found to be independently associated with intentions to get tested for STIs among young people. These factors related to social influence may be particularly important for young people, who have been found to be more sensitive to the conformity pressures associated with perceived social norms than adults (Bronfenbrenner, 1970). The strength of these social influences may explain why the influence of attitudes about STI testing and perceived behavioural control on young peoples' intention to get tested for STIs was overridden when all variables of the TPB were analysed in one model. That PBC was not independently associated with intention to test for STIs can be further explained by the idea that getting tested for STIs by going to a doctor or STI clinic may

not require as much perceived behavioural control as some other behaviours such as dieting over a long period of time.

This study contributed to extend the scope of research on determinants of STI testing by exploring the impact of STI-related stigma and the variables of the TPB on intentions to test for STIs young people. A first contribution was to develop measurement instrument aimed at better capturing STI-related stigma. Since few valid scales were available, we capitalized both on a study conducted on STI-related stigma by Fortenberry (2002) and on the recent work conducted by De Wit et al. (2010) on HIV-related stigma. The newly developed scales allowed not only to distinguish between social stigma, internal stigma, and perceived stigma, but also to compare the three categories. Using the three categories of STI-related stigma, a clear distinction could be made between what people would think about others, what people would think about themselves, and what people perceive others to think. Another way in which this study contributed to existing research is by extending the available knowledge on factors that influence intentions to test for STIs. While evidence suggests that the TPB is a valuable model to explain health related behaviour (Johnston & White, 2003; Armitage & Conner, 1999; Armitage, 2005; Albarracin, 2001; Kakoko et al., 2006), the framework has to the best of our knowledge never been used previously to explain STI testing. Furthermore, since most previous studies have assessed the influence of STI-related stigma on STI testing using qualitative methods (Goldenberg et al., 2008, Barth et al., 2002, Uuskula et al., 2006), this study contributed to previous research by using a quantitative and systematic approach to explain STI testing among young people in Australia.

This study also has several limitations, however. Because it has been recruited online, the sample cannot be considered representative of the population of young people living in NSW, Australia. Recent studies show, however, that results from online and offline surveys are most often consistent and that online samples are often more diverse than offline samples (Gosling, Vazire, Srivastava & John, 2004). The diversity observed in the sample of young people recruited seems to confirm this idea. However, the recruitment conducted via Facebook may have overrepresented sexually experienced

people in the sample. Facebook is indeed a social networking site aimed at developing friendship as well as relationships. Another possible limitation of the study is the measurement of specific variables. We cannot exclude the possibility that attitudes were not associated with intention to test for STIs because of measurement problems. Among all the variables measured in this survey, the attitudes scale had the lowest internal consistency, and one initial item had to be removed to increase internal consistency.

The fact that the explained variance of intentions to get tested by the variables included in the analysis is moderate could be explained by the fact that important other factors were not included in this study. For example, fears and perceived negative consequences of STI testing may prevent some young people to get tested for STIs. These factors should be addressed in future research. A further limitation of the study is that it focused on explaining intentions to get tested for STIs. Since there is a gap between behavioural intentions and actual behaviour (De Wit & Stroebe, 2004), there is a need for longitudinal studies in which intentions to test for STIs as well as their translation into future STI testing behaviour could be investigated.

Conclusion

This study indicates that there is an important need for STI testing in young people. Young people's past behaviour and social factors influence their decision to get tested for STIs or not. Particularly subjective norms and STI-related stigma were important factors that explained intentions to get tested for STIs among young people in NSW, Australia. Future sexual health programs should thus go beyond providing information and knowledge about STIs and address other barriers to STI testing in young people. To promote STI testing and reduce the prevalence of STIs, sexual health programs should particularly focus on trying to decrease STI-related stigma and promote subjective norms to give young people the idea that their decision to test for STIs is supported by their peers.

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References

Adam, P. C. G., & De Wit, J. B. F. (2006). *A concise overview of barriers and facilitators to HIV testing. Directions for future research and interventions.* Utrecht, the Netherlands: Institute for prevention and social research.

Adam, P. C. G., De Wit, J. B. F., Bourne, C., Story, L., & Edwards, B. (2009). *Does research on STIs provide keys to prevention?* (Tech. Rep. No. 14). Sydney, New South Wales: University of New South Wales, National Centre in HIV Social Research.

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes, 50,* 179-211.

Albarracin, D., Johnson, B. T., Fishbein, M., & Muellerleile, P. A. (2001). Theories of reasoned action and planned behavior as models of condom use: a meta-analysis. *Psychological Bulletin, 127,* 142-161.

Anschuetz, G. L., Beck, J. N., Asbel, L., Goldberg, M., Salmon, M. E., Spain, C. V. (2009). Determining risk markers for gonorrhoea and chlamydial infection and reinfection among adolescents in public high schools. *Sexually Transmitted Diseases, 36,* 4-8.

Armitage, C. J. (2005). Can the theory of planned behaviour predict the maintenance of physical activity? *Health Psychology, 24,* 235-245.

Armitage, C. J., & Connor, M. (1999). Distinguishing perceptions of control from self-efficacy: predicting consumption of a low-fat diet using the theory of planned behaviour. *Journal of Applied Social Psychology, 29,* 72-90.

Armitage, C. J., & Conner, M. (2001). Efficacy of the theory of planned behaviour: A meta-analytic review. *British Journal of Social Psychology, 40,* 471-499.

Bachmann, L. H., Richey, C. M., Waites, K., Schwebke, J. R., & Hook, E. W. (1999). Patterns of chlamydia trachomatis testing and follow-up at a university hospital medical center. *Sexually Transmitted Infections, 26,* 496-499.

Barth, K. R., Cook, R. L., Downs, J. S., Switzer, G. E., & Fischhoff, B. (2002). Social stigma and negative consequences: Factors that influence college students'

decisions to seek testing for sexually transmitted infections. *Journal of American College Health*, *50*, 153-159.

Banikarim, M. P. H., Chacko, M. R., Wiemann, C. M., & Smith, P. B. (2003). Gonorrhoea and chlamydia screening among young women: Stage of change, decisional balance, and self-efficacy. *Journal of Adolescent Health, 32,* 288-295.

Baseman, J., Leonard, L., Ross, M., & Hwang, L-Y. (2001). Acceptance of syphilis screening among residents of high-STD-risk Houston communities. *International Journal of STD & AIDS, 12,* 744-749.

Bronfenbrenner, U. (1970). Reaction to social pressure from adults versus peers among soviet day school and boarding school pupils in the perspective of an American sample. *Journal of Personality and Social Psychology, 15,* 179-189.

Conner, M., & Armitage, C. J. (1998). Extending the theory of planned behavior: a review and avenues for further research. *Journal of Applied Social Psychology, 28*, 1430-1464.

Conner, M. & Sparks, P. (2005). Theory of planned behaviour and health behaviour. In M. Conner & P. Norman (Eds.), *Predicting health behaviour (2nd Ed)* (pp.170-220). Buckingham: Open University Press.

Department of Health and Ageing (2010). Second national sexually transmissible infections strategy. Retrieved July 7, 2010, from http://www.health.gov.au/internet/main/publishing.nsf/Content/ohp-national-strategies-2010-sti/$File/sti.pdf

De Wit, J. B. F. & Adam, P. C. G. (2008). To test or not to test: psychosocial barriers to HIV testing in high-income countries. *HIV Medicine, 9,* 20-22.

De Wit, J. B. F., Murphy, D., Donohoe, S., & Adam, P. C. G. (2010, May). *HIV-related stigma in gay and other men who have sex with men: mostly a matter of a serostatus-based sexual divide.* Paper presented at AFAO HIV Educators Conference 2010, Sydney, Australia.

De Wit, J. B. F., & Stroebe, W. (2004). Social cognition models of health behaviour. In A. Kaptein & J. Weinman (Eds.), *Health psychology* (pp. 52-79). Oxford: Blackwell.

Eggleston, E., Turner, C. F., Rogers, S. M., Roman, A., Miller, W. C., Villarroel, M. A., et al. (2005). Monitoring STI prevalence using telephone surveus and mailed urine specimens: a pilot test. *Sexual Transmitted Infections, 81,* 236-238.

Fenton, K. A., Korovessis, C., Johnson, A.M., McCadden, A., McManus, S., Wellings, K., et al. (2001). Sexual behaviour in Britain: reported sexually transmitted infections and prevalent genital Chlamydia trachomatis infection. *The Lancet, 358,* 1851–1854.

Fiscus, L. C., Ford, C. A., & Miller, W. C. (2004). Infrequency of sexually transmitted disease screening among sexually experienced U.S. female adolescents. *Perspectives on Sexual and Reproductive Health, 36,* 233-238.

Fishbein, M. & Ajzen, I. (1975). *Belief, Attitude, Intention, and behaviour.* New York: Wiley.

Fortenberry, J. D., McFarlane, M., Bleakley, A., Bull, S., Fishbein, M., & Grimley, D. M. (2002). Relationships of stigma and shame to gonorrhea and HIV screening. *American Journal of Public Health*, *92*, 378-381.

Garside, R., Ayres, R., Owen, M., Pearson, V. A., & Roizen, J. (2001). 'They never tell you about the consequences': young people's awareness of sexually transmitted infections. *International Journal of STD & AIDS, 12,* 582-588.

Gavin, L., MacKay, A. P., Brown, K., Harrier, S., Ventura, S. J., Kann, L., et al. (2009). Sexual and reproductive health of persons aged 10 –24 years, United States 2002–2007. *MMWR Surveillance Summary, 58*, 1–58.

Goffman, E. (1963). *Stigma: Notes on the management of spoiled identity*. New York: Simon & Schuster Inc.

Goldenberg, S., Shoveller, J., Koehoorn, M., & Ostry, A. (2008). Barriers to STI testing among youth in a Canadian oil and gas community. *Health Place, 14,* 718-729.

Gosling, S. D., Vazire, S., Srivastava, S., & John, O. P. (2004). Should we trust web-based studies? A comparative analysis of six preconceptions about Internet questionnaires. *American Psychologist, 59*, 93-104.

Greenberg, J. B., Bloom, F. R., Coles, F. B., Asbel, L. E., Goldberg, M., Braxton, J. J., et al. (2002). Learning from clients: An opportunity for sexually transmitted disease programs. *Journal of Public Health Management and Practice, 8,* 59–68.

Hebl, M. R., & Kleck, R. E. (2002). Acknowledging One's Stigma in the Interview Setting: Effective Strategy or Liability?' *Journal of Applied Social Psychology,* 32, 223-249.

Johnston, K. L., & White, K. (2003). Binge-drinking: A test of the role of group norms in the theory of planned behaviour. *Psychology and Health, 18.* 63–77.

Kakoko, D. C., Astrøm, A. N., Lugoe, W. L., & Lie, G. T. (2006). Predicting intended use of voluntary HIV counselling and testing services among Tanzanian teachers using the theory of planned behaviour. *Social Science & Medicine, 63,* 991–999.

Lewis, M. (1999). Shame and stigma. In: Gilbert P, Andrews B (eds). *Shame: Interpersonal Behavior. Psychopathology, and Culture* (pp. 126-140). New York, NY: Oxford University Press lnc.

Lichtenstein, B. (2003). Stigma as a barrier to treatment of sexually transmitted infection in the American deep south: Issues of race, gender and poverty. *Social Science & Medicine, 57,* 2435-2445.

Norman, P., & Conner, M. (2006). The theory of planned behaviour and binge drinking: Assessing the moderating role of past behaviour within the theory of planned behaviour. *British Journal of Health Psychology*, 11, 55–70.

Nyblade, L. C. (2006). Measuring HIV stigma: Existing knowledge and gaps. *Psychology, Health & Medicine, 11*, 335-345.

Parker, R., & Aggleton, P. (2003). HIV and AIDS-related stigma and discrimination: a conceptual framework and implications for action. *Social Science & Medicine, 57,* 13-24.

Rusch, M. L. A., Shoveller, J. A., Burgess, S., Stancer, K., Patrick, D. M., & Tyndall, M. W. (2008). Preliminary development of a scale to measure stigma relating to sexually transmitted infections among women in a high risk neighbourhood. *BMC Women's Health*, *8*, 21-30.

Sartorius, N. (1998). Stigma: what can psychiatrists do about it? *The Lancet, 352,* 1058-1059.

Sosman, J. M., McGowan, R. J., Margolis, A. D., Eldridge, G., Flanigan, T., Vardaman, J., et al. (2005). Screening for sexually transmitted diseases and hepatitis in 18-29-year-old men recently released from prison: Feasibility and acceptability. *International Journal of STD & AIDS, 16,* 117-122.

Tilson, E. C., Sanchez, V., Ford, C. L., Smurzynski, M., Leone, P. A., Fox, K. K., et al. (2004). Barriers to asymptomatic screening and other STD services for adolescents and young adults: focus group discussions. *BMC Public Health, 4:21*.

Uuskula, A., Kangur, K., & McNutt, L. A. (2006). Barriers to effective STI screening in a post-Soviet society: Results from a qualitative study. *Sexually Transmitted Infections, 82,* 323-26.

Van Brakel, W. M. (2006). Measuring health-related stigma – a literature review. *Psychology, Health & Medicine, 11*, 307-334.

WHO (2010). Global prevalence and incidence of selected curable sexually transmitted infections. Retrieved June 7, 2010, from http://whqlibdoc.who.int/hq/2001/WHO_HIV_AIDS_2001.02.pdf.

Zak-Place, J., & Stern, M. (2004). Health belief factors and dispositional optimism as predictors of STD and HIV preventive behavior. *Journal of American College Health, 52,* 229-236.