

An intervention study assessing a peer outreach model to promote safer-sex for tourism workers

Robin R. Milhausen,^{1,2,3} Richard A. Crosby,^{2,3,4} William L. Yarber,^{2,3,5,7} Cynthia A. Graham,^{2,3,6} Stephanie A. Sanders,^{2,3,7} Hailey Ingram,⁸ Vanessa Moffitt Barr,⁹ and Ian R. Macdonald^{10,11}

¹ Department of Family Relations and Applied Nutrition, University of Guelph, Guelph, ON

² The Kinsey Institute, Indiana University, Bloomington, IN

³ Rural Center for AIDS/STD Prevention, Indiana University, Bloomington, IN

⁴ Department of Health Behavior, College of Public Health, University of Kentucky, Lexington, KY

⁵ Department of Applied Health Science, Indiana University, Bloomington, IN

⁶ Department of Psychology, University of Southampton, Southampton, UK

⁷ Department of Gender Studies, Indiana University, Bloomington, IN

⁸ Department of Applied Psychology and Human Development, Ontario Institute for Studies in Education, University of Toronto, Toronto, ON

⁹ Faculty of Medicine, University of Calgary, Calgary, AB

¹⁰ Alpine Medical Clinic, Banff, AB

¹¹ Mineral Spring Hospital, Banff, AB

Tourism destinations provide unique social contexts which foster sexual risk-taking. Banff, Alberta, Canada is one such destination with high rates of STI and risk-taking, particularly among tourism workers (TWs). Twenty-five TWs (14 women and 11 men) completed a single session intervention designed to promote the consistent and correct use of condoms. The intervention, comprised of motivational and skills-based training and the provision of a range of high-quality condoms and lubricants, was delivered in a one-to-one format in community settings. Pre- and post-intervention (three weeks following) paper and pencil questionnaires were administered. Sexual experience barriers to condom use significantly decreased ($P < .001$) after the intervention and confidence in condom use negotiation ($P = .005$) significantly increased. Confidence in using condoms without loss of pleasure ($P = .001$) also significantly increased. The number of condom use errors significantly decreased ($P < .001$). All except two of the behavioral outcomes were also significant: TWs were more likely to discuss condom use before having sex ($P = .025$), more likely to report condom use the last time sex occurred ($P = .005$), and more likely to add lubrication to condoms for penile-vaginal sex ($P = .027$). Significant changes in frequency of unprotected penile-anal sex and frequency of unprotected penile-vaginal sex were not observed; however a large effect size was observed relative to decreases in unprotected penile-vaginal sex. Together the behavioural outcomes and psychosocial outcomes suggest the potential utility for this single session program to be applied in other tourist destinations.

KEY WORDS: Condom use, tourism workers, intervention, sexual health

INTRODUCTION

In Canada, sexually transmitted infection (STI) rates have been steadily increasing since the 1990s and continue to be a substantial public health concern, especially among young adults (Public Health Agency of Canada [PHAC], 2009, 2012, 2013, 2015). For example, Chlamydia, gonorrhea, and infectious syphilis made up nearly 100,000 reported cases of

STIs in Canada in 2010 (PHAC, 2012). The risk of contracting an STI is impacted by several factors, including engaging in sex, frequency of sexual behaviours, number of sexual partners, sexual history of sexual partners, and condom use (Dehne & Riedner, 2005; PHAC, 2013). The degree of influence these risk factors have on individuals is shaped by one's context and local STI epidemiology (Dehne & Riedner, 2005).

Correspondence concerning this article should be addressed to Robin R. Milhausen, PhD, Department of Family Relations and Applied Nutrition, Room 227C Macdonald Institute, University of Guelph, Guelph, Ontario, N1G 2W1; rmilhaus@uoguelph.ca; (519) 824-4120 ext. 54397

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Tourism destinations comprise one such context where STI risk may be increased. Research suggests that tourist destinations are unique social contexts in which individuals 'let loose' and engage in behaviours they would not typically engage in at home (Berdychevsky, 2015; Berdychevsky, Gibson, & Poria, 2013; Carr, 2016). When unrestrained by social constraints and typical behavioural inhibitions, individuals are more likely to engage in sexual risk taking, such as having multiple sexual partners and engaging in unprotected sex (Berdychevsky, 2015; Berdychevsky et al., 2013; Hawkes, Hart, Bletsoe, Shergold, & Johnson, 1995; Patrick & Lee, 2012). Rates of alcohol consumption, drug use, and casual sex are also higher in tourism destinations, and rates of condom use are lower (Egan, 2001; Forsythe, 1999; Patrick, 2013; Tveit, Nyfors, & Nilsen, 1994; Whelan, Belderok, van den Hoek, & Sonder, 2013).

Research has commonly focused on sexual risk taking during short-term vacations among tourists; research on sexual risks among tourism workers (TWs) has been relatively neglected (Berdychevsky et al., 2013; Carter, Horn, Hart, Dunbar, Scoular, & MacIntyre, 1997; Ford & Eiser, 1996; Patrick & Lee, 2012), despite the fact that TWs have been "identified as instrumental mediators in both creating a social arena of risk and influencing the behaviours of tourists" (Kelly, Hughes, & Bellis, 2014, p. 1052). TWs are individuals who move to tourist destinations for an extended period and work within the tourism industry (Fownes, 2006). Employment roles include working at resorts, restaurants, bars, entertainment clubs, hotels, and outdoor recreation facilities. TWs are typically young, single, and transient, and may engage in the party scene and use alcohol and drugs (Bow Valley, AIDS, 2004), and be highly sexually active (Bloor et al., 1998). Tourism environments have been described by tourism workers internationally (i.e., Dominican Republic (Padilla, Guilamo-Ramos, & Godbole, 2012); Cyprus (Sönmez, Apostolopoulos, Theocharous, & Massengale, 2013); and Spain (Kelly et al., 2014) as rife with alcohol use and sexual opportunity, as well as opportunities for sexual risk. The longer an individual remains in a tourism destination, the less likely he/she will use a condom during casual sexual encounters, thus greatly increasing the likelihood of contracting and transmitting an STI (Carter et al., 1997).

Banff is a tourist resort town in the province of Alberta, Canada where factors may converge to create heightened STI risk. Banff's identity and economy revolve around tourism and outdoor activities; between 3 and 4 million tourists from around the world visit Banff each year (Banff & Lake Louise Tourism, 2012). Eight thousand people live in Banff; approximately 3,500 of these are young adults between the ages of 18 and 35 who travelled to Banff solely to work within the tourism industry (CFCN, 2005; Orlando, 2008). The combination of young people living in close quarters who are away from home, sometimes for the first time, and easy access to alcohol, drugs, and potential sexual partners creates a context where sexual risk taking can flourish (Canadian Broadcasting Corporation, 2005; Fownes, 2006).

In the late 1990s, *Rolling Stone Magazine* labelled Banff as the STI Capital of Canada (Rolling Stone Magazine, 1999). Over the past several decades, STI rates within Alberta have greatly increased, with rates of Chlamydia increasing 207% from 1999 to 2009 (Alberta Health and Wellness-Community and Population Health Division, 2011). Although Alberta STI rates are high, Banff-specific rates warrant urgent attention. According to the Government of Alberta in a 2013 report, from 2009 to 2012 STI rates in Banff were higher than the provincial rates in Alberta for three of the most common STIs. Banff's highest STI rate (between 2009 and 2012) was reported for Chlamydia, accounting for 751.7 cases per 100,000 population, more than double the reported cases per 100,000 persons in the entire province of Alberta and greater than the reported cases per 100,000 for all of Canada (Government of Alberta, 2013).

In a study focused on the sexual health of TWs in three mountain resort communities in Alberta (including Banff), qualitative interviews were conducted with 11 TWs to investigate their unique experiences as TWs. TWs discussed an increase in sexual opportunities in Alberta as compared to their home environments. Approximately 82% of participants reported engaging in penile-vaginal intercourse without a condom at least once and approximately 73% of participants did not seek STI testing while working as a TW in Alberta (Fownes, 2006).

Despite research indicating high levels of sexual risk taking among tourism workers in tourist destinations (Kelly et al., 2014; Padilla et al., 2012; Sönmez et al., 2013; Tajudeen, Pengpid, & Peltzer, 2011), no published studies of an STI prevention intervention for this population were identified. Given the unique context in Banff, there is a demonstrated need to develop and test an intervention to reduce sexual risk-taking, tailored specifically to tourism workers in the area, which could potentially be adapted to other tourism destinations. Indeed, a recent review called for interventions targeted toward 'tourism operators' with the aim of reducing sexually risky behaviour (Simkhada, Sharma, van Teijlingen, & Beanland, 2016). This study pilot-tested a brief intervention, implemented in the community, designed to improve correct and consistent male condom use among tourism workers.

METHOD

Study Sample

Tourism workers were recruited from community settings (e.g., parks, libraries, bars, restaurants, hotels, staff accommodations) in Banff, Alberta. Peer outreach workers visited community events and networked with community organizations (i.e., BanffLIFE) as well as a community medical clinic where STI testing and treatment was conducted. Due to the small community and the interconnectedness of residents, word of mouth was a common participant recruitment method. Male

and female tourism workers, between 18 and 29 years of age, who were able to read English, and reported having sex in the past three weeks were eligible to participate. This age group of participants was selected based on previous research indicating that TWs in the areas of food and beverage services, recreation and entertainment, and tourism in Canada generally fall in this age bracket (Martin, 2012). Possible participants were approached, introduced to the study topic, and completed an eligibility screening questionnaire. Eligible individuals who agreed to participate were given the contact information for a peer outreach worker to set up the educational session. Thirty-one TWs were recruited for this pilot study over approximately six weeks. Approval for the study was obtained from University of Guelph Research Ethics Board.

Intervention Development

The intervention was developed from three sources, including two previously tested and efficacious interventions adapted to be delivered in a community setting: 1) a brief single session clinic-based program designed for young men, known as *Focus on the Future* (Crosby, DiClemente, Charnigo, Snow, & Troutman, 2009); 2) a brief program that emphasizes condom “fit and feel,” and home-based practice, known as the *Kinsey Institute Homework Intervention Strategy (KIHIS)* (Emetu et al., 2014; Milhausen et al., 2013); 3) a formative qualitative study of 29 TWs that we conducted in Banff two months before the current study (none of these 29 TWs were enrolled in the pilot study). The intervention, guided by a semi-structured script, was delivered one-on-one by one of three peer outreach workers in community settings (e.g., conference room within a library). Two of the peer outreach workers had experience as peer sexual health educators in university and/or community settings, the third had work experience in a medical clinic which saw many clients for sexual health concerns.

The intervention was named *Tourist Worker Intervention Safer Sex Training (TWISST)*. TWISST is based on three premises: 1) self-practice of using condoms in a no pressure situation (low performance demand) could enhance skills and condom self-efficacy; 2) the opportunity to experiment with a “smorgasbord” of condoms and lubricants would encourage young people to try a variety of condoms and lubricants, thereby help them find the optimal “fit” (for men) and “feel” (for both women and men); 3) encouraging condom users to focus on the physical sensations experienced while using condoms may diminish condom interference with sexual arousal, thereby increasing condom acceptability and correct use. The program was designed to help overcome barriers to condom use and problems with fit and feel, target beliefs about reduced pleasure during condom use, and increase self-efficacy to use condoms via education and exposure to a variety of condoms and lubricants in a condom “kit.” The educational sessions were approximately one hour in duration, and began with an overview of intervention flowchart (indicating the timeline of all activities and pre-/post- ques-

tionnaires) and the Information and Consent forms. Following this, participants completed the baseline questionnaire. The peer outreach worker then delivered the interactive educational module, which included the following components: brainstorming common condom errors and problems; discussing benefits of condom use (“better sex with latex!”) such as peace of mind, pregnancy and STI prevention; condom application instruction and modelling by peer outreach worker; lubricant instruction; and participant application of condom on penis model. An important goal of TWISST was to build TWs’ self-efficacy for condom use. Self-efficacy has been demonstrated to be a key theoretical mediator in programs designed to promote condom use (Salazar et al., 2005). To build condom-use self-efficacy among the TWs, peer outreach workers guided them through the entire process, one step at a time (a process known as “participant modeling” (Bandura, 1977), in addition to providing exposure to and opportunity to practice condom application on a penis model. A common theme running through the entire session was that condom and lubricant use can be fun and enhance pleasure, and a critical component was the provision of a “smorgasbord” of condoms and lubricants with a variety of different features to encourage participants to get excited about exploring safer sex. Female participants, in particular, were encouraged to develop their confidence and enthusiasm for condom use and to develop agency related to their own pleasure and sexual health behaviours. Participants were told that sex partners, of both genders, appreciate a partner who is sexually skilled and knowledgeable (a finding based on Sakaluk, Todd, Milhausen, Lachowsky, & Undergraduate Research Group in Sexuality, 2014) and that facility with condoms and lubricants would be desirable in the dating marketplace. In addition, it was emphasized that finding the “right” condom, by testing a variety, would provide an opportunity for partners to determine the best fit and feel, which would facilitate future use. Following the educational session, participants completed a brief Post-Program Questionnaire evaluating and providing feedback on the intervention.

Before leaving the session, participants were given a \$20 Visa gift card, and their condom kit including 3 each of 6 different condom types, and 2 each of 3 different single use lubricant packages, a card summarizing community sexual health resources, as well as contact information for the outreach workers so that they could get in touch with questions or concerns about condom use, STIs, pregnancy, or other sexual health issues, or if they needed more condoms or lubricant. Outreach workers contacted participants 7 and 14 days following their initial session to see if they had questions or needed further supplies. They were contacted before day 21 to arrange a time to complete their T2 questionnaire and receive a \$20 gift card.

Measures

Several measurement scales were adapted for this study and assessed at both baseline and the 3-week follow-up interview.

An 8-item scale, adapted from the *Effect on Sexual Experience* subscale of the *Condom Barriers Scale* (St Lawrence et al., 1999) assessed perceived barriers to condom use related to the sexual experience (e.g., condoms feel unnatural, condoms spoil the mood, condoms don't fit right) ($\alpha = .70$). Items from the *Condom Use Self-Efficacy Scale* (CUSES) (Brafford, & Beck, 1991) were used to assess self-efficacy in specific domains: condom use and negotiation (7 items; $\alpha = .76$); confidence using condoms without diminishing sexual pleasure (3 items; $\alpha = .68$); and confidence using condoms under adverse circumstances (4 items; $\alpha = .85$). Finally, an 8-item index was created based on an existing questionnaire of condom use errors and problems (Crosby, Graham, Milhausen, Sanders, & Yarber, 2011). This assessed frequency (in the past 3 weeks) of condom use errors such as letting condoms contact sharp objects, not rolling condoms completely to the base of the penis, and not pinching the receptacle tip during application.

Four behavioural measures were assessed at baseline (T1) and again at the 3-week follow-up (T2); both using a 3-week recall period. Sex was defined as including both penile-vaginal and penile-anal penetration. Discussion about condom use before last sex was also assessed, as was whether or not condoms were used at last sex. The frequency of unprotected penile-vaginal intercourse (PVI) was assessed in three steps. First, TWs listed the number of times they engaged in PVI with up to 5 sex partners as well as the number of times they used condoms, during the 3-week recall period. Second, the values pertaining to number of PV episodes in the 3-week period were summed across up to 5 partners as were the corresponding values for frequency of condom use. Third, the number of occurrences of unprotected PVI in this time period was measured as the difference between these two measures, i.e., the frequency of condom use was subtracted from the frequency of PV intercourse. The same process was used to assess and calculate the frequency of unprotected penile-anal intercourse (AI). The number of times extra lubricant was added to condoms during PVI was also based on summative values for up to 5 sex partners in the past three weeks.

Acceptability of the intervention was assessed with closed and open-ended questions asked at the end of the T2 questionnaire. One question was: "Based on your experiences as a part of this study over the past three weeks, what did you learn that was helpful? (check all that apply)" Response choices were: 1) how to find the right fit and feel of condoms; 2) how to negotiate condoms with a resistant partner; 3) how to put on condoms correctly; and 4) how to use lubricants to enhance sexual pleasure when using condoms. Participants were asked to write in anything else they had learned as a result of their study experience. Participants were also asked about future behaviours, specifically: "How likely is that what you learned will..." 1) help you use condoms more often; 2) help you better enjoy sex when condoms are used; 3) help your sex partner(s) better enjoy sex when condoms are used; 4) help you to better negotiate condom use in the future; 5)

help you to better put on condoms in the future; 6) help you to use lubricants with condoms. Responses were given on a 5-point Likert-type scale ranging from "extremely unlikely" to "extremely likely." Two open-ended questions were included: 1) If your attitudes and behaviours changed as a result of participating in this study, why do you think they did?; 2) "Is there any way the safer sex program, and the practice phase (the last three weeks) you participated in, could be improved to be more useful or effective? Please give some suggestions."

Data Analysis

Paired samples *t*-tests were used to determine whether mean values on the scale measures improved from baseline assessment to the three-week follow up assessment. For behavioural outcomes, paired samples *t*-tests were used for continuous variables and chi-square tests were used for dichotomous variables. Analyses were conducted using IBM SPSS 22.

RESULTS

Sample Characteristics

Mean age of the sample was 23.5 years ($sd = 3.19$). Seventeen (53.1%) were women. The majority identified as White (90.6%), 2 people as Asian, and 1 as "other" race. More than one-half (64.5%) reported coming to Banff alone for the season. All were employed (median number of hours per week was 40). All but two identified as heterosexual (one as gay and one as bisexual). The mean number of PVI or AI partners since coming to Banff was 4.26 ($sd = 2.85$), with a range of 1 to 11 partners. About one of every 8 (12.9%) had been diagnosed with at least one STI in the past 3 months. The mean number of PVI partners over the lifetime was 16.3 ($sd = 9.23$) and the mean number of AI partners was 3.0 ($sd = 9.75$). In the three weeks before study enrollment, 90.3% had PVI or AI.

Study Attrition

Of the 31 TWs enrolled in the study, 25 (80.6%) met with a research assistant to complete a second questionnaire approximately 3 weeks post-enrollment. There were no differences between those completing the study and those lost to attrition for age ($P = .32$), gender ($P = .79$), number of sex partners since coming to Banff this season ($P = .23$), lifetime number of PVI partners ($P = .97$), frequency of unprotected PVI in the 3 weeks before study enrollment ($P = .32$), or whether a condom was used the time sex occurred before study enrollment ($P = .79$).

Post-Test Differences for Scale Measures

Table 1 displays the means and standard deviations and respective test statistics obtained from the paired-samples *t*-tests contrasting scale measures pre and post-interventions. As shown, all of these measures demonstrated significant

Table 1. Pre-Test, Post-Test Comparisons of Scale Measures Assessing Psychosocial Mediators of Safer Sex

Scale Measure	Mean T1	Mean T2	Mean Diff	<i>d</i>	<i>t</i>	<i>p</i>
Sexual Experience Barriers to Condom Use ¹	3.05 (.64)	2.59 (.68)	.46	.70	4.13	<.001
Confidence in condom negotiation ²	3.95 (.71)	4.25 (.62)	.30	-.45	-3.06	.005
Confidence to use w/out pleasure loss ³	3.41 (1.02)	3.81 (.76)	.40	-.44	-3.86	.001
Confidence to use in adverse circumstances ⁴	3.63 (.20)	3.89 (.78)	.26	-.46	-1.66	.111
Frequency of condom use errors ⁵	5.44	1.28	4.16		8.82	<.001

Note: 1–4. Response choices ranged from 1 (Strongly Disagree) to 5 (Strongly Agree).

5. This 8-item index was a count of condom errors experienced in the past 3 weeks.

Table 2. Pre-Test, Post-Test Comparisons of Sexual Behaviours

Measure	Mean T1	Mean T2	Mean Diff	<i>t</i> (<i>df</i>)	<i>P</i>
Frequency of unprotected PVI	7.89	4.69	3.20	1.89 (25)	.07
Frequency of unprotected AI	.29	.41	.12	.46 (25)	.65
Number of times extra lubricant was added to condoms during PVI	1.11	4.85	3.74	2.34 (25)	.027

positive changes. The effect sizes were particularly large for the reductions in sensation-related barriers to condom use and condom use errors.

Post-Test Differences in Behaviours

At baseline, 17 TWs stated they did not discuss condom use with their partner before their most recent episode of PVI or AI. Of these 17, 6 indicated at follow-up that this discussion had occurred in the past 3 weeks. In addition, 7 TWs reported having this discussion when completing the baseline questionnaire and 6 of these also made this same report at follow-up. These differences between baseline and follow-up were significant ($P = .025$). Also, at baseline 10 TWs reported not using condoms the last time sex occurred and 14 reported using condoms. Of the 10 who reported condoms were not used, 4 indicated at follow-up that they had done so in their most recent sexual encounter. Only 1 of the 14 who did report condom use at last sex at baseline did not report condom use at follow up. These changes were significant ($P = .005$).

Table 2 displays the pre-test, post-test differences for the three sexual behaviour outcomes that were assessed at a continuous level. As shown, two of the three outcomes yielded non-significant findings, however, the mean frequency of unprotected PV sex at baseline decreased by 3.2 times (yielding a percent relative difference of 40.6) post-intervention period. Of note, when analyzing this outcome, three data points were reset to missing as they were beyond a plausible range (above 50 times in 3 weeks for any one sex partner). The mean frequency of unprotected AI at baseline did not change when assessed 3 weeks later, however the actual frequency of AI was low. Finally, a significant increase was observed in the number of times extra lubricant was added to condoms during PVI.

Acceptability of Intervention

TWs gave quantitative and qualitative feedback on the intervention. In response to a closed-ended question, all but two

participants reported that they learned something as a result of taking part in the study. The largest proportion of participants (48.4%) stated that they learned how to find condoms that fit and felt right; 41.9% reported that they learned how to use lubricants to enhance sexual pleasure when using condoms. Approximately one-third indicated that they learned how to put on condoms correctly (35.5%) and how to negotiate condoms with a partner (29.0%). Further, almost all (88%) endorsed the view that it was likely that what they learned would help them to use condoms more often and help them to enjoy sex when condoms were used. Three-quarters (76%) stated that it was likely that what they learned would help their partners to better enjoy sex when condoms were used. Three quarters (76%) also reported that it was likely that what they learned would help them to better negotiate condom use in the future and apply condoms better in the future. Almost all (91.7%) indicated it was likely that what they learned would help them to use lubricants with condoms.

Participants were asked what aspect of the intervention contributed to their behaviour changes, if any. Twenty-one participants provided a response. One-quarter ($n = 5$) commented that learning about and trying out a range of condoms was critical to changing their attitudes and future condom use behaviours. For example, one participant said: "I'll be looking at using different types of condoms. I'd assumed they all function identically... now that I've had the opportunity to try some without having to buy a new kind, I'll be likely to try something new in the future." Another participant noted, "I honestly will never just pick up terrible free condoms again. Sex is 100% better with the perfect condom." One other said, "[I'm] more pro-condom use after finding one that actually felt good. Good fit and less stress." Five participants commented that they appreciated the information related to STIs, condoms, or safer sex behaviour that they received from the outreach worker and some observed that it made them think about their own behaviour. As one participant

stated, “Having to think about the number of partners I’ve had since being in Banff has put me off a bit – definitely a good thing!” Other themes in participant responses were 1) appreciation of the opportunity to talk about sexuality in a safe environment; 2) greater confidence about condom use; and 3) learning more about lubricants.

When asked for specific suggestions to improve the intervention, half ($n = 10$) indicated it was enjoyable and informative and didn’t recommend changes. Specific suggestions were related to areas where more information would have been useful: 1) incorporating condoms into foreplay; 2) preventing pregnancy; and 3) statistics on STIs. One participant also suggested more lubricants should be distributed and another recommended using handouts.

DISCUSSION

This pilot test of a novel peer outreach intervention for TWs in Banff, Alberta yielded promising results, despite the statistical limitations of a small sample. The program was tested with 25 TWs who provided baseline data, participated in a brief theory-based one-to-one intervention program designed to promote consistent and correct use of male condoms, and then returned three weeks later to complete a follow-up questionnaire.

Averaging across up to five PVI partners, it was observed that the frequency of unprotected PVI significantly decreased between assessments by a percent relative difference of 40.6, noteworthy given the single session, brief nature of the intervention. Discussing condom use with partners before having PV and/or AI was also significantly more likely at follow-up. Intervention effects were not observed for unprotected AI; not surprising given that the intervention was designed primarily around PVI. Finally, participant feedback indicated that the intervention was well received by TWs, with the majority reporting that what they learned would help them to use condoms more often in the future and to enjoy sex more when condoms were used.

We also found strong evidence for the contribution of several psychosocial mediators in enhancing safer sex behaviours. For instance, unfavourable perceptions of sensation-related barriers to condom use (e.g., condoms feel unnatural, condoms spoil the mood) were significantly lessened post-intervention (see Table 1). This is important given previous research documenting that perceptions about decreased pleasure and sensation can negatively influence condom use (Calabrese, Reisen, Zea, Poppen, & Bianchi, 2012; Crosby, Milhausen, Yarber, Sanders, & Graham, 2008; Fennell, 2014). Three measures of confidence in using and negotiating condom significantly improved over the three-week period post-intervention, potentially contributing to the observed increases in condom-protected sex. Other research has documented condom self-efficacy predicts condom influence strategies (French & Holland, 2013), intention to use condoms, and

condom use (Baele, Dusseldorp, & Maes, 2001). Finally, the mean number of reported condom use errors significantly and substantially decreased as an outcome of the intervention.

Although several single-session, brief interventions have been tested and found to have strong effects, this is the first published study to find these effects among a sample of TWs. Given the worldwide risk of STI acquisition and transmission for TWs (Bloor et al., 1998; Carter et al., 1997), this pilot study is potentially the starting point for applying the TWISST program in any high-risk tourist destination. The brief nature of TWISST is vital because young TWs may be unlikely to devote time to lengthy education sessions. As it was, TWs’ active social lives, and often high rates of alcohol use, created challenges related to scheduling and attending T1 and T2 follow up sessions. The one-on-one intervention session was designed to serve as a motivational impetus for condom use practice and rehearsal with or without a sex partner. In essence, providing the combination of education and supplies of high-quality condoms and lubricants set the stage for TWs to acquire confidence and skills on their own after the brief intervention session. Further, given the “community” created among TWs at their destination, a diffusion effect (Dearing, 2009) may occur when safer sex programs such as this one are introduced into the population. Subsequent tests of TWISST could assess this possibility. The same advantage of a diffusion effect is also a potential risk factor for the ease of STI transmission in TW communities. Indeed, dense sexual networks among TW communities suggest that intervention efforts that capitalize on this density may be optimal by minimizing the spread of STIs.

One important feature of any safer sex intervention is scalability (Glasgow, Lichtenstein, & Marcus, 2003). This pilot test was carried out in a “real world” context in that researchers conducted the study remotely and only engaged with the peer outreach workers through biweekly texting, email or video-chat sessions. This suggests that, if outreach workers are trained related to intervention delivery and have knowledge and expertise related to sexual health, the local presence of researchers or intervention developers is not required to replicate the success of TWISST in other tourist destinations. The feasibility of widespread dissemination and implementation of TWISST is enhanced by its street-based nature. A single outreach worker might reasonably serve 6 or more TWs per day, making the cost of this intervention approach quite low. Given the employment of several outreach workers who possess the needed skills, and diffusion of the intervention through TW social networks, we propose ample saturation of a TW community similar in size to Banff could occur during any one tourist season. Future researchers could investigate the number of TWs needed to participate in order for a community effect, as well as the role of opinion leaders (Dearing, 2009). The dissemination of this novel program is far less challenging and less expensive than programs that require office locations, on-site training, and constant monitoring.

Limitations

Several limitations apply to this study. First, because control groups were not used we cannot establish whether the observed effects occurred because of simply providing condoms and lubricants to TWs neither can we establish whether some natural occurrence in the community during this time period produced the observed effects. However, because access to condoms and lubricants alone would be unlikely to influence all five of our hypothesized psychosocial mediators, the likelihood is that the education delivered by outreach workers made a contribution to these observed effects. Indeed, TWs commented that the information they received during the educational session was influential. Also, due to the small sample size, tests to determine whether moderating effects occurred were not possible. Thus, whether effects were moderated by sex (male vs. female), age, or length of time residing in Banff is not known. The influence of social desirability biases and demand effects in this pilot study cannot be dismissed, as the educators were also responsible for collecting follow-up data and the intent of the intervention (increasing correct and consistent condom use) was explicit. This may have been minimized somewhat by avoiding face-to-face exchanges in that the participating TWs answered the questions on a paper survey with the educators within a comfortable distance for privacy. The 3-week follow-up period was short and thus we were not able to speculate about long-term impact of this intervention. Finally, a possible issue is that we did not engage in quality assurance procedures to check intervention fidelity. However, the strength of findings suggests that fidelity was sound.

Conclusion

In this pilot study of a brief, peer outreach-based intervention for TWs, we found significant increases over three weeks in safer sex behaviours i.e., discussing condom use with partners before having sex, using condoms more often, reducing self-reports of errors in condom use, and adding lubricants to condoms more often. Further, in support of these behavioural findings there was also an increase in positive perceptions and beliefs about condom use. Together the behavioural outcomes and psychosocial outcomes suggest a high level of utility for this single session program with a strong potential for scalability to other tourist destinations.

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