

'He said, she said': assessing dyadic agreement of reported sexual behaviour and decision-making among an HIV sero-discordant couples cohort in Uganda

Katherine A Muldoon,¹ Steve Kanters,² Josephine Birungi,³ Rachel L King,^{4,5} Maureen Nyonyintono,⁶ Sarah Khanakwa,⁷ David M Moore⁸

For numbered affiliations see end of article.

Correspondence to

Dr David M Moore, Department of Medicine, University of British Columbia, Research Scientist, BC Centre for Excellence in HIV/AIDS, St Paul's Hospital, 608–1081 Burrard Street, Vancouver, BC, Canada V6Z 1Y6; dmoore@cfcenet.ubc.ca

Received 5 August 2015

Revised 26 February 2016

Accepted 26 February 2016

Published Online First

30 March 2016

ABSTRACT

Background The intimate nature of sexuality makes it challenging to accurately measure sexual behaviour. To assess response reliability, we examined agreement between couples in heterosexual HIV sero-discordant partnership on survey questions regarding condom use and sexual decision-making.

Methods Data for this analysis come from baseline data from a cohort study of HIV sero-discordant couples in Jinja, Uganda. We examined the degree of agreement between male and female partners on standard measures of sexual behaviour using the kappa (κ) statistic and 95% confidence intervals (95% CIs).

Results Among 409 couples, the median age for the male partner was 41 [interquartile range (IQR) 35–48] years and the female partner was 35 (IQR 30–40) years. Among 58.2% of the couples, the male was the HIV-positive partner. Questions with high or substantial couple agreement included condom use at last sex ($\kappa=0.635$, 95% CI 0.551–0.718) and frequency of condom use ($\kappa=0.625$, 95% CI 0.551–0.698). Questions with low or fair couple agreement included decision-making regarding condom use ($\kappa=0.385$, 95% CI 0.319–0.451), wanting more biological children ($\kappa=0.375$, 95% CI 0.301–0.449) and deciding when to have sex ($\kappa=0.236$, 95% CI 0.167–0.306).

Conclusions Survey questions assessing condom use had the highest level of couple agreement and questions regarding sexual decision-making and fertility desire had low couple agreement. Questions with high agreement have increased reliability and reduced measurement bias; however, questions with low agreement between couples identify important areas for further

Key message points

- ▶ Accurate information on sexual behaviour is needed to reduce risk among HIV sero-discordant couples.
- ▶ Matching couples answers to sexual and reproductive health questions revealed high agreement for reported condom use and lower agreement for sexual decision-making.
- ▶ Questions with high agreement have increased reliability, and questions with low agreement and large discrepancies between partners identify important areas for further investigation.

investigation, particularly perceived relationship control and gender differences.

INTRODUCTION

Reporting and social desirability biases are common threats to validity within research involving stigmatising topics such as sexuality. Accurate reporting of condom use and partnership-level factors such as sexual decision-making play an important role in preventing the transmission of HIV. Within Uganda, it is estimated that 50% of people living with HIV/AIDS are cohabitating with a partner who is HIV-negative and therefore are at very high risk for acquiring HIV infection.¹

Established strategies to improve questionnaire item validity include test-retest



CrossMark

To cite: Muldoon KA, Kanters S, Birungi J, et al. *J Fam Plann Reprod Health Care* 2017;**43**:142–146.

reliability (asking the same question to the same participant more than once) and inter-rater reliability (different interviewers elicit consistent results from survey participants). A study of population-based data of Malawian couples revealed that individuals tended to overestimate their spouse's as well as their own risk of having HIV.² An investigation of inter-partner agreement between spouses in Rwanda reported high agreement on relationship characteristics (e.g. partnership type) and condom use, but low agreement on fertility intentions and sexual decision-making.³ A study of Ethiopian couples found high agreement for fertility intentions and contraceptive use, but low agreement on attitudes towards contraceptive use, with more husbands disapproving of contraceptives.⁴

Our group has used dyadic analyses to show that over time HIV discordant couples counselling can improve chances of mutual sexual decision-making and increased condom use.⁵ The objective of this study was to examine the degree of agreement and item reliability on questions related to HIV risk in HIV sero-discordant couples.

MATERIALS AND METHODS

Data for this study were obtained from the Highly Active Antiretroviral therapy as Prevention (HAARP) study, an observational cohort investigating the effectiveness of antiretroviral therapy (ART) in preventing HIV transmission among sero-discordant couples in Jinja, Eastern Uganda (June 2009–June 2011).⁶ Polygynous couples (where the male participant has more than one female spouse) were excluded from this analysis to avoid misclassification bias.

Six variables were chosen to compare male and female responses to questions surrounding sexual behaviour. Two variables concerned condom use: 'How often did you use condoms in the last 3 months?' (always/sometimes/never) and 'Did you use a condom the last time you had sex?' (yes/no). Three variables assessed sexual decision-making. Two items were used from the Sexual Relationship Power Scale (SRPS):⁷ 'Who usually decides when you have sex?' (male decides/female decides/decide together/never talk about it/other) and 'Who usually decides whether or not you use a condom?' (male decides/female decides/decide together/never talk about it/other). An additional question asked more generally: 'Have you discussed sexual issues with your partner?' (yes/no). One question assessed fertility intentions: 'Do you want to have more biological children?' (yes/no/don't know/not applicable).

Statistical analysis

The kappa (κ) statistic and 95% confidence intervals (95% CIs) were used to measure agreement between couples on self-reported behaviours. The κ statistic ranges from 0, no agreement to 1, perfect agreement. This scale can be interpreted as 0–0.2 indicating poor

agreement, 0.21–0.40 as fair agreement, 0.41–0.60 as moderate agreement, 0.61–0.80 as substantial agreement and >0.81 as excellent agreement.⁸ The weighted κ statistic was used when the variables were ordinal. The percent agreement was also calculated to triangulate the κ statistic, which has the limitation of being sensitive to cell size.

The HAARP study received scientific ethics approval by the ethical review boards at the University of British Columbia and the Ugandan Virus Research Institute, and the protocol was registered at the Ugandan National Council of Science of Technology.

RESULTS

From a total of 553 sero-discordant couples, 409 met eligibility criteria and were included in this analysis. The median age for the male partner was 41 [inter-quartile range (IQR) 35–48] years and the female partner was 35 (IQR 30–40) years. Among 58.21% of the couples, the male was the HIV-positive participant, and among those living with HIV 50.83% of men and 42.74% of women were receiving ART.

Condom use

When participants were asked 'How often did you use condoms in the last 3 months?', 321 (78.87%) couples agreed and the weighted κ statistic was 0.63 (95% CI 0.55–0.70). A total of 222 (54.55%) couples agreed and reported 'always', 58 (14.25%) of couples agreed and reported 'sometimes' and 41 (10.07%) of couples agreed and reported that they 'never' used condoms (see Table 1).

When asked if they used a condom the last time they had sex, 348 (85.09%) agreed and the κ statistic was 0.64 (95% CI 0.55–0.72). A total of 262 (64.06%) couples agreed and reported 'yes'; 86 (21.03%) couples agreed and reported 'no'.

Sexual decision-making

When asked 'Who usually decides when you have sex?', 211 (51.72%) couples agreed and the κ statistic was 0.24 (95% CI 0.17–0.31). A total of 110 (27.00%) couples agreed that they 'decided together', 85 (20.83%) agreed that the 'male decided' and 16 (3.92%) agreed that the 'female decided'.

When asked 'Who usually decides whether or not to use a condom?', 233 (56.97%) couples had agreeing answers and the κ statistic was 0.39 (95% CI 0.32–0.45). A total of 126 (30.81%) couples agreed that they 'decide together', 46 (11.24%) agreed that the 'male decided', 17 (4.16%) agreed that the 'female decided', 42 (10.27%) agreed and reported 'other' and 2 (0.49%) agreed that they 'never talk about it'.

When asked more generally, 'Have you discussed sexual issues with your partner?', 391 (95.60%) couples agreed and the κ statistic was 0.29 (95% CI 0.05–0.52). A total of 387 (94.62%) couples agreed and reported 'yes', 4 (0.98%) agreed and reported

Research

Table 1 Cross tabulations and agreement statistics for responses to questions about sexual behaviour among heterosexual HIV sero-discordant couples (n=409)

Male responses [n (%)]	Female responses [n (%)]							Dyadic analyses		
1. How often did you use a condom over the last 3 months?										
	Always	Sometimes	Never	Total			κ (95% CI)	Percent agreement (%)		
Always	222 (54.55)	18 (4.42)	11 (2.70)	251 (61.67)			0.63 (0.55–0.70)	78.87		
Sometimes	19 (4.67)	58 (14.25)	12 (2.95)	89 (21.87)						
Never	16 (3.93)	10 (2.46)	41 (10.07)	67 (16.46)						
Total	257 (61.67)	68 (21.13)	64 (15.72)	407						
[NB. Weighted κ used because variable is ordinal; missing=2.]										
2. Did you use a condom the last time you had sex?										
	Yes	No	Total			κ (95% CI)	Percent agreement (%)			
Yes	262 (64.06)	23 (5.62)	285 (69.68)			0.64 (0.55–0.72)	85.09			
No	38 (9.29)	86 (21.03)	124 (30.32)							
Total	300 (73.35)	109 (26.65)	409							
3. Who usually decides when you have sex?										
	Respondent	Partner	Together	Never talk	Total		κ (95% CI)	Percent agreement (%)		
Respondent	17 (4.17)	85 (20.83)	25 (6.13)	0 (0.0)	127 (31.13)		0.24 (0.17–0.31)	51.72		
Partner	16 (3.92)	22 (5.39)	12 (2.94)	1 (0.25)	51 (12.50)					
Together	41 (10.05)	79 (19.36)	110 (26.96)	0 (0.0)	230 (56.37)					
Never	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)					
Total	74 (18.18)	186 (45.59)	147 (36.03)	1 (0.25)	408					
[NB. For the calculation of the κ statistic, partner and respondent were taken to be in agreement; missing=1.]										
4. Who usually decides whether or not you use a condom?										
	Respondent	Partner	Together	Never talk	Other	Total	κ (95% CI)	Percent agreement (%)		
Respondent	24 (5.87)	46 (11.25)	21 (5.13)	0 (0.0)	1 (0.24)	92 (22.50)	0.39 (0.32–0.45)	56.97		
Partner	17 (4.16)	7 (1.71)	12 (2.93)	0 (0.0)	2 (0.49)	38 (9.29)				
Together	41 (4.16)	32 (7.82)	126 (30.81)	2 (0.49)	11 (2.69)	212 (51.83)				
Never	2 (0.49)	0 (0.0)	0 (0.0)	2 (0.49)	1 (0.24)	5 (1.22)				
Other	7 (1.71)	7 (1.71)	5 (1.22)	1 (0.24)	42 (10.27)	62 (15.6)				
Total	91 (22.25)	92 (22.50)	164 (40.10)	5 (1.22)	57 (13.94)	409				
[NB. For the calculation of the κ statistic, partner and respondent were taken to be agreement.]										
5. Have you discussed sexual issues with your partner?										
	Yes	No	Total			κ (95% CI)	Percent agreement (%)			
Yes	387 (94.62)	13 (3.18)	400 (97.80)			0.29 (0.05–0.52)	95.60			
No	5 (1.22)	4 (0.98)	9 (2.20)							
Total	392 (95.84)	17 (4.16)	409							
6. Do you want more biological children										
	Yes	No	Don't know	N/A	Total		κ (95% CI)	Percent agreement (%)		
Yes	67 (16.38)	45 (11.0)	14 (3.42)	6 (1.47)	132 (32.27)		0.38 (0.30–0.45)	63.57		
No	21 (5.13)	175 (42.79)	18 (4.40)	14 (3.42)	228 (55.75)					
Don't know	5 (1.22)	21 (5.13)	8 (1.95)	2 (0.49)	36 (8.80)					
N/A	0 (0.0)	3 (0.73)	0 (0.0)	10 (2.44)	13 (3.18)					
Total	99 (22.74)	244 (59.66)	40 (9.78)	32 (7.82)	409					

CI, confidence interval; N/A, not applicable.

‘no’ and 18 (4.40%) disagreed. This question produced near perfect agreement and because of unbalanced marginal totals the κ statistic was low and should be interpreted with caution.

Fertility intentions

When asked ‘Do you want more biological children?’, 260 (63.57%) couples agreed and the κ statistic was 0.38 (95% CI 0.30–0.45). A total of 67 (16.38%)

couples agreed and reported 'yes' and 175 (42.79%) agreed and reported 'no'.

DISCUSSION

This study used a dyadic analysis to determine the reliability and agreement of self-reported behaviours given by HIV sero-discordant partners enrolled in a longitudinal cohort study in Uganda. Substantial agreement (78.87–85.09%) was found on questions related to condom use where over 64% agreed to using a condom when they last had sex and over 54% agreed to always using condoms. Only fair agreement was found for both fertility intentions (63.57%) and some sexual decision-making questions regarding condom use and when to have sex (51.72–56.97%).

Sexual decision-making and perceptions of how decisions are made within partnerships are complex dyadic constructs to measure.⁹ The three questions regarding sexual decision-making had low κ scores ($\kappa=0.24$ – 0.39). As the questions are based in perception, each partner's responses are valid; however, the level of dyadic agreement provides contextual information into relative gender symmetry, gender norms and relationship power. For example, 51.83% (212/409) of the male participants reported that they decide on condom use together with their female partners; however, only 59.43% (126/212) of their corresponding female partners agreed with them. The degree of disagreement highlights gendered power dynamics where female partners may perceive male dominance and male partners may perceive more egalitarian sexual decision-making. The impact of gender norms and cultural roles regarding male dominance and the male partners' influence over their female partners are necessary to incorporate into successful HIV prevention programming aimed at addressing individual, couple and societal level factors that influence risk.¹⁰

Reported fertility desires were higher among male participants where 32.2% (132/409) reported wanting more children while only 22.7% (93/409) of the female participants wanted more children. The relative agreement on fertility desires was low where 16.4% couples agreed that they wanted more children and 42.7% of the couples agreed that they did not want more children. A comparable study of HIV-negative couples in Ethiopia found much higher rates of fertility desires and agreement among couples where 64.9% of couples agreed that they both wanted more children and 31.0% agreed that they both did not want more children.⁴ The relatively lower desire for children in this study sample may be influenced by the older age of the male (median 41 years) and female (median 35 years) participants compared to the study participants in Ethiopia where the average male was aged 32 years and the average female 27 years. Additionally, family planning within sero-discordant partnerships adds complexity to reduce the

risk of HIV transmission to the HIV-negative partner and vertical transmission.

Limitations

An important limitation of this analysis is the statistical interpretation of the κ coefficient. In this analysis, the highest percent agreement (95.6%) was reported for a general question asking couples if they had discussed sexual issues with their partner; however, due to unbalanced distribution the κ statistic was weak ($\kappa=0.287$). The κ statistic is not sufficient to assess agreement and the percent agreement must also be reviewed to avoid erroneously reporting low agreement. Additionally, the results from this study may have limited generalisability to the reported behaviours of couples (either sero-discordant or concordant) in other settings.

CONCLUSIONS

Questions with high agreement have increased reliability and reduced measurement bias; however, questions with low agreement and large discrepancies between couples identify important areas for further investigation. A deeper understanding of couple-level dynamics, gender and relationship power are important components for HIV interventions and policies that can reduce risk for people living in sero-discordant couples.

Author affiliations

¹Research Fellow, School of Population and Public Health, University of British Columbia, BC and BC Centre for Excellence in HIV/AIDS, Vancouver, BC, Canada

²Statistician, School of Population and Public Health, University of British Columbia, BC and BC Centre for Excellence in HIV/AIDS, Vancouver, BC, Canada

³Research Manager, The AIDS Support Organisation, Kampala, Uganda

⁴Senior Researcher, Global Health Sciences, University of California, San Francisco, CA USA

⁵Senior Researcher, Karolinska Institute, Stockholm, Sweden

⁶Data Manager, The AIDS Support Organisation, Kampala, Uganda

⁷Centre Manager, The AIDS Support Organisation, Kampala, Uganda

⁸Associate Professor, Department of Medicine, University of British Columbia, BC and BC Centre for Excellence in HIV/AIDS, Vancouver, BC, Canada

Acknowledgements The authors wish to thank the participants from the HAARP study, the staff at TASO and Anya Shen and David Milan, for previous support with data management. In particular they wish to acknowledge the support of TASO senior management and the project coordinator, Moses Ngolobe.

Funding Katherine Muldoon is funded through a doctoral fellowship from the Canadian Association for HIV/AIDS Research. David Moore is funded through a New Investigator

Award from the Canadian Institute for Health Research (CIHR) and a Scholar Award from Michael Smith Foundation for Health Research. The HAARP study was supported by CIHR (Grant Nos MOP-89730, HBF-112308 and MHI-I26391) and the Canadian Foundation for AIDS Research (Grant No. 023 502).

Competing interests None declared.

Ethics approval The HAARP Study received scientific ethics approval by the Ethical Review Boards at the University of British Columbia, the Ugandan Virus Research Institute, and the protocol was registered at the Ugandan National Council of Science of Technology.

Provenance and peer review Not commissioned; externally peer reviewed.

REFERENCES

- 1 Uganda AIDS Commission. The Republic of Uganda Global AIDS Response Progress Report. Kampala, 2012.
- 2 Anglewicz PA, Bignami-Van Assche S, Clark S, *et al.* HIV Risk among currently married couples in rural Malawi: what do spouses know about each other? *AIDS Behav* 2010;14:103–112.
- 3 Hageman KM, Karita E, Kayitenkore K, *et al.* What the better half is thinking: a comparison of men's and women's responses and agreement between spouses regarding reported sexual and reproductive behaviors in Rwanda. *Psychol Res Behav Manag* 2009;2:47–58.
- 4 Diro CW, Afework MF. Agreement and concordance between married couples regarding family planning utilization and fertility intention in Dukem, Ethiopia. *BMC Public Health* 2013;13:903.
- 5 Muldoon KA, Duff PK, Birungi J, *et al.* Decisions, decisions: the importance of condom use decision making among HIV sero-discordant couples in a prospective cohort study in Uganda. *Sex Transm Infect* 2014;90:408–412.
- 6 Birungi J, Min JE, Muldoon KA, *et al.* Lack of effectiveness of antiretroviral therapy in preventing HIV infection in serodiscordant couples in Uganda: an observational study. *PLoS ONE* 2015;10:e0132182.
- 7 Pulerwitz J, Amaro H, De Jong W, *et al.* Relationship power, condom use and HIV risk among women in the USA. *AIDS Care* 2002;14:789–800.
- 8 Rigby AS. Statistical methods in epidemiology. v. Towards an understanding of the kappa coefficient. *Disabil Rehabil* 2000;22:339–344.
- 9 Muldoon KA, Shannon K, Khanakwa S, *et al.* Gendered HIV risk patterns among polygynous sero-discordant couples in Uganda. *Cult Health Sex* 2011;13:933–944.
- 10 Kyegombe N, Abramsky T, Devries KM, *et al.* The impact of SASA!, a community mobilization intervention, on reported HIV-related risk behaviours and relationship dynamics in Kampala, Uganda. *J Int AIDS Soc* 2014;17:19232.

Readers' contributions invited on 'Better Way of Working'

The journal publishes occasional 'Better Way of Working' articles, the purpose of which is to disseminate service delivery suggestions likely to be of interest and relevance to the journal's readership. Readers are invited to submit suggestions based on their own personal experience for consideration by the Editor-in-Chief. Contributions normally should not exceed 1200 words and should be written in a standardised format responding to the following four questions (or similar): Why was change needed? How did you go about implementing change? What advice would you give to others who might be considering a similar course of action? How did you show that the change had occurred? All contributions should be submitted via the journal's online submission system at <http://mc.manuscriptcentral.com/jfprhc>.

Norma McCorvey (1947–2017)

The real Jane Roe of the 1973 US *Roe v Wade* case, Norma McCorvey, died on 18 February 2017 aged 69. Norma had a troubled upbringing. At the age of 17 she gave birth to a daughter, Melissa, and was deceived into signing adoption papers by her mother.

At 18, Norma had a second child whom she gave up for adoption. She was aged 22 and pregnant for the third time when she sought an abortion, then illegal under Texan law except when necessary to save a woman's life. She was put in touch with Dallas lawyers who wanted to challenge the law.

McCorvey's baby had been born, given up for adoption and was 2 years old by the time of the Supreme Court ruling. The decision gave women the right to choose, while protecting the state's interest in protecting the fetus in the later stages of pregnancy.

In the 1980s McCorvey was active in the pro-choice movement. Working at a Dallas women's clinic, she was faced with verbal abuse from protesters daily. In 1995, McCorvey was baptised into the Christian faith. For the rest of her life she held strong anti-abortion views.

Sam Rowlands, Visiting Professor, Bournemouth University, Bournemouth, UK