**Perceptions Matter: Narratives of Contraceptive Implant Robbery in Cape Town, South Africa**

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**Abstract**

Uptake of contraceptive implants has declined in South Africa since their introduction in 2014, with side effects and inadequate health provider training cited as primary contributors underlying a poor community perception of implants. In this paper we explore a theme that emerged unexpectedly during analysis of our research in Cape Town that may be an additional factor in this decline: narratives of women being assaulted by robbers who physically remove the implants for smoking as drugs. Narratives were described consistently across interviews and focus groups with youth (aged 18-24 years) and in interviews with health providers, with six participants (two young people, four health providers) sharing personal experiences of robbery. While there was a range of perspectives on whether narratives are based on real experiences or are myths, there was strong consensus that narratives of implant robbery may be influencing women’s decisions around implant use in Cape Town. This is a potent example of how perceptions of new products can affect uptake and offers important lessons for implementers to reflect on in planning for rollout of other health technologies.

**Keywords:** contraceptive implant, South Africa, uptake, misconceptions, violence

**Introduction**

Contraceptive implants were introduced in the South African public health sector in 2014 after government recommendations to expand the range of long-acting reversible contraceptive (LARC) options available to women (South African Department of Health 2012). Providing options in contraception has been shown to lead to more satisfied use (Birgisson et al. 2015), and the implant is the most highly effective method (Shoupe 2016). Although gains in contraceptive implant uptake have surpassed combined gains in injectable, pills, and intrauterine device use in 11 other sub-Saharan African countries (Jacobstein 2018), implant insertion rates in South Africa have declined since introduction in 2014 across all provinces (Rees et al. 2017; Massyn et al. 2017). Understanding what underlies this decline in South Africa is critical, both to address issues with the currently available contraceptive implant and to pre-empt potential problems with future implants, such as those in preclinical development for HIV prevention (Gunawardana et al. 2015; Schlesinger et al. 2016; Barrett et al. 2018) and as multipurpose prevention technologies (MPT) (RTI International 2017).

There have been a few recent contraceptive implant acceptability studies conducted among women end-users and health care providers in Johannesburg, North West Province, Eastern Cape, and rural Western Cape (Adeagbo et al. 2017; Pillay, Chersich et al. 2017; Mrwebi et al. 2018; Potgieter, Kapp and Coetzee 2018). Consistent with the literature on reasons for implant removal globally (Polis, Hussain and Berry 2018; Darney et al. 2009), these studies reported that a primary driver of implant removals is concern about side effects, especially changes in menstrual bleeding and headaches (Adeagbo et al. 2017; Pillay, Chersich et al. 2017; Mrwebi et al. 2018; Potgieter, Kapp and Coetzee 2018). Rumours and misinformation related to side effects and contraceptive failures were also reported as contributors to poor public perception (Pillay, Chersich et al. 2017; Potgieter, Kapp and Coetzee 2018). In addition, service delivery barriers such as insufficiently trained health care providers (Adeagbo et al. 2017), insufficient counselling (Pillay, Chersich et al. 2017; Potgieter, Kapp and Coetzee 2018), and the misinterpretation of the policy guidelines in 2014 recommending that women receiving efavirenz should not use implants (Department of Health: Republic of South Africa 2014; Morroni, Bekker and Rees 2015; Patel et al. 2017)[[1]](#footnote-1) have been cited as contributors to low uptake and continuation.

The iPrevent study currently ongoing in Cape Town, South Africa is aimed at understanding end-user preferences for long-acting products in development for HIV prevention, including injectables and implants (Montgomery et al. 2019). To date, three qualitative research activities have been completed: (1) in-depth interviews with 50 pre-exposure prophylaxis[[2]](#footnote-2) (PrEP)-experienced young women and men (aged 18-24), (2) six focus group discussions with 47 young women and men (aged 18-24), and (3) in-depth interviews with 15 health care providers with experience inserting contraceptive implants.

This paper is motivated by an unexpected theme that emerged across the data: narratives of contraceptive implants being physically cut out of women’s arms by robbers who allegedly smoke the drugs in implants to become intoxicated. These narratives were shared by several participants across the interviews and focus groups, with six participants sharing narratives of personal experiences (themselves or their clients) of either attempted or successful implant robbery, and others describing the stories as “myths”. Regardless of whether the narratives are based on actual experiences or are myths, there was consensus among participants that perceptions of implant robbery were influencing decisions to initiate or discontinue contraceptive implant use. Implant robbery in Cape Town has been previously been reported on briefly in two media articles (Serra 2016; Campbell 2016). Here we describe these narratives in more detail, explore the potential public health impact of these narratives, and consider implications for current contraceptive implant provision and future implant implementation, including implants for HIV prevention or other single or multipurpose indications.

**Methods**

We report on data from the iPrevent study conducted in Cape Town, South Africa between April 2016 and July 2017 (Montgomery et al. 2019). The issue of implant robbery emerged unexpectedly in several in-depth interviews with young people from the community, prompting us to probe in subsequent focus group discussions and health care provider in-depth interviews on this topic. We asked participants to describe what they had heard in the community about implants but did not directly ask about implant robbery. If participants raised the issue of implant robbery, we probed further if participants knew someone personally (themselves, friend, family, or clients) whose implant had been removed through robbery.

We conducted interviews and focus groups in English and/or isiXhosa, translated, transcribed and qualitatively analysed as previously described (Montgomery et al. 2019; Krogstad et al. 2018; Krogstad et al. 2019). For this analysis, we compiled all transcript excerpts with references to implant robbery by running reports on the transcript text coded as ‘Violence’ and conducting additional text searches for key words ‘rob’, ‘thug’, ‘steal’, ‘skollies’ [Afrikaans for robbers or thieves], ‘smoke’, ‘junkies’, ‘criminals’, or ‘gangster’. We summarised excerpts by interview type and themes identified. The Human Research Ethics Committee at the University of Cape Town approved the study (REF 751/2015) and all participants provided written informed consent prior to participating in the study. We have replaced actual participant names with pseudonyms throughout this manuscript.

**Results**

Overall, narratives of implant robbery were reported consistently across interviews with PrEP-experienced young people, focus groups among young people about HIV prevention implant design, and interviews with contraceptive health care providers in Cape Town. We summarised common descriptions of implant robbery narratives below.

***Personal Narratives of Implant Robbery***

Of those who shared personal narratives about implant robbery, two female focus group participants reported being physically present during an attempted implant robbery, and four health care providers described five cases of their clients personally presenting with cuts on their arm due to reported either attempted or successful implant robbery. Their narratives are summarised below (see Table 1 in Supplemental Material for full participant quotations):

**Rihanna (female youth, focus group discussion): “**My friend had hers [implant] removed whilst she was walking with me”. The robbers first sent a female informant first to palpate her friend’s arm to see if she had the implant. The informant then told the robbers, who came and successfully removed the implant.

**Lira (female youth, focus group discussion):**had personally been a victim of attempted implant robbery herself. When the robber asked if she had the implant because he wanted it for smoking, she pretended not to have it. The robber “pressed me [my arm] trying to feel where it [implant] is located but fortunately I’m [my arm is] fleshy he didn’t feel anything” and was unsuccessful in his attempt to remove it.

**Thandi (female nurse, research clinic, in-depth interview):** remembered seeing a client at the clinic who said that “skollies [Afrikaans for robbers or thieves] from the community” tried to palpate and remove her implant, but she was able to run away before they took it out. The client requested that the nurse remove the implant because of this experience.

**Brian (male doctor, public clinic, in-depth interview):**treated a client at the hospital who presented with “cuts all up her arm” from being “assaulted for Implanon [contraceptive implant]”. This client said two or three men attempted to take it out, but they were interrupted and she was able to run away.

**Grace (female nurse, public clinic, in-depth interview):**saw two women who presented at her clinic with large scars on their arms who reported that gangsters (unknown to the women) felt the implants in their arm and successfully removed the implants. These women then went to “the nearest hospital because […] they needed stiches”.

**Vivian (female nurse, public clinic, in-depth interview):**saw a woman at the clinic with two clean cuts at the ends of the implant; the client requested her implant to be removed by this HCP. The client reported that her “brother who is using drugs – Tik [drug]” attempted to cut out her implant while she was sleeping at home so that he could smoke it but was unsuccessful.

In summary, two focus group participants described robbers initially palpating the arm to locate the implant, with one resulting in a successful removal and another being unable to palpate the implant due to the arm being ‘fleshy’. One health care provider described treating a client at the hospital who presented with ‘cuts all up her arm’ from being ‘assaulted for Implanon [contraceptive implant]’. Two other health care providers described seeing clients who requested their implants be removed because of unsuccessful attempted implant robberies, one by a family member. Another health care provider described two women who presented at her clinic with large cuts on their arms, reporting that gangsters (unknown to the women) had felt the implant in their arms and successfully removed them.

***Description of Implant Robbery Narratives Circulating in the Community***

Here we summarise all descriptions of implant robbery that participants shared in this study, regardless of whether they were based on personal experience. Participants described robberies as occurring in the informal settlement areas in Cape Town of Philippi, Gugulethu, Delft, Khayelitsha, Crossroads, Masiphumelele and Nyanga. Those who took implants were most commonly described as *skollies* [Afrikaans for robbers or thieves], criminals, gangsters, *tsotsies* [isiXhosa for robbers, gang members], or *amapharaphara* [isiXhosa for thieves who smoke the street drug methamphetamine (“Tik”)] who were motivated to steal the implants to smoke to get intoxicated. One young man gave a particularly vivid description of his perception of how robbers smoke the implants:

What they [robbers] do with the implant is that they crush it into powder, powder that they cook. That is crushed into that powder, wrapped into small pieces. When it’s wrapped into small pieces, those small pieces are sold. Small pieces that contain the medicinal drug that is within the implant. So that medicinal drug that is within that implant is the one that gives that, uh -- the drug, that production drug that they produced -- that gives it more of a kick, that makes their addicts go sky high. (Jeffrey, male youth, focus group discussion)

This motive did not seem especially surprising to most health care providers, as several described the community-held perception that drug users seek other types of medication for smoking purposes (e.g. antiretrovirals and tuberculosis treatment). ‘The other big problem I have is where people want to smoke everything. So, if someone gets hold of my fancy-looking pills, they might think this is also something we can smoke’ (Hope, female nurse, research clinic, in-depth interview).

Various accounts were given on how robbers determined if a woman had an implant, including by word of mouth (e.g. a woman’s partner discloses implant use to his friends or robbers in the community), palpation of the implant (robbers feel a woman’s arm to detect if she has an implant under the skin), or visibility of a scar or plaster [bandage] on a woman’s arm after she leaves the clinic. One man added, ‘don’t forget that if the robbers have girlfriends and maybe they also have that thing [implant] so it’s easier for them to see from their girlfriends how it looks’ (Bongani, male youth, focus group discussion). Most participants said that the robbers were usually unknown by the victims, although some said that the robbers might be connected via social networks through the victims’ partners or other family members.

One woman described her perception that implant robbery is a violent experience where robber(s) approach women and cut out the implant with a knife:

The robbers, they cut you like they are cutting an animal. They are killing you. […] They are slaughtering your arm whilst you are watching. And bear in mind, in the arm […] there are veins. Even if you prick yourself with a knife. It’s not nice. Now imagine, they are on target; they’re going to be very fast and they’re going to be like 4 to 5 people on one arm looking for a small implant this long. And after that if you don’t want to give them your arm they are going to beat you. So you experience double pain. Your arm is cut off and you are still beaten up. For your own implant. (Lira, female youth, focus group discussion)

Some also described that the robbers steal other belongings from the victim as a cover-up for stealing the implant: ‘they’ll just come after you, attack you, and just grab a knife cut it out, and they get it with all your belongings. Not just the implant, so that it looks like a robbery’ (Jeffrey, male youth, focus group discussion).

Opinions differed on whether the narratives of implant robbery were still currently circulating in the Cape Town area, with some participants describing the narratives as peaking in prevalence between May and August 2016 but having ‘gone quiet’ recently, and others noting the narratives as still widely circulating at the time of their interview (May 2017).

***Implant Robbery: Myth or Reality?***

Almost all the young people in interviews and focus groupsseemed to believe that implant robbery narratives were based on real events, whereas there was more scepticism among health care providers. One woman from thought that actual victims of implant robbery won’t report their cases because they are ‘afraid to expose the people who do this, […] afraid to be exposed to being a victim to what happened, […] afraid of what people will say’ (Lira, female youth, focus group discussion). When health care providers were asked if they believed the implant robbery narratives were reflective of actual experiences of robbery, they gave a spectrum of answers from full belief to dismissal as rumours. Of the 13 health care providers who shared implant robbery narratives, four (all of whom had personally seen a reported victim of implant robbery) believed these narratives were based on actual cases: ‘So it’s definitely something that did happen and is happening. Even if it’s infrequent’ (Brian, male doctor, public clinic, in-depth interview). Five health care providers felt that the narratives were just myths or hearsay: ‘We’ve phoned the hospital and they haven’t had any cases. Police station, no cases. So… we’re taking it as a rumour’ (Angel, female doctor, research clinic, in-depth interview). Four health care providers were not sure what to believe: ‘but you’ll never find somebody who was robbed, so you don’t know whether it’s true, whether they’re just making it up because they want it to taken out, I don’t know’ (Hope, female nurse, research clinic, in-depth interview).

***Potential Public Health Implications of Implant Robbery Narratives***

While there were mixed views about whether the narratives were true, there was consensus that the narratives were having actual impact on people’s decisions to use contraceptive implants. For example, two PrEP-experienced in-depth interview participants (young women) shared that the implant robbery narratives directly impacted their personal decision to insert or remove a contraceptive implant. Howard (male youth, focus group discussion) said he knew three women who were robbed of their implants and now want nothing to do with implants, and Andile (male youth, focus group discussion) said his sister wanted to get her implant removed because she was afraid of the implant being forcibly removed from her arm in a robbery. Nearly all health care providers interviewed reported that this fear is affecting implant uptake, expressed through clients’ hesitance toward implant insertion, requests for removal, and selection of other methods over implants, as expressed below:

That’s a question I get a lot like, “What happens if someone cuts my arm and takes out the implant? (Angel, female doctor, research clinic, in-depth interview)

And then of course there is this big problem that we face with the belief that criminals are targeting women with implants and stabbing them in the arm and removing them and smoking the implant […] it’s a huge barrier at the moment. (Rose, female doctor, research clinic, in-depth interview)

So a lot of them say, “No, I can’t take it [implant] because I don’t want them [robbers] to cut it out of my arm.” So that is one of the big things [narratives of implant robbery]. (Hope, female nurse, research clinic, in-depth interview)

**Discussion**

Regardless of whether the implant robbery narratives are true, myth, or a hybrid of truth and myth, there was consensus among participants in this study that they are influencing community perceptions of contraceptive implants, at least on a local level in Cape Town. These narratives highlight several areas to reflect on to improve implementation of current implants and future technologies.

First, the narratives highlight the importance of understanding the local context in which a new technology is introduced. In the informal settlements surrounding Cape Town, there are high levels of gang-related violence (Chetty 2015; Kaminer et al. 2013), gender-based violence (Wechsberg et al. 2013; Russell et al. 2014; Mathews et al. 2018), and substance dependency (Herman et al. 2009; Watt et al. 2014). Many people in these communities live under continuous traumatic stress and fear of crime (Eagle 2015; Kaminer et al. 2013), likely influencing health decisions and prioritisation of needs. This context of violence likely contributed to the believability and spread of narratives of implant robbery locally in Cape Town. Of note, an additional eight focus group discussions with young people and 15 in-depth interviews with health care providers were conducted in Soshanguve in a parallel study in Gauteng Province between February and June 2017 using the same interview guides as in this Cape Town study, but no reference to implant robbery came up at this site (Krogstad et al. 2018; Krogstad et al. 2019). These findings suggest that successful integration of novel biomedical technologies into sub-Saharan African settings may fail if local understandings and experiences are not measured and considered in roll-out activities. In this example, local experiences of actual violence as well as the concomitant rumours surrounding this violence and the historically evoked myths that these experiences might evoke may be critical to technology design and implementation.

The introduction of new technologies as health interventions is often associated with the development of myths and rumours (Diamond-Smith, Campbell and Madan 2012; Lees 2015; Juma 2016; Chitukuta et al. 2019), which can have an important influence on uptake and adherence. This is not a new phenomenon: examples exist throughout the history of contraceptive introduction where myths and misinformation have taken firm hold on the overall product narrative, damaging the perception and reputation of important technologies (Pleaner et al. 2017; Wilson 2008; Entwistle, Watt and Johnson 2000; Karlsson and Brenner 2014). Historically, biomedicine in colonial Africa was often associated with coercion and imposed knowledge systems and continues to lead to suspicions and rumours about health interventions today (Prince and Marsland 2013; White 2000a; Hunt 1999; Vaughan 1991). In South Africa specifically, the Apartheid government’s intentions for racially-based population control aligned with their rollout of free contraception in the 1970s may have historically exacerbated mistrust of contraceptive technologies (Klugman 1993; Parle, Hodes and Waetjen 2018). Recognising this, when introducing future new technologies, we need to think ahead both about preparation before rollout to proactively prevent myths (e.g. training health care providers on counselling; community education to pre-emptively address potential myths), but also about monitoring during rollout (e.g. of adverse events; perceptions of product from end-user and community level). In South Africa, the introduction of the contraceptive implant was inadequate both in preparation – lack of health care provider training on how to perform implant removals (Pleaner et al. 2017; Lince-Deroche et al. 2016; Cooper et al. 2016; Adeagbo et al. 2017) – but also on monitoring – with no system in place to identify and respond to community perceptions that could influence attitudes towards a new product.

This example of implant robbery also demonstrates how perceptions of a product matter when it comes to a woman’s decision to start or continue using a product, regardless of whether they are based in rumour or reality. No published literature exists on any psychoactive properties of etonogestrel (the drug in Implanon NXT) and it is unlikely that there is any effect from smoking it. It is also unlikely that a solid polymer-based implant can be crushed into a powder as Jeffrey described. However, as seen in this example, myths may develop that result in actual changes in behaviour. Conversely, there is also potential for the frequency of a rare adverse event or negative outcome to be exaggerated by myths and misinformation (Stadler 2003). For example, Lira’s quote about implant robbery victims being “killed” or “slaughtered” uses exaggeration and dramatic language, which may further intensify the impact of stories on women’s decisions about implants. Intravascular migration of implants has been documented (Rowlands, Mansour and Walling 2017), as well as rare cases of contraceptive failure of the implant (Graesslin and Korver 2008). Even though these events occur rarely, women in several studies across South Africa have reported fear of the implant moving in their body or of getting pregnant while on the contraceptive implant as if they occur commonly (Pillay, Chersich et al. 2017; Krogstad et al. 2018; Krogstad et al. 2019; Parle, Hodes and Waetjen 2018). Regardless of the actual frequency of events, or whether the narratives are viewed as reliable “truths” or as untrue rumours (White 1994; White 2000b), people’s perception of what is happening is what matters most in their decisions. Knowing the potency of perceptions to affect uptake, we need to better prepare before implementing new technology by having systems in place for locally monitoring end-user perceptions at a qualitative, in-depth level (Figure 1).

Insert Figure 1 about here

Besides the local context of violence leading to an increased propensity for women to believe stories about forced implant removal, it is also possible that the implant robbery narratives emerged for a myriad of alternative reasons. Women may have feared future ‘legitimate’ removal of implants by health care providers, had different understandings of how the implant worked in the body, or were uncomfortable with the idea of a foreign object in their arm. Perhaps some women (or members of their household) attempted to remove the implants themselves due to difficulty accessing removal services but did not want to admit this. One study reported women in the Eastern Cape, South Africa removing their own implants as early as 2014 due to resistance they faced from health care providers in public clinics when seeking removal (Parle, Hodes and Waetjen 2018). Another study documented women’s poor overall satisfaction with receiving contraceptive services from the public sector in South Africa, citing inadequate service delivery and judgmental attitudes from health care workers (Cooper et al. 2016). Finally, a qualitative ancillary study described how women in Johannesburg, South Africa misreported their use of a vaginal gel in a clinical trial context, telling their own version of “truth” (Stadler et al. 2016). Although our study documents narratives resulting from products primarily obtained freely within the public health care setting, not within a clinical trial, it is possible that women may be telling another version of “truth” through the implant robbery narratives based on their fears of the health care system or suspicions of medical technologies. Ultimately, the uptake of a new product will likely be influenced by a constellation of factors, such as real or perceived side effects, fear of the removal process, accessibility of removal services, and both present and historical narratives about others’ experiences with similar products.

The perception that implants can be smoked also has implications for implants in development for HIV prevention. Several participants in this study described a current practice of robbers smoking drug concoctions mixed with antiretroviral drugs like efavirenz. These reports are consistent with documented reports of the practice of smoking *whoonga*, a mixture of illicit drugs and antiretroviral drugs that are sometimes stolen from people on treatment (Grelotti et al. 2014; Rough et al. 2014). Both cases may have similarities in their origins related to a history of structural violence (Parker 2001) and in how the stories have been amplified. Given this existing practice, participants expressed concern that users of HIV prevention implants might be even more susceptible to robbery. Fears of robbery impacted the preferences of participants in this study for features of a future HIV prevention implant: they wanted it to be more discreet to robbers (e.g. less palpable, inserted in a hidden location on the body, appear less like white drug powder) (Krogstad et al. 2018). Product developers should consider such community-level factors like violence and existing practices of smoking antiretroviral drugs in the design of new implants so that they are more discreet for use intended contexts. For example, perhaps future implants could be designed to be less visible with the naked eye (reduced visible outline and scarring), less palpable to the untrained person, and placed in less accessible places on the body. Those responsible for messaging and integration of new methods into a health care system should acknowledge the tension between the actual risks of implant robbery and the public health benefits of effective contraceptive and ensure that these are clearly communicated to clients.

***Limitations***

One limitation of this work is that participants were primarily recruited from predominantly isiXhosa-speaking informal settlements in Cape Town, so we are unable to report on how widespread these narratives are in other areas of Cape Town. Additionally, this work emerged from qualitative interviews and focus groups, limiting our ability to comment on a measurable impact of these narratives on implant insertion or discontinuation rates in Western Cape. However, the data support the need for going beyond improved record-keeping of reasons for implant discontinuation and pharmacovigilance, as has already been recommended in other studies on the contraceptive implant in South Africa (Pillay, Morroni et al. 2017; Pleaner et al. 2017). This example highlights the need for better monitoring of how communities respond to new technologies during implementation through gathering information on end-user experiences at a local level and being proactive about confronting myths and misconceptions. Strategies for better monitoring may include working together with community advisory boards (Morin et al. 2003; Chitukuta et al. 2019) and checking in regularly with clinics offering new products to understand local perceptions of products from the time of introduction.

**Conclusions**

Contraceptive implant uptake in Cape Town may be influenced by community myths and experiences of implant-related violence. The reasons for the emergence of these implant robbery narratives are likely to multi-factorial, including the prevalence of gang-related violence in informal settlements of Cape Town, unknown nature of new technology and the related context of myths and rumours, and the potency of community narratives to influence perceptions and adoption of new health technology. These narratives point to the public health importance of monitoring and assessing reasons for implant non-uptake and discontinuation, particularly in the early stages post-introduction of new methods, and to develop appropriate strategies to respond from a policy level and as health care providers. Failure to monitor end-user and community level acceptance of implants may jeopardise the future of contraceptive implant use in South Africa and the use of HIV prevention and MPT implants still in the product development pipeline, which have potential for significant reductions in unplanned pregnancy and HIV among women. Additional studies are needed to understand regional differences in implant acceptability and to further explore barriers to implant uptake and continued use in South Africa.

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**Conflicts of Interest**

None

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**Figure 1. Implications and recommendations**

Narratives have implications for health technology developers, implementers, health care providers and entities responsible for messaging and integration of methods into the healthcare delivery system to consider. They signal the need for

* Increased pharmacovigilance and monitoring of adverse events.
* Planning for strategies to track and address local perceptions, misinformation and myths for new health technology during early and ongoing implementation, especially for the contraceptive implant.
* Testing new policies related to health interventions with communities and providers to ensure that messages are heard as intended and unintended consequences are avoided.
* Providing informed choice to women on family planning options, including accurate messaging about advantages and disadvantages of each option. Health care providers may also consider asking if clients have any concerns about other people (partners, family, community, robbers, outside people) feeling or seeing the implant and how this may influence their choice in method.
* Consideration of community-level factors (e.g. violence, prevalence of smoking antiretroviral drugs, importance of discreet use of a product) during the design phases for new technology.
1. Efavirenz, an antiretroviral drug used for HIV treatment, is a potent inducer of the P450 enzyme, which also metabolises implant progestins (etonogestrel and levonorgestrel). Taking efavirenz while using a contraceptive implant may result in lower systemic progestin concentrations and reduced efficacy of the contraceptive implant. However, even with this reduced efficacy, available clinical data suggests that the implant still remains more effective than available contraceptive injections when used concomitantly with efavirenz (Patel et al. 2017). [↑](#footnote-ref-1)
2. Pre-exposure prophylaxis (PrEP) refers to an oral pill taken once per day for HIV prevention. PrEP-experienced men and women in this study had previously participated in clinical trials and/or demonstration projects of PrEP. [↑](#footnote-ref-2)