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ORIGINAL PAPER

"If She is Drunk, I Don't Want Her to Take it": Partner Beliefs and Influence on Use of Alcohol and Antiretroviral Therapy in South African Couples

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Abstract Alcohol consumption and beliefs about mixing alcohol and ART are associated with decreased adherence to antiretroviral therapy (ART). In this study, we examined how romantic partners influence alcohol and ART use. We conducted semi-structured interviews with 24 HIV-positive individuals and their primary partners (48 individuals) in KwaZulu-Natal, South Africa. Almost 17% of participants spontaneously expressed beliefs that alcohol and ART should not be mixed. Participants who held these beliefs influenced their partners' behaviors by either discouraging the mixing of alcohol and ART, which sometimes resulted in missed pills when drinking, or by helping partners manage their medications when drinking. Other participants encouraged partners to take ART no matter what. Messages on alcohol and ART may need to be refined for ART patients who cannot abstain from alcohol. Primary partners should be included in these education efforts and their influence could be leveraged to help reduce alcohol consumption and maintain adherence.

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Introduction

South Africa has one of the largest antiretroviral therapy (ART) programs in the world, with nearly 3.4 million people on HIV treatment [1]. As more HIV-positive individuals initiate ART through universal test-and-treat policies [2, 3], ensuring optimal adherence will be critical for the prevention of HIV infection, the development and spread of drug resistant strains of HIV, and to achieve viral suppression and prevent virologic failure [4, 5]. Globally, alcohol consumption is consistently associated with poor adherence to ART [6, 7]. In South Africa, rates of alcohol use and per-capita alcohol consumption are among the highest in the world [8, 9], with some studies showing that rates of heavy drinking among HIV-positive individuals are almost twice that of the general population [10].

Scholars have identified two primary reasons that explain the association between alcohol use and ART adherence. First, HIV-positive individuals can often forget to take pills while intoxicated; approximately 50% of participants reported this behavior in one study [11]. Second, research shows that 15–50% of HIV-positive individuals deliberately forgo taking ART when drinking due to beliefs that alcohol and ART do not mix [11–15]. This behavior has been referred to as "weekending" [15], and the beliefs have been dubbed "alcohol interactive toxicity beliefs" [13, 14, 16]. Those who hold alcohol interactive toxicity beliefs have poorer adherence, lower CD4 cell counts, and higher viral loads as compared to those who take their medication consistently even when drinking [14].

Furthermore, alcohol interactive toxicity beliefs have been associated with poorer treatment adherence to a greater extent than alcohol use itself [13].

Intimate relationships can have an influential role on alcohol consumption and ART adherence [17–20]. According to models of dyadic interdependence, the ability of couples to collaboratively engage in healthy behavior around HIV is a function of both partners' health beliefs [21, 22]. The majority of research on health beliefs related to ART focuses on individuals and consequently, few studies have described alcohol interactive toxicity beliefs among primary partners and how these beliefs may influence health behaviors among those on ART. In this study, we qualitatively examined primary partners' beliefs and influence on alcohol consumption and ART adherence in South African couples with least one HIV-positive partner.

Methods

Study Context

The study took place in Vulindlela, a rural community in KwaZulu-Natal (KZN) province which is located approximately 150 km northwest of Durban. The KZN province has high unemployment rates (39%) and low per capital income levels with 30% of households making less than $1200 US dollars per year [23]. HIV prevalence in Vulindlela is among the highest in South Africa with an estimate of 39% based on antenatal data [24]. Alcohol consumption is common in KZN and is characterized by a pattern of binge drinking [25]. Among people living with HIV/AIDS in KZN, rates of alcohol consumption may be even higher [26]. Although access to HIV care services is increasing throughout KZN, there is a significant shortage of mental health services such as those for treating alcohol abuse [27].

Sample and Recruitment

The data come from a qualitative study on *R*elationships and *E*ngagement in *A*IDS/HIV *C*are and *T*reatment within South African couples (the "REACT" study). For the REACT study, we conducted in-depth interviews with 24 couples (48 individuals) from the Vulindlela community between November 2014 and March 2015. Couples met the following eligibility criteria: (1) aged 18 or older; (2) had no reports of severe physical or sexual violence in the past six months (to protect participants); (3) in a primary relationship with each other for at least one year; and (4) at least one HIV-positive partner (referred to as the "patient" for brevity and clarity) who has disclosed their HIV status to their partner. Severe violence was defined using the guidelines established by the WHO [28], which refers to severe violence as physical violence with the potential to cause injury. Thus, participants who answered yes to statements such as, "My partner kicked me, slammed me against a wall, punched me or hit me with something that could hurt", were considered ineligible.

Participants were recruited using a combination of active and passive recruitment strategies. Patients were recruited at HIV care clinics when they arrived to pick up medicines or attend appointments. Fliers were placed at clinics and staff were asked to distribute information about the study to HIV patients. Index patients were screened for eligibility and then could choose to involve their partner, who could contact study staff for screening. To capture a range of experiences, we used maximum variation sampling with quotas [29] to sample index patients by length of time on ART (0, <6, 6–12, and >12 months) and by gender (50% were male; 50% were female). Since our sampling procedures were applied to the index patient and not their partner, the partners of index patients could be HIV-positive or negative.

Both partners provided written consent and were reimbursed for their participation. Ethical approval was obtained from the Committee on Human Research at the University of California San Francisco and the Research Ethics Committee at Human Sciences Research Council (HSRC) in South Africa.

Data Collection

Gender-matched, trained research assistants conducted the interviews in *isi*Zulu. Partners were interviewed separately, but simultaneously, in private rooms of the HSRC research center in Vulindlela. Semi-structured interviews were conducted on topics such as relationship dynamics (e.g., love and intimacy, communication, and violence); barriers to engagement in HIV care and treatment; health beliefs about ART; and, partner support and influence on use of HIV care and treatment. For example, patients were asked, "What are the good things about ART? What are the bad things about ART? What makes it easy or difficult for you to take your ART? Does your partner or anyone else help you and how so?" Patients were also asked, "Is your partner your treatment buddy? Why or why not?" While the interview guide did not focus on alcohol use, the topic often came up spontaneously. Interviewers probed with questions such as: "Have any of the relationship problems you mentioned earlier (e.g., alcohol use) caused you to forget to take your medicine and what happened?" Partners were asked similar questions, but with regard to their partner's experiences with ART (e.g., how they influenced and/or supported their partner).

Data Analysis

All interviews were audio recorded, translated into English, transcribed word-for-word, and imported into the Dedoose software package for analysis. Two researchers (AC, AL) independently coded the data using open coding (identifying emergent themes) and axial coding (relating those themes to one another) [30]. First, the transcripts were examined line-by-line and assigned a priori codes to segments of text based on the interview guide and research questions. Existing codes were continuously modified or deleted, and new codes were added until all transcripts were coded. A third researcher with expertise in the area of substance abuse (SM) assisted with the analysis of all open codes related to alcohol use. Axial codes were then applied to specify the relationship between codes and to group codes into larger categories and sub-categories. Finally, data matrices containing codes were created to visually examine themes within and across categories. The researchers met to discuss and agree upon the predominant patterns emerging from the analysis on alcohol use and adherence.

Results

The mean age of study participants was 35.5 years (range 22–51) and 56% were unemployed. Couples were mostly unmarried (75%) and not living together (64%), and had been together for 6.6 years (range 1.1–26.4). The majority were seroconcordant HIV-positive (92%) and both on ART (63%). In the results that follow, we first describe the alcohol interactive toxicity beliefs held by participants and then describe the patterns of partner influence on alcohol and ART use based on these beliefs.

Alcohol Interactive Toxicity Beliefs

Although both patients and partners acknowledged that drinking could cause them to unintentionally miss pills, eight participants (16.7%) expressed beliefs that alcohol and ART should not be mixed. Participants who held these beliefs had a mean age of 41 years (range 35–50), were split evenly by gender, and been taking ART for various lengths of time without any clear pattern (range 0 months to 12 years). Most of these participants provided vague explanations for the perceived problematic relationship between ART and alcohol. For example, according to one 39-year-old man who had been on ART for over a year, "You can't mix it [tablets] with alcohol. Alcohol is no good. If you mix it with tablet there would be a problem."

Other participants worried that mixing ART and alcohol would have specific health consequences such as disease and even death. One 40-year-old man who had been taking ART for more than a year based his concerns on others' health problems, saying, "I have seen so many people take them [pills] but they also mix them with alcohol. Most of them who were doing that have died, which means they are dangerous once you stop taking them [pills] or mix them with alcohol."

Still, others believed that mixing the medications with alcohol would simply render the drugs ineffective. For example, a 27-year-old woman whose partner had been on ART for less than six months discussed her concerns about his drinking: "He knows that he shouldn't (drink) as he is taking tablets every day…because if he has drunk on Friday, tablets will not help him because he is drunk."

Patterns of Partner Influence on Alcohol and ART Use

Consistent with previous studies, several participants cited alcohol interactive toxicity beliefs as factors shaping their own ART adherence. However, we also found that participants holding these beliefs attempted to affect partner behaviors around mixing ART and alcohol. Among the individuals who believed alcohol and ART were incompatible, two patterns of influence emerged: some partners discouraged their partner from mixing ART and alcohol, while others tried to help partners manage both drinking and medications. For individuals who did not appear to believe that alcohol and ART were incompatiable, a third pattern of influence emerged: advising partners to take ART no matter what.

Discouraging Partners from Mixing ART and Alcohol

Some participants focused on preventing partners from drinking altogether, or at a minimum, encouraged them to reduce alcohol intake. Others, however, recognizing that a partner was likely to drink, opted to discourage them from taking their pills while drinking.

A 45-year-old woman who was not taking ART explained that she plans to discourage her partner from drinking when and if he starts treatment. "I could manage to stop him (from drinking) because when he goes for payouts I go with him…Then I would say, let's get in a taxi and go home, and buy some cool drinks or 100% juices," she said. Another 44-year-old woman who, along with her husband, had been on ART for less than a year, discusses how she discouraged him from drinking when he started taking ART:

> Interviewer: So if you talk about the issue of friends, didn't you end up shouting to each other? Respondent: No, it has never happened, because we [are] use to talk[ing]. Even if I say, [you] take some tablets,

> you shouldn't drink beers…You shouldn't use drugs as you take tablets. Interviewer: What does he say? Respondent: He just agrees.

On the other hand, a 36-year-old man discussed how he and his partner kept one another from mixing alcohol or drugs with ART—which meant taking ART at a time other than at the scheduled dosage:

> If she is drunk I don't want her to take it because I even asked this sister [referring to partner] that, am I wrong if I don't allow her to take her pill when she is drunk but take it in the morning. She said if she had taken the morning one, she does not have to take the one for eight in the evening. Ja, I would not allow her to take it… Because she does not allow me to take mine when I have smoked dagga (marijuana), she usually tells me not to take it because it will not do anything in my blood.

Helping Partners Manage Alcohol and ART Use

A few participants, despite holding alcohol interactive toxicity beliefs, still acknowledged the importance of regular adherence to ART. Though these individuals discouraged drinking and encouraged their partners not to mix ART and alcohol, they also tried to help partners manage alcohol in a way that they believed would minimize any negative interactions. For example, a 27-year-old woman discouraged her partner from taking his medications when intoxicated. Believing that the alcohol rendered ART ineffective, she urged him to take the pills much later than when he was supposed to rather than risking a drug interaction. She said: "I was trying to help him if I say he must stop taking it because it can't do anything in body when he has drunk [alcohol]…Just leave it like that, you can take it the following day." As an alternative option, she recommended that he could adjust his drinking times:

> I actually ask him politely that it's better if he only gets drunk on Friday, maybe around 21:00–22:00. And just take it at 20:00 and then at 22:00 you go because boys normally go until sunset…And go while you have already taken it…so I have spoken and he said he understands…I hope you [he] really understood because I am talking with a grown person. And I sometimes ask his mother to stop him….Not to go at 20:00 till 21:00, so that he will take his tablet and then go around 21:00…And you just tell someone who is old [an adult, meaning not a child] to take his tablets.

Similarly, a 39-year-old man encouraged his wife to avoid alcohol, but, recognizing that she sometimes might drink, urged her to take her pills first:

> Interviewer: How many times do you think your partner missed taking her tablets just because she went for partying? Respondent: She used to take them before she went for partying on weekends because I told her that this is your life and I am sure that you haven't took them as you are drunk because you can't mix tablets and alcohol. Even to miss one day is not good because wouldn't know what is going on in your body, I told her and she was encouraged when I was telling her.

Encouraging ART Adherence No Matter What

Several participants explicitly and directly acknowledged the importance of taking pills no matter what. These participants did not appear to hold alcohol interactive toxicity beliefs based on information disclosed in the interview. For example, one 42-year-old man had been on ART for less than a year explained that his partner helped him to always take his medication, even when he has been drinking: "I think that she makes sure that I don't make a mistake of not taking pills. It does not matter what condition I am [in] but she knows that I have to take my pills you see."

Recognizing that alcohol often causes individuals to forget to take their pills, some participants reminded their partners or otherwise helped them keep up with their treatment. For example, one 51-year old man reported that his wife helps keep him keep track of when he has forgotten his pills so that he can remember to take the next dosage:

> Interviewer: Has it ever happened in your life that you did not take your medication due to maybe you had a lot to drink and forgot? Respondent: No, maybe twice. Interviewer: Hum, it happened? Respondent: Yes, but not often.

> Interviewer: It does not happen often? Respondent: It does not happen often….It does not go beyond the week, I am careful. Interviewer: Did your partner know that there are times that you did not take your medication? Respondent: Yes, she tells me that I did not take my pills yesterday….She reminds me that I did not take my pills yesterday….I then take my medication in the morning at 7:00.

Discussion

The findings suggest that alcohol interactive toxicity beliefs held by primary partners may play a important role in shaping medication adherence and alcohol use among those on ART. Although our goal was not to determine the

prevalence of alcohol interactive toxicity beliefs and therefore these reports are likely underestimated, we still found that 17% of participants spontaneously expressed views about the interaction between alcohol and ART. The perceived consequences of these interactions ranged in severity from nondescript health effects to death. We found that partners, even those who were not on ART, held alcohol interactive toxicity beliefs and discussed how they influenced their partners' ART or alcohol use according to these beliefs. Research suggests that messages about the mixing of ART and alcohol might be introduced by healthcare workers [16, 31, 32] and thus primary partners might also be exposed to messages by co-attending clinic appointments or through their own clinic experiences as ART patients.

The findings are consistent with studies conducted with individuals demonstrating a negative effect of alcohol interactive toxicity beliefs on ART adherence [12, 13, 33]. This study with couples extends past findings by showing how primary partners hold similar beliefs as ART patients. Many of the partners were patients' designed "treatment buddy" (around 50%)—which is required in order to initiate ART in South Africa. Yet paradoxically, the findings showed that some partners influenced ART adherence in ways that conflict with the intended role of a treatment buddy (i.e., to encourage adherence). At the same time, treatment buddies are encouraged to support an HIV patient's overall health and in doing so, partners may discourage the mixing of alcohol and ART if it is believed to be harmful. Our results also show that some partners helped one another abstain from or reduce alcohol consumption rather than always discouraging ART adherence when drinking. However, those who did not appear to hold alcohol interactive toxicity beliefs consistently supported adherence, regardless of whether drinking was involved. Parallels can be drawn from research on a wide range of HIV-related behaviors including substance abuse. The effects of relationships on partner health are nuanced; some relationships perpetuate unhealthy behaviors whereas others provide protective benefits [34, 35].

There are several limitations of this study. Because this was a couples study, it is possible we recruited higher functioning couples who were more supportive of each other. This could be due to self-selection bias and the exclusion of couples who reported severe violence and non-disclosure of HIV status. Thus, there is a need for other studies to confirm our findings using other samples of couples who may be experiencing higher levels of discord. Furthermore, our sample consisted of couples who had been together for longer periods of time (on average, six years) and thus future studies should confirm our findings in newer couples who are just formulating their relationships. We also would like to highlight that the theme of alcohol toxicity beliefs and its relationship to adherence emerged inductively in our data; we did not systematically ask respondents about their beliefs about mixing alcohol and ART and how this affected adherence nor did we recruit respondents based on alcohol use. We also did not ask participants close-ended questions on their alcohol use and thus we cannot contexualize the findings based on the alcohol consumption patterns of the respondents. Thus, given the exploratory nature of these findings, other studies should further investigate these beliefs in HIV-positive couples on ART with defined levels of alcohol use.

Limitations aside, there are important implications of this study for health interventions. In settings with poor availability of mental health and addiction services such as this context, primary partners may provide the only source of personalized support for substance abuse. This support might be especially needed for those who are unlikely to benefit from generic messages on alcohol and ART due to alcohol dependency, poverty, and other structural barriers. In sub-Saharan Africa, ART counseling messages tend to emphasize alcohol abstinence using a "one size fits all" approach. In a study in northern Tanzania, participants reported that "alcohol use was strictly prohibited for patients on ART" [31], and in rural Uganda, another study found that clinic staff tended to recommend complete abstinence from alcohol without explaining the biological interactions of ART or offering more nuanced solutions [32]. This lack of specific information could lead chronic alcohol users to assume that, if unable to avoid drinking, they should skip their medications altogether. Primary partners could provide individualized support for HIV-positive individuals struggling with alcohol issues—especially if provided with more comprehensive education on alcohol and ART, in addition to training on communication skills.

A harm reduction approach—focused on encouraging behaviors that will optimize health within the confines of structural, personal and interpersonal limitations—may offer the best starting point for those who cannot abstain from alcohol. For example, brief alcohol interventions are one such option that provide a realistic strategy to reduce alcohol consumption based on an individual's current drinking levels, readiness to change, and barriers to reducing alcohol use [36]. While mostly implemented in the US and in other developed countries, a few studies from South Africa have shown brief interventions to be effective at reducing alcohol consumption and HIV risk behavior [37, 38]. These interventions could be expanded to address issues related to adherence and to involve primary partners as peer supporters. Peer-based programs have proven efficacy in promoting healthy behaviors and reducing risk among individuals who abuse drugs and alcohol [39–41]. Thus, future research should evaluate the potential of

patient-provider interventions coupled with the involvement of primary partners as a multi-pronged approach for the co-management of HIV and alcohol disease in couples living with HIV.

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Compliance with Ethical Standards

Conflict of Interest Amy Conroy, Stacey McKenna, Anna Leddy, Mallory Johnson, Thulani Ngubane, Lynae Darbes and Heidi Van Rooyen declares no conflicts of interest.

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent Informed consent was obtained from all individual participants included in the study.

References

1. UNAIDS. Global AIDS Update. Geneva, Switzerland: Joint United Nations Programme on HIV/AIDS 2016.
2. WHO. Guideline on when to start antiretroviral therapy and on pre-exposure prophylaxis for HIV. Geneva: WHO; 2015.
3. Department of Health Republic of South Africa. Implementation of the universal test and treat strategy for HIV positive patient and differentiated care for stable patients. South Africa: Pretoria; 2016.
4. Stevens W, Kaye S, Corrah T. Antiretroviral therapy in Africa. Br Med J. 2004;328:280–2.
5. Simoni JM, Kurth AE, Pearson CR, et al. Self-report measures of antiretroviral therapy adherence: a review with recommendations for HIV research and clinical management. AIDS Behav. 2006;10(3):227–45.
6. Hendershot CS, Stoner SA, Pantalone DW, Simoni JM. Alcohol use and antiretroviral adherence: review and meta-analysis. J Acquir Immune Defic Syndr. 2009;52(2):180–202.
7. Nakimuli-Mpungu E, Bass JK, Alexandre P, et al. Depression, alcohol use and adherence to antiretroviral therapy in Sub-Saharan Africa: a systematic review. AIDS Behav. 2012;16:2101–18.
8. Parry CD, Plüddemann A, Steyn K, et al. Alcohol use in South Africa: findings from the first Demographic and Health Survey (1998). J Stud Alcohol. 2005;66(1):91–7.
9. Rataemane S, Rataemane L. Alcohol in South Africa. Int J Drug Policy. 2006;17(4):373–5.
10. Schneider M, Chersich M, Temmerman M, Degomme O, Parry CD. The impact of alcohol on HIV prevention and treatment for South Africans in primary healthcare. Curationis. 2014;37(1):1–8.
11. Kekwaletswe CT, Morojele NK. Alcohol use, antiretroviral therapy adherence, and preferences regarding an alcohol-focused adherence intervention in patients with human immunodeficiency virus. Patient Prefer Adher. 2014;8:401–13.
12. Fatch R, Emenyonu NI, Muyindike W, et al. Alcohol interactive toxicity beliefs and ART non-adherence among HIV-infected current drinkers in Mbarara, Uganda. AIDS Behav. 2016:1–13.
13. Kalichman SC, Amaral CM, White D, et al. Prevalence and clinical implications of interactive toxicity beliefs regarding mixing alcohol and antiretroviral therapies among people living with HIV/AIDS. AIDS Patient Care STDS. 2009;23(6):449–54.
14. Kalichman SC, Amaral CM, White D, et al. Alcohol and adherence to antiretroviral medications: interactive toxicity beliefs among people living with HIV. J Assoc Nurses AIDS Care. 2012;23(6):511–20.
15. Kenya S, Chida N, Jones J, et al. Weekending in PLWH: alcohol use and ART adherence, a pilot study. AIDS Behav. 2013;17(1):61–7.
16. Sankar A, Wunderlich T, Neufeld S, Luborsky M. Sero-positive African Americans' beliefs about alcohol and their impact on anti-retroviral adherence. AIDS Behav. 2007;11(2):195–203.
17. Hatcher AM, Smout EM, Turan JM, Christofides N, Stocki H. Intimate partner violence and engagement in HIV care and treatment among women: a systematic review and meta-analysis. AIDS. 2015;29(16):2183–94.
18. Johnson MO, Dilworth SE, Taylor JM, et al. Primary relationships, HIV treatment adherence, and virologic control. AIDS Behav. 2012;16(6):1511–21.
19. Nachega JB, Knowlton ARK, Deluca A, et al. Treatment supporter to improve adherence to antiretroviral therapy in HIV-infected South African adults: a qualitative study. J Acquir Immune Defic Syndr. 2006;43:S127–33.
20. Walitzer KS, Dermen KH. Alcohol-focused spouse involvement and behavioral couples therapy: evaluation of enhancements to drinking reduction treatment for male problem drinkers. J Consult Clin Psychol. 2004;72(6):944.
21. Karney BR, Hops H, Redding CA, et al. A framework for incorporating dyads in models of HIV-prevention. AIDS Behav. 2010;14(2):189–203.
22. Lewis MA, McBride CM, Pollak KI, et al. Understanding health behavior change among couples: an interdependence and communal coping approach. Soc Sci Med. 2006;62:1369–80.
23. Shisana O, Rehle T, Simbayi LC, et al. South African national HIV prevalence, incidence, behavior and communicaion survey 2008. Cape Town: HSRC Press; 2009.
24. Kharsany AB, Frohlich JA, Yende-Zuma N, et al. Trends in HIV prevalence in pregnant women in rural South Africa. J Acquir Immune Defic Syndr. 2015;70(3):289–95.
25. Peltzer K, Davids A, Njuho P. Alcohol use and problem drinking in South Africa: findings from a national population-based survey. Afr J Psychiatry. 2011;14(1):30–7.
26. Desmond K, Milburn N, Richter L, et al. Alcohol consumption among HIV-positive pregnant women in KwaZulu-Natal, South Africa: prevalence and correlates. Drug Alcohol Depend. 2012;120(1):113–8.
27. Burns JK. Mental health services funding and development in KwaZulu-Natal: a tale of inequity and neglect. S Afr Med J. 2010;100(10):662–6.
28. Ellsberg M, Heise L, Pena R, Agurto S, Winkvist A. Researching domestic violence against women: methodological and ethical considerations. Stud Fam Plann. 2001;32(1):1–16.
29. Patton MQ. Qualitative research and evaluation methods. 3rd ed. Thousand Oaks: Sage Publications; 2002.
30. Strauss A, Corbin J. Basics of qualitative research: techniques and procedures for developing grounded theory. Thousand Oaks: Sage; 1998.

31. Lyimo RA, de Bruin M, van den Boogaard J, et al. Determinants of antiretroviral therapy adherence in northern Tanzania: a comprehensive picture from the patient perspective. BMC Public Health. 2012;12(1):716.
32. Sundararajan R, Wyatt MA, Woolf-King S, et al. Qualitative study of changes in alcohol use among HIV-infected adults entering care and treatment for HIV/AIDS in rural southwest Uganda. AIDS Behav. 2015;19(4):732–41.
33. Kalichman SC, Grebler T, Amaral CM, et al. Intentional non-adherence to medications among HIV positive alcohol drinkers: prospective study of interactive toxicity beliefs. J Gen Intern Med. 2013;28(3):399–405.
34. Simmons J, Singer M, et al. I love you… and heroin: care and collusion among drug-using couples. Subst Abuse Treat Prev Policy. 2013;1:7.
35. Simmons J, McMahon JM. Barriers to drug treatment for IDU couples: the need for couple-based approaches. J Addict Dis. 2012;31(3):242–57.
36. Samet JH, Rollnick S, Barnes H. Beyond CAGE: a brief clinical approach after detection of substance abuse. Arch Intern Med. 1996;156(20):2287–93.
37. Mertens JR, Ward CL, Bresick GF, Broder T, Weisner CM. Effectiveness of nurse-practitioner-delivered brief motivational intervention for young adult alcohol and drug use in primary care in South Africa: a randomized clinical trial. Alcohol Alcohol. 2014;49(4):430–8.
38. Kalichman SC, Simbayi LC, Vermaak R, et al. Randomized trial of a community-based alcohol-related HIV risk-reduction intervention for men and women in Cape Town South Africa. Ann Behav Med. 2008;36(3):270–9.
39. Greer AM, Luchenski SA, Amlani AA, et al. Peer engagement in harm reduction strategies and services: a critical case study and evaluation framework from British Columbia, Canada. BMC Public Health. 2016;16(1):1.
40. Jozaghi E, Lampkin H, Andresen MA. Peer-engagement and its role in reducing the risky behavior among crack and methamphetamine smokers of the Downtown Eastside community of Vancouver, Canada. Harm Reduct J. 2016;13(1):1.
41. Dickson-Gomez J. Can drug users be effective change agents?? Yes, but much still needs to change. Subst Use Misuse. 2010;45(1–2):154–60.