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SHORT REPORT

"First, I... then, we...": exploring the sequence of sexual acts and safety strategies reported during a sexual encounter using a modified timeline followback method

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ABSTRACT

Objectives Assessments of sexual safety often rely on questions about the occurrence of condom use within a designated timeline, assuming that penile–vaginal intercourse (PVI) occurred once at the conclusion of the event. An investigation of all sexual acts and safety strategies that occur during a single event may present a more nuanced picture of sexual risk.

Methods Behaviourally, bisexual women (N=45) were recruited due to the potential diversity of their sexual behaviour and safety strategies. A modified timeline follow-back method, the SEQUENCE Calendar, was designed to capture information about the participants' most recent sexual event with a male partner, including the order of each sexual act during the sexual event. Interviews took between 1 and 3 h. These acts were compiled into narratives and the behavioural sequences were reviewed and coded.

Results Participants reported an average of 7.9 (SD=4.3) sexual acts. Over a third (35.9%, N=14) of the participants who reported PVI indicated engaging in genital contact after PVI and over 15% (N=6) of these participants reporting PVI at two different time points, separated by sexual behaviour. Additional potential for infection outside of condom use and PVI was also identified.

Conclusions Sexual interactions are comprised of multiple acts that occur in a variety of permutations. Understanding the complexity of people's sexual encounters has potential to inform the ways we measure condom use and consider sexual safety.

Despite the diverse sequence of coordinated behaviours that comprise a single sexual encounter, attention is often paid to only the few which directly affect the risk of pregnancy or sexually transmitted infections (STI).^{1–5} In particular, much attention is paid to penile–vaginal intercourse (PVI) since it directly facilitates bidirectional transmission of pathogens,⁶ and ejaculation by men facilitates fertilisation. In doing so, sexual research often conforms to the narrative of the coital imperative by presuming that sexual interactions culminate in a male partner's ejaculation, usually during PVI.⁷ As a result, sexual safety is often determined by assessing condom use⁸ during that final singular act of PVI, foreclosing understanding the potential for STI transmission that accompanies the behaviours

engaged in before, after or in between acts of PVI. Understanding more about the order and number of times in which participants report engaging in distinct sexual acts may provide important insight into ways in which condoms are integrated successfully or unsuccessfully into sexual encounters.

Timeline follow-back methods provide a framework for assessing the sequence of sexual acts during a given sexual encounter since they are designed to assess sequences of events.⁹ The present study modified this approach to construct a tool, the SEQUENCE Calendar method, to assess the order of sexual acts that women report engaging in during a given sexual encounter with a man. A community sample of behaviourally bisexual women was recruited due to their potential for broad sexual repertoires and diverse safety strategies.¹⁰

METHODS

Cisgender women (assigned female at birth and living as a woman) in Indiana, USA, were recruited through the use of paper-based flyers and on-line postings. Those who had an email address were eligible if they reported genital contact with at least one cisgender man and cisgender woman in the past year. Consenting participants (N=80) completed an on-line survey which contained questions regarding sociodemographic characteristics (eg, age) and sexual health history (eg, lifetime sexual behaviour). Following completion, 66.25% (N=53) completed the SEQUENCE Calendar with the researcher. There were no demographic differences between those participants who were interviewed and those who were not ($p>0.05$). Participants (N=8) were excluded from the present analyses if they indicated that their most recent sexual event with a male partner included two or more people, was non-consensual or occurred over a year ago. Participants received a \$50 gift card upon completion. Study protocols were approved by Institutional Review Board at Indiana University-Bloomington (#1109006680).

SEQUENCE Calendar method

Using a modified timeline followback approach, participants reported all sexual and romantic partnerships over the previous year. They reported the characteristics of this relationship, including how it was defined (eg, friends with benefits, boyfriend) and

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Behaviour

Table 1 Participant sexual narratives by sexual safety category code

Category	Per cent	(N)	Example		
			Participant	Partner characteristics	Sequence of sexual acts
1. Engaged in sexual behaviour (including genital contact and non-genital contact) after PVI	61.5	24	Penny	Will: friend with benefits/ boyfriend; somewhat monogamous	1. Penny kissed Will. 2. Penny received breast–oral play from Will. 3. Penny engaged in mutual genital–genital rubbing with Will. 4. Penny engaged in PVI with Will. <i>Will wore a condom.</i> <i>Penny had an orgasm.</i> <i>Will had an orgasm and ejaculated.</i> 5. Penny kissed Will. 6. Penny cuddled with Will.
2. Engaged in genital contact after PVI	35.9	14	Mary	Juan: boyfriend; open relationship	1. Mary gave oral sex to Juan. 2. Mary gave a hand-job to Juan. 3. Mary had PVI with Juan. <i>No condom used.</i> 4. Mary received a breast massage from Juan. 5. Mary engaged in mutual genital–genital rubbing without clothes with Juan. 6. Mary received ‘S&M’ (unspecified behaviours) from Juan. 7. Mary received vibrator stimulation on her vulva from Juan. <i>Mary had an orgasm.</i> <i>Juan had an orgasm and ejaculated on Mary’s buttocks/anus.</i>
3. PVI at two time points separated by other behaviours	15.4	6	Heaven	Tobin: spouse; somewhat monogamous	1. Heaven cuddled with Tobin. 2. Heaven received a breast massage from Tobin. 3. Heaven gave general body kissing to Tobin. 4. Heaven kissed Tobin. 5. Heaven engaged in mutual body touching with Tobin. 6. Heaven mutually body kissed Tobin. 7. Heaven received breast–oral play from Tobin. 8. Heaven received a breast massage from Tobin. 9. Heaven engaged in mutual genital–genital rubbing without clothing with Tobin. 10. Heaven received general body kissing from Tobin. 11. Heaven received external genital rubbing on her vulva from Tobin. 12. Heaven received oral sex without finger insertion from Tobin. 13. Heaven received general body kissing from Tobin. 14. Heaven engaged in PVI with Tobin. <i>No condom used.</i> 15. Heaven gave general body kissing to Tobin. 16. Heaven gave oral sex to Tobin. 17. Heaven engaged in PVI with Tobin. <i>Heaven had an orgasm.</i> <i>Tobin had an orgasm and ejaculated inside Heaven’s vagina.</i> <i>No condom used.</i>
4. Ejaculation prior to engaging in PVI	2.6	1	Heidi Beth	Jamie: friend with benefits; non-monogamous	1. Heidi Beth kissed Jamie. 2. Heidi Beth engaged in mutual body kissing with Jamie. 3. Heidi Beth engaged in mutual body touching with Jamie. 4. Heidi Beth received a breast massage from Jamie. 5. Heidi Beth received breast–oral play from Jamie. 6. Heidi Beth gave vibrator–anal stimulation to Jamie. <i>Condom used on vibrator.</i> <i>Jamie had an orgasm, ejaculated on his stomach.</i> 7. Heidi Beth kissed Jamie. 8. Heidi Beth engaged in mutual body touching with Jamie. 9. Heidi Beth engaged in mutual body kissing with Jamie. 10. Heidi Beth engaged in PVI with Jamie. <i>Condom used.</i> <i>Heidi Beth had an orgasm.</i>
5. Potential for infection, not as a result of PVI			Dagny	Shane: one-time hook-up; non-monogamous	1. Dagny received a massage from Shane. 2. Dagny received anal–oral (rimming) from Shane. 3. Dagny received a breast massage from Shane. 4. Dagny received breast–oral play from Shane. 5. Dagny kissed Shane. 6. Dagny received vulva–oral (with fingers) from Shane. <i>Shane put a condom on himself.</i> 7. Dagny engaged in PVI with Shane. 8. Dagny was flipped over by Shane. 9. Dagny continued to engage in PVI with Shane. <i>Shane had an orgasm.</i> <i>Condom used entire time.</i>

All names are pseudonyms and do not reflect actual names of participants or partners. All percentages are calculated out of participants who reported any PVI (N=39). Category 5 does not contain a percentage since the actual risk of STI for each sexual act has not been determined.
 PVI, penile–vaginal intercourse; STI, sexually transmitted infections.

boundaries of the relationship (eg, completely monogamous, monogamous in some ways but not in others). To increase comfort discussing diverse sexual behaviours, participants were asked to list all sexual behaviours they engaged in with this partner.

After providing information about each partner, participants recalled their most recent sexual event with a male partner. Participants were asked to provide the first sexual act ("First I...") that they engaged in with the partner during the respective event. This information was entered into the calendar quantitatively as the participant reviewed the information for accuracy. For instance, if 'Jane' reported that the sexual event began when she kissed 'Jack', it would be entered into the calendar as: the partner name (automatically populated from a linked database); the 'role' of the participant during the behaviour (giving, receiving, mutual, inactive) and the specific behaviour from a list of over 60 items (with the option to add behaviours). Following this act, participants were asked to provide each consecutive act ("Then, we...") that they engaged in with the partner until the conclusion of the sexual event.

The participant and researcher documented each reported sexual act, the order in which the acts occurred, the sexual safety methods used during these acts and whether or not participants and their partners experienced orgasms and/or ejaculation, including timing and place of ejaculation. If participants reported use of sexual safety methods, they reported the behaviours during which they were incorporated. If a condom was used, they reported the duration of condom use during the behaviour. All participants provided pseudonyms to protect their own and their partner's anonymity.

Analysis

Data were extracted from the calendar and compiled into a detailed narrative which integrates the individual acts with corresponding sexual safety methods and orgasm details. These narratives were then coded into categories that are presented descriptively.

RESULTS

Participants (N=45) ranged in age from 18 to 46 (M=26.09, SD=7.16) with 48.90% (N=22) identifying as bisexual and most identifying as White (86.7%, N=39) with some college (46.7%, N=21) or a bachelor's degree (31.1%, N=14). Almost half (43.18%, N=19) of the participants indicated that they were in a relationship with their most recent male sexual partner, while 27.3% indicated that they were friends (N=12) or hooking up (22.73%, N=10). When asked about the 'rules' they used to define their relationship boundaries, over 40% (N=18) indicated that they were not in a monogamous relationship with the partner.

Participants reported an average of 7.9 (SD=4.3) sexual acts during the encounter. The majority of participants (86.7%, N=39) reported engaging in PVI with 61.5% (N=24) of those participants reporting sexual behaviours after PVI (table 1, Category #1). The most common behaviours post-PVI included kissing (23.1%, N=9) and/or cuddling (25.6%, N=10). Of those who reported genital contact after PVI (Category #2), the most common behaviour was fellatio (12.8%, N=5), followed by vaginal fingering (10.3%, N=4), cunnilingus (5.1%, N=2) and toy use (5.1%, N=2). No participants reported engaging in anal intercourse in conjunction with PVI. Over 15% of participants (Category #3) reported PVI at two different time points with fellatio (N=3), cunnilingus (N=2) and vaginal fingering (N=2) as the most common behaviours separating instances of PVI. Two-thirds (66.7%, N=26) of the participants reported

their partner ejaculated during PVI (Category #4). Half of these participants (50%, N=13) reported their partner ejaculated into a condom, while several others indicated their partner ejaculated on their or their partner's body. One participant reported that her partner ejaculated prior to engaging in PVI.

Condom use during PVI was reported by 38.5% (N=15) of participants. Of those who reported condom use, 33.33% (N=5) indicated it was delayed or removed before completion (6.67%, N=1). Aside from a single instance when a condom was used on a vibrator, participants only reported barrier method use (eg, dental dam) while engaging in PVI.

Sexual risk was not always characterised by PVI as demonstrated by Category #5 during which transmission may have occurred from the anus to another anatomical site despite condom use throughout the duration of PVI.

DISCUSSION

These data belie the tendency to treat sexual interactions as behaviourally singular events, consisting only of—or largely dominated by—PVI. The behaviourally bisexual women in this study described sexual events with men that were comprised of multiple sexual acts occurring in varied sequences. Revealing such diversity is a critical step in honing sexual risk prevention efforts. In current research on sexual risk-taking, condom use is often equated with sexual safety with those who report condom use categorised as at negligible risk, while those who do not report use are classified as at risk for STI/HIV transmission. The sexual sequence data trouble this simplified notion of sexual risk by pointing to the diverse ways in which sexual safety and risk-taking may take place outside of condom use. Male ejaculation during intercourse, typically PVI, is often assumed to be the final sexual act during a heterosexual interaction.⁷ Contrary to this, over half of the participants reported one or more sexual behaviours after PVI, with over a third of the participants reporting an act of genital contact after PVI. Notably, only a single participant reported complete condom use during PVI that occurred prior to engaging in genital contact. Understanding more about the sequences in which events occur may provide insight into the pathways through which infected pathogens are transmitted from one anatomical site to another.

The use of novel methodology (the SEQUENCE Calendar) allowed for the quantification of participant narratives as the interviewer sat alongside the participant, permitting the participant to make corrections to the narratives during the process (see Bay-Cheng *et al*⁹ for further information). Nevertheless, the calendars may not be an exact representation of the participants' experiences. Participants may have been hesitant to disclose stigmatised behaviours, while others may have not remembered the exact sequence of sexual events. Finally, these formative data were collected among relatively homogeneous samples. Further research with the SEQUENCE tool should be conducted with assorted populations who have diverse sexual experiences in order to better understand sexual variety and the ways in which that variety should be considered in the refinement of future sexual safety recommendations.

CONCLUSIONS

Understanding more about the ways in which people choose to integrate (or not to integrate) PVI into sexual encounters has potential to change the ways we measure condom use and consider sexual safety.

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Behaviour

Contributors Conception or design of the work; or the acquisition, analysis or interpretation of data for the work: VRS, JDF, BVDP, BD, LYB-C, AB. Drafting the work or revising it critically for important intellectual content: VRS, LB-C, BVDP, JDF, AB, BD. Final approval of the version to be published: VRS, JDF, LB-C, BVDP, BD, AB.

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