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MAKING ALL
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RESEARCH REPORT

A GRAND CHALLENGE
FOR DEVELOPMENT

Feasibility and acceptability of a mobile phone intervention to improve post-rape service delivery in South Africa



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Reference and copyright

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Summary

Mobile health (mHealth) interventions – in which mobile phones are used to advance positive health outcomes – have only recently been applied to addressing broader questions of health governance. This report discusses research on a mobile phone app that was designed to create a coordinated platform through which rape victims could express their views on the quality of services and support offered by police and health-care workers in South Africa, in order to promote greater accountability between service providers and clients.

The study, which assessed the feasibility and acceptability of the proposed app, comprised qualitative and quantitative research with rape victims and caregivers accessing follow-up services at four rape care centres in Tshwane district, Pretoria. Of 140 participants enrolled in the study (108 rape victims and 32 caregivers), 86.4% reported owning a mobile phone. However, the results also revealed that mobile phone theft during sexual assault was common, with 34 out of 63 participants (55%) who did not bring their mobile phones to their first visit to the facility reporting that their phone had been stolen during the assault.

Nonetheless, the findings confirmed the feasibility of the app, which was subsequently developed and piloted. In addition, high levels of interest in using mobile phones to provide feedback on the quality of service delivery (95%) showed the potential value of such an intervention for improved communication between service users and providers.

Key themes in this paper

- How can mHealth interventions be used to improve the accountability of service provision?
- What factors influence the feasibility and acceptability of a mobile app for rape victims?
- What are the barriers more accountable post-rape services in South Africa?

Introduction: an mHealth intervention to improve accountability in post-rape service delivery

In 2009, it was estimated that by 2012, almost 50% of people living in remote areas of the world would have access to a mobile phone (United Nations Foundation and Vodafone Foundation 2009), and that low- and middle-income countries would be driving growth in the mobile phone market (Mechael 2009). Almost five years on from these predictions, the world has seen an unprecedented leap in what is termed 'mobile phone saturation', with a record level of 4.7 billion unique mobile phone users in 2015 (GSMA 2016). In Africa, 46% of the population currently subscribes to a mobile service; this amounts to more than half a billion people. In addition to delivering 6.7% growth in gross domestic product (GDP) across Africa (US\$150 billion in economic value), access to mobile phone technology has been shown to play a role in extending the reach of health-care provision. The use of short message services (SMS), in particular, has been encouraged for its capacity to disseminate health and other information immediately, at little cost (Gurman, Rubin and Roess 2012).

The utilisation of mobile phones to advance positive health outcomes is known as mobile health, or mHealth (Mechael 2009). Over the past decade, numerous recommendations have emerged based on studies using mHealth in their research design. These recommendations have frequently centred on promoting better health outcomes using mobile phones for behaviour change communication (BCC) in developing countries (GSMA Development Fund 2010; McNamara 2007; Mechael and Sloninsky 2007). Findings from these studies advance a number of recommendations to ensure that mHealth interventions are both feasible and applicable to their target audience. While research into advancing mHealth has flourished, these studies have predominantly focused on using technology to support under-resourced health systems and

health-care providers (Chowdhury and Jahan 2014). It is only recently that studies have turned to using mobile phone technologies to examine and address the structural dimensions of under-resourced systems, thus linking research on mHealth with questions around broader health governance (Mechael, Batavia, Kaonga, Searle, Kwan, Goldberger, Fu and Ossman 2010).

In this report, we explore an mHealth intervention that was developed in order to strengthen accountability between service providers and clients in South Africa, focusing on health and police services that are – or should be – provided to women who have experienced sexual violence. To date, several mHealth initiatives in South Africa have been shown to improve the quality of service provision (Peter, Barron and Pillay 2016), including the retention and retraining of essential service providers such as community health-care workers (Källander, Tibenderana, Akpogheneta, Strachan, Hill, ten Asbroek, Conteh, Kirkwood and Meek 2013). These initiatives also track the use of technology-based systems such as mobile phones to collect data (Tomlinson, Solomon, Singh, Doherty, Chopra, Ijumba, Tsai and Jackson 2009) and promote engagement between service users and providers, as well as to capture feedback on the quality of care (Aranda-Jan, Mohutsiwa-Dibe and Loukanova 2014). The studies find that feedback on quality of care is important to improve services and to enhance government accountability (Leon, Schneider and Daviaud 2012).

Therefore, to enhance accountability of organisations providing services for rape victims, there is a need for a coordinated platform to ensure that rape victims have their voices heard in terms of the services and support received and needed, and that providers of rape care support services can be held accountable.

It is only recently that studies have turned to using mobile phone technologies to examine and address the structural dimensions of under-resourced systems, thus linking research on mHealth with questions around broader health governance.

This report presents findings of a feasibility study of a mobile phone client experience app through which rape victims can confidentially rate the quality of post-rape services. The mHealth intervention was designed and researched on the premise that there is a need for rape victims to have access to a platform through which their voices and experiences can be heard. In developing this mHealth intervention, we focused specifically on creating a coordinated platform through which rape victims could express their views on the quality of services and support offered by police and health-care workers in order to promote greater accountability between service providers and clients.

The study presents findings on mobile phone access, ownership and use among rape victims accessing post-rape services at one Thuthuzela care centre and three rape crisis centres. These findings are analysed to assess feasibility and acceptability of the mHealth platform and to inform the future development of the mobile phone client experience app. We define feasibility as the extent to which the client experience app can be easily used by the target audience (rape victims) and we define acceptability as the extent to which the target audience is willing to use the proposed innovation. The findings presented below outline: (1) users' initial response to the mobile phone app; (2) users' expectations and preferences regarding content, design and structure; and (3) lessons learned from the development and pilot of the mobile phone app.

A note on terminology

The authors acknowledge that there is significant debate about the use of the term 'rape *victim*' as opposed to 'rape *survivor*'. Many of the referenced articles and policy documents still use the terms interchangeably. This report uses the term 'rape *victim*' rather than 'rape *survivor*' for the following reasons. Firstly, this research focuses on the experiences of participants at their first engagement with governmental post-rape service providers, often within days or hours of being raped. At that point in their individual journeys, the participants did not appear to have received adequate support and / or had enough time to feel empowered to self-classify as a survivor. Secondly, this research was undertaken primarily to explore the quality and sensitivities of service providers in providing services to individuals who had been raped. Use of the word 'victim' draws attention to the harm and violence done to the individual and the service provider's responsibility to mitigate further harm and victimisation (Maier 2014). That being stated, this research is dedicated to the brave and proud women who participated in it and used their voice in a collective effort to help improve quality and accountability of future post-rape service delivery and thereby better facilitate other victims' journeys to becoming survivors.

Background

Global figures suggest that one in three women (35%) have experienced sexual violence at least once in their life (World Health Organization, London School of Hygiene & Tropical Medicine and South African Medical Research Council 2013). While rates vary across regions, with multiple factors accounting for this variance (Ibid.), South Africa has consistently reported some of the highest rates of sexual violence over the past decade (Jewkes, Sikweyiya, Morrell and Dunkle 2011). In 2015 / 2016, a total of 51,895 cases of rape were reported to the South African Police Service (SAPS), equivalent to 143 cases per day (SAPS 2016). But reported cases are not a reliable measure of the incidence of sexual offences, as many cases of rape go unreported. This has led some to suggest that at least one in three women in South Africa has been raped in her lifetime (Moffett 2009).

Barriers to reporting rape

Several barriers curtail the ability of rape victims to report rape. These include: fear of retaliation by the perpetrator; fear of secondary trauma sometimes suffered by victims at the hands of the SAPS and health services; fear of not being believed and of being blamed; fear of stigmatisation; lack of empowerment; and lack of faith in the criminal justice system such that reporting would not lead to arrest of the perpetrator (Naidoo 2013). These barriers are largely enforced (and reinforced) by the existing stigma, myths and stereotypes associated with rape, which many people subscribe to, in South Africa and beyond. Most rape myths lay the blame or responsibility at the door of the victim, by suggesting that her behaviour somehow led the rapist to rape her. This can lead to further under-reporting, as rape victims suffer feelings of guilt, or fear of facing the blame of their community or family (Rape Crisis 2016).

Rape has immediate and long-term physical, mental, emotional and psychological health implications for victims. Rape also increases vulnerability to HIV and, in the long term, impacts on the quality and duration of life (Watson 2015). Against this background, provision of high-quality post-rape support services is crucial to help victims and their families cope with the aftermath of sexual violence.

As a response to rape in South Africa, a range of services are available to support victims. These may be based at police stations, health facilities, courts or the premises of non-governmental organisations (NGOs), and aim to address survivors' health, social support and justice needs (Hobbs 2015). Post-rape service provision falls under the oversight of the Department of Health, the National Prosecuting Authority (NPA) and SAPS. The South African government has also established specialised 'one-stop shop' services known as Thuthuzela care centres to support victims of rape.

Gaps in post-rape service provision

There are, however, substantial gaps in services for rape victims and significant variations in practice, which mean that all victims of rape do not receive the same range and quality of care (Ibid.). This uneven provision of services has multiple ramifications that undermine the short- and long-term care received by rape victims. The absence of feedback mechanisms, through which rape victims are able to hold the government accountable for the absence of services or for poor service provision, informed the rationale for this study. As Christofides and colleagues argue, the availability of adequate trained staff and equipment for examination has a significant role to play in the provision of quality services for rape victims (Christofides, Jewkes, Webster, Penn-Kekana, Abrahams and Martin 2005).

The uneven provision of quality post-rape care services in South Africa is evident from a recent capacity assessment of mental-health services for rape victims in acute health-care settings in Western Cape province (Gevers and Abrahams 2014). The study reports significant differences in the provision of services in urban and rural Cape Town. For example, in urban Cape Town, post-rape services were centred on a 'one-stop shop' specialist service centre and comprised multidisciplinary staff employed by various government departments. By contrast, in rural Cape Town, post-rape service provision relied on general health and police services, and there was no organisation or person leading a coordinated post-rape response. Thus, in contrast to services

available in urban settings, the study shows that it is more difficult to access comprehensive post-rape services in rural areas. For example, with inadequate transport, victims need to travel long distances to service centres, endure long waiting periods, and overcome several structural barriers to obtain initial and follow-up care. Service providers in rural areas are rarely post-rape care specialists and often lack confidence in their skills to provide post-rape care. Thus, the quality of services in rural areas is dependent on service providers or volunteers on duty at the time as well as existing partnerships between different sectors. These findings highlight the need for a standardised provision of quality services for rape victims if the country is to improve the health outcomes of all rape victims (Ibid.).

Additional weaknesses in health-service provision for those who have been raped have been documented in numerous studies. These include: the belief by medical staff that, in the absence of serious physical injury, rape was not considered to be a serious condition (Christofides, Muirhead, Jewkes, Penn-Kekana and Conco 2006); lengthy waits for medical examination; delays in the provision of medical treatment, such as HIV post-exposure prophylaxis (PEP) (Vetten and Haffejee 2005; Christofides, Webster, Jewkes, Penn-Kekana, Martin, Abrahams and Kim 2003); lack of privacy and confidentiality during the medico-legal examination (Vetten and Haffejee 2005; Christofides et al. 2006; Human Rights Watch 1997); and inadequate training of health workers around the examination and treatment of rape victims (Vetten and Haffejee 2005; Christofides et al. 2003).

In addition to uneven health-service provision, there are further gaps in people's knowledge of their rights with regards to police and legal services following rape. Dey, Thorpe, Tilley and Williams (2011) reported a lack of knowledge among rape victims regarding the progress of their individual cases through the system, from health services to police and the courts. This is supported by Watson (2015), who argues that most victims lack adequate access to information from the time of reporting a sexual offence to the time that the matter is heard in court and further inadequate access to case-specific information.

The lack of coordination between the different service providers (SAPS, the Department of Health and the Department of Justice and Constitutional Development) exacerbates ineffective service delivery and the consequent frustration experienced by

victims. This highlights the absence of a standardised tracking and reporting system for rape victims, which suggests the need for an improved case management system that would allow case managers to manage individual cases in order to better oversee a victim's journey through the justice system. Such a system would also allow case managers to send updates on case progress to individual clients. Dey et al. (2011) also argue that, in general, citizens lack knowledge regarding the criminal justice system that would make it possible for them to access their rights to services and fulfil the role expected of them in order to ensure convictions. Furthermore, there is no adequate psychosocial support for victims within the system, which results in rape victims being inadequately prepared for trials, seriously impeding the chances of a successful conviction. This increases the probability that cases may be dropped (Dey et al. 2011).

Contact with service providers after experiencing rape

Police are often the first point of contact within the criminal justice system for victims of a sexual offence. Watson (2015) argues that the experience of this interaction with police will set the tone for the rest of the engagement with the system. Often, a victim of a sexual offence may be incoherent and unable to remember specifics relating to the offence as a direct result of trauma. The police have a critical role to play in keeping the victim contained, which impacts on the ability to put together a good statement.

According to Watson (2015), a number of problems with how police deal with cases of sexual offences have been reported in several studies. She argues that police are generally accustomed to working in contexts that are innately violent and they have a set of ideas on what constitutes violence or force. Being accustomed to violent crime, they are often desensitised when dealing with more subtle forms of violence. The police have been known to be aggressive and intimidating; Bourke (2007) also highlights that many police hold inherently violent attitudes towards sexuality and are deeply mistrustful and unsympathetic towards victims of sexual offences. If the victim is incoherent, inconsistent or fits any of the rape myths, then the police are often unwilling to take the case further. Showering before reporting a rape, delays in reporting rape or not appearing totally coherent are some of the known factors that contribute towards the police encouraging victims to withdraw charges (Ibid.).

Use of mobile phone technology can play a significant role in creating awareness of the identified gaps in service provision for rape victims, improving delivery of services, and enhancing responsiveness and accountability of service providers.

The potential role of mHealth in improving post-rape service provision

Thus, against this background, use of mobile phone technology can play a significant role in creating awareness of the identified gaps in service provision for rape victims, improving delivery of services, and enhancing responsiveness and accountability of service providers. Access to mobile phone technology has increased rapidly in low- and middle-income countries (Aranda-Jan et al. 2014). In South Africa, ownership of mobile phones is relatively high, at 90% (Pew Research Center 2015). Boff (2015) states that technology is revolutionising behaviour and changing the way in which people expect to be able to interact with the services they rely on. As such, technology-based systems such as mobile phone apps are becoming essential methods to provide support services and to improve quality of care. Boff (2015) further argues that as technology continues to change the manner in which individuals interact with services, mobile phone technology offers a valuable opportunity to assist victims of rape to come forward and report their experiences. Furthermore, with technological innovations such as these, citizens and governments can interact more directly with each other on the delivery of government services, thus increasing citizen engagement and fostering greater government transparency and accountability. Reporting highly traumatic experiences such as rape might also be more possible through technologies such as mobile phones, which most people are already using on an everyday basis. In addition to their broad accessibility in places like South Africa, mobile phones also offer a more discreet route for reporting rape than existing avenues such as face-to-face interaction with potentially hostile or untrained police (Ibid.).

The use of mobile phone technology to improve the quality of care and promote accountable

services has recently been examined in South Africa, and elsewhere in Asia, Africa and North America. In South Africa, mHealth initiatives such as MomConnect build on a growing body of work around using mobile phones to support improvements in maternal and child health care (Peter et al. 2016). MomConnect takes advantage of the extremely high rate of mobile phone ownership and use in South Africa. Using an Unstructured Supplementary Service Data (USSD) platform, it allows people to give feedback on the quality of care received and generates useful information to inform and strengthen the quality of health services (Ibid.).

Elsewhere, technology-based programmes such as Aponjon in Bangladesh, Wazazi Nipendeni in Tanzania, Chipatala Cha Pa Foni in Malawi and Text4Baby in the USA have used mobile phone apps to provide regular SMS and / or voice-based messages to pregnant women and new mothers to support the adoption of healthy behaviour and increase uptake of health services (Peter et al. 2016). Impact evaluations of mHealth technologies in Malawi and Bangladesh have demonstrated statistically significant improvements in the adoption of health-enhancing behaviour such as early breastfeeding and antenatal-care attendance (Watkins, Robinson and Dalious 2013; Chowdhury and Jahan 2014). However, Aranda-Jan et al. (2014) assert that although mHealth projects demonstrate positive health-related outcomes, their success is based on the acceptability, acceptance and low-cost nature of the technology, as well as effective adaptation to local contexts, strong stakeholder collaboration and government involvement.

Given that mobile phone technology has been used in several countries to address a wide range of health issues, the high levels of mobile phone access and ownership and high acceptability of mHealth initiatives such as MomConnect in South Africa further suggest that mobile phone

technology is likely feasible and acceptable to provide feedback on service quality among rape victims.

The feasibility and acceptability of mobile phone technology has been assessed in several studies in various countries. It has been found to be highly acceptable for communication of laboratory results among HIV-positive patients in rural Uganda (Siedner, Haberer, Bwana, Ware and Bangsberg 2012). In a study by Otieno, Githinji, Jones, Snow, Talisuna and Zurovac (2014), the feasibility of text-messaging to improve malaria treatment adherence and post-treatment review was ultimately

determined by mobile network coverage, access to and ownership of mobile phones, use of text-messaging, and minimum literacy levels required for successful intervention delivery. Furthermore, the high willingness of caregivers to receive text-message reminders highlighted that a mobile phone technology intervention was acceptable to the population in the study (Ibid.). Receptiveness to the use of mobile phone reminders has also been found throughout sub-Saharan Africa, further indicating the wide potential of mobile phone technology as an acceptable health intervention method (Crankshaw, Corless, Giddy, Nicholas, Eichbaum and Butler 2010).

Methodology

Study design. We conducted a cross-sectional study with rape victims and their caregivers using a user-centred design process to determine the feasibility and acceptability of a mobile phone app to capture rape victims' client experience of post-rape care support services. The user-centred design is an interactive process that puts the end-user at the centre of focus and through which their needs, wants and limitations in relation to the product, service or process are taken into consideration at each stage (Lowdermilk 2013). Through an interactive process with rape victims, the study intended to understand the current mobile phone profile and practices for rape victims accessing post-rape care support services at Thuthuzela care centres and rape crisis centres to inform development of an m-governance rating app. The study sites comprised four rape care centres that offered post-rape care support services for rape victims in Tshwane district in Pretoria, Gauteng province. Selection of the study sites was based on approval from the NPA and Department of Health.

Sample selection. We recruited a convenience sample of rape victims and caregivers who were 18 years of age and older and currently attending follow-up appointments for post-rape services in the district of Tshwane. Caregivers were recruited into the study only if they came with a victim under the age of 18 and were able to converse in English. Eligible rape victims and caregivers were recruited by trained data collectors immediately after their follow-up appointments at the study sites. Participants for focus group discussions were

recruited after completing a paper-based mobile phone survey. Participants were asked if they would like to participate in a focus group discussion at a later stage. Exclusively female rape victims who were 18 years of age and older were recruited and eligible to participate in these focus group discussions. We do recognise that rape is experienced by people of all genders but for the purpose of the study (and given its scope, funding and size), it was important for focus group discussions to exclusively comprise female victims.

A total of 140 survey participants were enrolled in the study, of whom 108 (77%) were rape victims and 32 (23%) were caregivers. The participant characteristics are described in Table 1. Almost all (139) were females and 1 was male. The median age of rape victims and caregivers was 28.6 years (range 18–72). Rape victims tended to be younger (median age 26.3 years) than caregivers (median age 36.7 years). Most of the rape victims (71 / 108) were within the 18–29 years age group. All (100%) participants were able to speak, read and write English. Greater variability was observed with respect to language preferences. Of the 140 participants, English was the most preferred language for communication for 51.4% of respondents, Setswana for 17.1%, Northern Sotho for 10.7%, Zulu for 6.4%, Sotho for 4.3%, Tsonga for 2.9%, Afrikaans for 1.4% and Ndebele for 1.4%. The variability in language preferences suggests that the proposed mobile phone app should provide an option of language selection, including all official languages in the country.

Table 1 Characteristics of rape victims and caregivers accessing post-rape care services at four study sites, Pretoria, Tshwane district (n=140)

	N (%)
Characteristics of survey respondents	
Male	1 (0.7)
Female	139 (99.3)
Median age	28.6 (Interquartile Range)
Rape victim	108 (77.1)
Caregiver	32 (22.9)
Age groups, rape victims (years)	
Median age	26.3
<18	14 (13.0)
18–29	71 (65.7)
30–49	19 (16.8)
50–69	2 (1.9)
>70	0 (0)
Age groups, caregivers (years)	
Median age	36.7
<18	0 (0.0)
18–29	10 (32.3)
30–49	18 (58.1)
50–69	4 (12.9)
>70	0 (0.0)
Language, all respondents	
Speak, read and write English	140 (100.0)
Preferred language of communication, all respondents	
English	72 (51.4)
English or other African language	6 (4.3)
Setswana	24 (17.1)
Northern Sotho	15 (10.7)
Zulu	9 (6.4)
Sotho	6 (4.3)
Tsonga	4 (2.9)
Afrikaans	2 (1.4)
Ndebele	2 (1.4)

Data collection. Data were collected between July and October 2015 using surveys and focus group discussions. A paper-based mobile phone survey was used to collect information on current mobile phone profiles and usage among rape victims and caregivers. At each study site, surveys were administered by trained data collectors experienced in conducting quantitative surveys. During the surveys, rape victims and their caregivers (if the victim was under age) were asked about their demographics, English language proficiency, language preferences for communication, access to a mobile phone, current use and ownership of a mobile phone, willingness to receive text-message reminders on case progress and follow-up appointments, and willingness to participate in confidential surveys on the quality of rape care support services. Finally, the brand and model of the mobile phone was recorded for all respondents who brought the mobile phone to the centre on the day of the survey.

Three focus group discussions were conducted exclusively at two study sites due to greater interest among rape victims recruited at these centres after the mobile phone surveys. However, the number of participants in each discussion differed. The first, conducted at the Thuthuzela care centre site, comprised five participants. At the rape crisis centre site, the first focus group discussion comprised seven participants and the second had nine participants. During these discussions, an open-ended topic guide was used for rape victims to assess initial response to the proposed mobile phone app in terms of its potential acceptability and feasibility, to explore recommendations of ways to maximise the potential acceptability and feasibility, and expectations and preferences regarding content, design and structure. The focus group discussions were conducted by an independent sexual and gender-based violence specialist contracted from Sonke Gender Justice, a leading advocacy and victim-empowerment organisation in South Africa. The focus group discussions were recorded with the permission of participants. Participation in the surveys and focus group discussions was voluntary, and researchers obtained written and informed consent and assent from all participants. Data collected as part of the study were not linked to individual or person identifiers.

Data analysis. Survey data were captured into EpiData and then exported to Stata for analysis. Descriptive statistics, including frequencies, median,

mean and percentages, were calculated and used to analyse the survey data. Focus group discussions were translated and transcribed verbatim into English. Data analysis of the narratives was conducted using a thematic analysis approach. We conducted a manual preliminary analysis of the narrative data that aimed to assemble responses according to the preset themes in the focus group discussion topic guide, which were then refined according to emerging themes. The final step of the analysis was to highlight relevant quotes to illustrate major findings.

Ethical approval. This study was granted ethical approval by the ethics committees of the Foundation for Professional Development (FPD) and the Tshwane District Department of Health. In addition, the Department of Health and the NPA also granted permission to conduct this research in the study sites.

Stakeholder engagement. Meetings to disseminate preliminary research findings were held at Tshwane District Department of Health offices with the Clinical Medico-Legal Unit (March 10, 2016), Tshwane Rape Crisis Centre (March 15, 2016), Soshanguve Rape Crisis Centre (March 17, 2016), National Prosecuting Authority (March 30, 2016), Mamelodi Thuthuzela Care Centre (April 4, 2016) and Jubilee Rape Crisis Centre (April 5, 2016). Results were shared with civil society organisations involved in the growing Services for Survivors of Sexual Assault in South Africa (ISSSASA) project, the FPD, Sonke Gender Justice, the Medical Research Council and Soul City on April 5, 2016. The FPD reconvened participants from the three focus groups at Jubilee Rape Crisis Centre on July 2, 2016 to give feedback on the analysis of the results and the progress of the pilot project the research had helped to form. It also updated participants on how the research and pilot were shaping discussions with the NPA and Department of Health. On July 27 and 28, 2016, the FPD engaged with the four pilot sites to feed back the findings of the pilot. On August 10, 2016, it presented both the research findings and pilot results to the broader Tshwane District Health Management Team, aiming to highlight the recommendations and implications for this group. The district executive manager has committed to assist the FPD to feed back results to the SAPS, a stakeholder with which we have not yet had an audience. A request has been sent to present findings to the NPA, but no date has yet been confirmed. Findings from the research were

also disseminated in the form of two oral presentations at South Africa's first Violence Conference on August 17, 2016. Both oral presentations were well received by the audience of around 50 people.

Limitations of the study. This study has a number of limitations. There was bias in the selection of study participants, as only those who were able to read English were recruited. Thus, clients who could not read English were not able to participate, suggesting that their voices could not be heard regarding the feasibility and acceptability of the proposed mobile phone app to capture their experiences as clients of post-rape care services. The content of the client experience app is

presented in English only. While most people who can read English might find the content very easy to understand, anyone unable to read English or with limited literacy might find it difficult and might prefer the content to be in their own language. As highlighted previously, we found variability in language preferences and would strongly recommend translation of the app content into all official local languages.

In addition, mobile phone ownership and usage was based on self-report; with a large number of clients not presenting with their mobile phones on the day of the survey, this might suggest over-representation of mobile phone access and ownership among study participants.

Results: what shapes feasibility and acceptability?

Data from surveys with rape victims and their caregivers offered insights into current mobile phone profiles, preferences and use among rape victims; these insights are explored in more detail below. The focus group discussions provided in-depth data on the initial acceptability and feasibility of a mobile phone rating app. Together, as discussed below, the quantitative and qualitative data from the surveys and focus group discussions assisted in the development of an effective mobile phone rating app on a USSD platform for rape victims to rate the quality of post-rape care support services.

Of the 140 participants, 136 (97.1%) reported previous ownership of a mobile phone and more than three quarters (121, or 86.4%) reported current mobile phone ownership. Furthermore, three quarters (105, or 75.0%) had a mobile phone with access to the Internet. Sharing a mobile phone was less common, with only 33 (23.6%) respondents reporting sharing their mobile phone with another person. Mobile phones were brought to the facility by 77 (55%) of the participants. A total of 63 (45%) reported not having a mobile phone at the first visit, with the most commonly cited reason being that it was "stolen during sexual assault" (34 of the 63; 54.8%). Of those who reported theft of their mobile phone

during sexual assault, 15 (44.1%) reported replacing the mobile phone in less than one week. Although a significant proportion of rape victims did not bring a mobile phone during the initial visit, very high mobile phone coverage and, indeed, significantly higher access and personal ownership was observed in this study. This further highlights the potential feasibility of the proposed mobile phone app.

All participants in the study reported using their mobile phones to make and receive calls; and a majority (87%) also reported using a mobile phone to receive and send text messages. Use of a USSD service on a mobile phone was also widespread among study participants (95%). This finding overcomes the potential barrier to the use of the USSD mobile phone client experience app and also suggests that orientation on the app would rarely be required. Despite high access to Internet-capable phones (75%), only 39% of participants reported routinely using Internet on their mobile phone; costs were a concern. High levels of comfort using social media (72%) were also observed among the study participants.

Participants in the study expressed interest in the proposed mobile phone app innovation and

Most participants valued the confidentiality of the client experience app to provide feedback. This further facilitates easy provision of honest feedback on quality of care without any fear or intimidation from the service providers.

in participating in the client experience survey. Of the 140 survey participants, 134 (96.0%) reported that they would like to participate in confidential surveys about the quality of post-rape care services received. Furthermore, participants reported keen interest in other areas: most (135, or 96.4%) reported that they would like to receive text-message reminders with information updating them about their case; 136 (97.1%) reported that they would like to receive reminders, updates and other messages from the centres; and 133 (95.0%) reported that they would like to be connected to someone at the rape crisis centre or Thuthuzela care centre for questions and support.

The mobile phone app appeared to be acceptable and feasible among the focus group participants as a way of reporting back on client experience of services. Given the context of uneven provision of quality care for rape victims, participants indicated keen interest in the USSD mobile phone app innovation and in participating in the client experience survey if it would make a difference in the delivery of quality of care for rape victims in South Africa. The findings also highlighted the importance of providing feedback through the mobile phone client experience app to identify and address service gaps, create transparency and openness, and improve accountability of service providers to deliver good-quality care services for rape victims.

For most participants in the study, the proposed mobile phone client experience app was thought to be feasible for giving feedback on the quality of services received. Its feasibility is supported by the reported increase in mobile phone technology access, ownership and use, and young people's growing exposure to social media, which requires access to a mobile phone. Furthermore, mobile phones are a technology mostly used on a day-to-day basis, which makes them acceptable for most participants in the study.

"Yah, because now, young people are now exposed to social media and their mobile phones and technology, so it is going to be convenient for all of us, because we are always on our phones, always, 99.9% of the time."

(Focus group participant, rape crisis centre)

Most participants valued the confidentiality of the client experience app to provide feedback. This further facilitates easy provision of honest feedback on quality of care without any fear or intimidation from the service providers, and offers protection for those who want to report complaints on delivery of care services for rape victims at the centres. Furthermore, participants believed that, based on the feedback they provide, the app will be able to highlight gaps and areas for improvement in service delivery for rape victims.

"On the point whereby [we] will be rating Thuthuzela, I think it will help those who are afraid to talk face-to-face when they were treated badly, or in terms of medication. This app will help them to identify where to improve".

(Focus group participant, Thuthuzela care centre)

"It is easy communication and it's confidential, no one will see whatever you going to do there, it will be you and the app. No one next to you is going to give you that eye and know that this is the person that is saying all these things about me."

(Focus group participant, rape crisis centre)

The feasibility of the mobile phone client experience app to enhance accountability of service providers and improve delivery of care for rape victims was strongly emphasised by study participants. Participants reported that feedback provided through the app would likely enhance the responsiveness of service providers to improve service delivery for rape victims. Regular feedback will also serve as a platform to enable service

providers to take accountability for the service they provide. Feedback will further support the need for additional resources.

“... it will help the police in a way, because if [we] give feedback they would organise more trainings, more classes, maybe, for them, and maybe shift them to a position that they are good at ... Maybe it is not his field to be in and he is just doing it for the job.”

(Focus group participant, rape crisis centre)

Receiving case updates and health information through the client experience app emerged as salient themes in our focus group discussions. Participants expressed that they would like to use the proposed app to be able to check on case progress and information on medication, in addition to receiving messages with appointment information and reminders of what was discussed during visits. One participant said she received information on how to take her medication but it was difficult to retain the information, and not being able to remember information on medication might be a challenge for treatment adherence.

“... I am concerned about my case that what is going on, so with the app I will be able to ask what is happening with the case and just to update me when I am supposed to go to court and if the perpetrator is locked up.”

(Focus group participant, rape crisis centre)

“I would like them to send us the next visit dates so that we don't forget. This thing of the medication that they [health-care staff] give you, they can explain to you but that time your mind is not there. So when you get home you are alone and you are trying to drink the medication, so if you are being confused somewhere it will be easy to go back to them on the app and ask questions.”

(Focus group participant, rape crisis centre)

Despite the proposed app being feasible and acceptable among study participants as a means of providing feedback on service quality, several concerns were raised about the proposed innovation, including concerns about its long-term sustainability. Most importantly, participants were concerned as to whether using the client experience app would mean that their voices would make a difference to the delivery of care for rape victims in the country.

“My concern is, you know there are other apps that people just create and it just exists and they don't do follow-ups and they don't take us seriously and stuff like that. So some people just do apps to make money out of it and they don't actually participate whatever. So I want to know if we will be taken seriously and if this whole thing is just going to continue or is just a thing of a short period of time, because it will be sad if maybe it will become a hit only for a week and after that everyone just continues with their lives.”

(Focus group participant, rape crisis centre)

In light of the feasibility and acceptability findings highlighted in the study, we were able to develop the proposed mobile phone client experience app for the pilot. It was developed on a feature-phone-accessible USSD platform and requires no installation on a mobile phone itself due to its dial-in code access. It also leaves no message trail after rating services and requires no data or airtime to use due to front-loading capacity. In terms of the structure and content of the app, it allows clients to feed back on four domains of satisfaction: staff, services, physical environment and rooms, and information and advice. The staff domain allows clients to select a service provider they want to rate: health staff, police or court services. The client experience app was successfully piloted for a four-month period (April – July 2016) at four study sites in the Tshwane district.

Reflections on improved responsiveness of service providers

Initial consultations with study participants (rape victims) about the client experience app during paper-based surveys and focus group discussions were very useful because they provided information on how the app should be developed, identified content for the app, and we were also able to identify what the victim needed from it. The introduction of client experience reporting and feedback to stakeholders is very useful to improve responsiveness in service delivery. Clients accessing post-rape care services at Thuthuzela care centres and rape crisis centres in Tshwane district were very enthusiastic about the roll-out of the app pilot. We learned that it is both feasible and acceptable for clients to use the USSD mobile app to report back on the quality of post-rape care services received. The facility staff, NPA and

Facility staff were receptive to feedback, understanding that its purpose was not to blame staff for poor performance but to help make decisions for continuous quality improvement on service delivery.

Department of Health had positive attitudes about the feedback and were generally very supportive towards the pilot. Facility staff were also very receptive to the feedback report provided to them, understanding that its purpose was not to blame staff for poor performance but to help make decisions for continuous quality improvement on service delivery. The uptake of the USSD mobile phone client experience app during the pilot highlights the importance of developing technology platforms that are easily accessible, not costly to

users, and technologically familiar to them. Studies have shown high acceptability of mobile phone USSD technology to strengthen delivery of quality care services (Peter et al. 2016; Boff 2015). The USSD is a service that is very familiar to most mobile phone users in South Africa, which means it is unlikely to present a barrier to use. It is also very easy to make USSD free to the user. For instance, the client experience app is free to use and the FPD negotiated with the service provider to reverse-bill the USSD service to facilitate this.

Discussion: beyond feasibility and acceptability towards accountability

In a study of 140 participants, we found near universal feasibility and acceptability of the proposed mobile phone client experience app to support improvement in the delivery of post-rape services. Very high mobile phone coverage and significantly high access and personal ownership and use was observed in the study, confirming that the proposed app would be a feasible platform for giving feedback on the quality of post-rape services. Compared to findings reported in this report, a recent study in Kenya (Otieno et al. 2014) reported higher access to and ownership of mobile phones. Greater access to mobile phones was reported as a factor in advancing the feasibility of a text-message-based intervention to improve adherence to malaria treatment and post-treatment review (Ibid.). Similarly, in a formative evaluation conducted in Peru (Calderón, Martin, Volpicelli, Diaz, Gozzer and Buttenheim 2015), the wide availability of mobile phones confirmed the feasibility of this platform for sharing health

information for management of childhood illness. Our own finding of high mobile phone ownership (86.4%) in South Africa is consistent with findings from other parts of the world where mHealth interventions have been tested, including Bangladesh (80%), Peru (82.3%), Uganda (93%), Argentina (93.2%) and the USA (96%) (Calderón et al. 2015; Chang, Njie-Carr, Kalenge, Kelly, Bollinger and Alamo-Talisuna 2014; Khatun, Hanifi, Iqbal, Rasheed, Rahman, Ahmed, Hoque, Sharmin, Zaman Khan, Shaila Mahmood, Peters and Bhuiya 2014; Cormick, Kim, Rodgers, Gibbons, Buekens, Belizán and Althabe 2012; Miller and Himelhock 2013).

Despite these high rates, reported mobile phone ownership in our study was slightly lower than available data on mobile phone ownership in South Africa (89%) (Pew Research Center 2015). Despite high self-reported levels of mobile phone ownership, it was found that nearly half of

The uneven provision of quality services and the absence of coordinated mechanisms to hold providers of care for rape victims to account underscores the importance of the proposed mobile phone app.

participants (45%) did not bring their mobile phone on their first visit to the facility, with the most commonly cited reason being that the phone was stolen during the sexual assault. A study conducted by Otieno et al. (2014) in Kenya highlighted that even when mobile phones are owned, people may not bring the device with them to the facility, and this was also observed in our study. This might present a barrier to providing feedback on service quality for those who present to facilities without a mobile phone.

The characteristics of the study population, the patterns of current mobile phone profiles, usage and preferences, and feasibility and acceptability of mobile phone technology provided important reassurances and challenges to be addressed during the mobile phone app development process. Almost all participants in the study were interested in taking part in confidential surveys about the quality of services via mobile phones, suggesting the acceptability of the proposed intervention.

Similar receptiveness to the use of mobile phones to provide feedback on service quality in order to inform improvements has been found elsewhere in South Africa (Peter et al. 2016). With most participants in our study currently using a USSD on their mobile phones, this further suggested the feasibility of the proposed intervention and that few users would need orientation on the USSD function. In previous studies conducted in Africa, high acceptance, familiarity and use of mobile phones were the main reasons given for highly positive perceptions of mHealth projects (Tomlinson, Rotheram-Borus, Swartz and Tsai 2013; Tomlinson et al. 2009; Siedner et al. 2012; Rajput, Mbugua, Amadi, Chepngeno, Saleem, Anokwa, Hartung, Borriello, Mamlin, Ndege and Were 2012; Calderón et al. 2015). This finding was further observed in our study where ease-of-use, familiarity with and day-to-day access to mobile phone technology facilitated interest in use of the proposed intervention.

Despite all of the participants being able to read English, we found variability in language preference in our study. This is consistent with findings from Otieno et al.'s 2014 study in Kenya. These findings further suggest that mobile phone interventions should be adapted to local context and languages. This has proved to be a success factor for mHealth projects in previous studies (Odigie, Yusufu, Dawotola, Ejagwulu, Abur, Mai, Ukwanya, Garba, Rotibi and Odigie 2012; Zurovac, Talisuna and Snow 2012).

The finding that our study participants expressed strong willingness to receive case-specific and health information reminders via mobile phone suggests there are existing knowledge gaps, highlighted in this report, such as rape victims having limited knowledge of how their case is progressing through the justice system. In Kenya and Uganda, the use of SMS reminders for health information has helped to improve patient care and had a positive effect in case management (Chang, Kagaayi, Arem, Nakigozi, Ssempijja, Serwadda, Quinn, Gray, Bollinger and Reynolds 2011; Barrington, Wereko-Brobby, Ward, Mwafongo and Kungulwe 2010). As highlighted in the 'Background' section of this report, knowledge gaps are exacerbated by the lack of collaboration between organisations that provide services to rape victims. Government provision of post-rape services is very complicated and political. During the study we also found that it was difficult to meet with all key stakeholders who provide support services for rape victims; in particular, there was no platform to engage with the police.

Provision of post-rape services in South Africa falls under the oversight of the Department of Health, the NPA and SAPS. Although they are required to collaborate and provide victim-centred services, the three organisations do not always engage closely with one another. For example, during the study, we undertook ongoing consultations with the NPA and Department of Health, but the two stakeholders

were never in the same room at the same time. Neither were we able to facilitate access to SAPS despite requests for assistance. This suggests a need for greater collaboration among the three service providers to provide quality care and improve outcomes for all rape victims in South Africa. Aranda-Jan et al. (2014) assert that the role and level of government participation is a fundamental aspect for the success of mHealth projects. Furthermore, government involvement may address the sustainability issue raised by study participants regarding the proposed intervention.

The uneven provision of quality services and the absence of coordinated mechanisms to hold providers of care for rape victims to account underscores the importance of the proposed mobile phone app. The app will aid in continuous improvement of services and user experience by supporting rape victims to confidentially rate the quality of services and hold service providers

accountable. The feedback will be used to monitor service providers' performance, with the aim of strengthening quality of care. It was found, from this study, that reporting of client experience will enable service providers to identify where to improve, identify any backlogs, strengthen accountability, and give the best possible service to all rape victims. Success in using mobile-phone-based systems to improve service delivery and accountability of service providers has been observed in South Africa (Peter et al. 2016). The mobile phone app can further play a significant role in empowering people who have been disempowered through sexual assault. With its aim to provide a platform for rape victims to voice their experiences on service quality, this will ensure that services targeting rape victims in South Africa are shaped around the realities of victims, which should improve access to quality care. Engaging rape victims on delivery of care is also very important to increase awareness and knowledge of services.

Conclusion

Despite several limitations of the study, its findings yield important insights into the feasibility and acceptability of a mobile phone intervention to strengthen service delivery for rape victims in South Africa. Findings were very useful to inform the development of the proposed client experience app. High mobile phone access, ownership and usage found in the study confirmed the feasibility

of the proposed intervention, while strong interest in providing feedback on service quality using mobile phones suggested high acceptance. Despite these findings of high feasibility and acceptability of mobile phone technology, more studies are needed – especially in the South African context – to determine the effectiveness of mobile phone interventions.

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About Making All Voices Count

Making All Voices Count is a programme working towards a world in which open, effective and participatory governance is the norm and not the exception. It focuses global attention on creative and cutting-edge solutions to transform the relationship between citizens and their governments. The programme is inspired by and supports the goals of the Open Government Partnership.

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Research, Evidence and Learning component

The programme's Research, Evidence and Learning component, managed by IDS, contributes to improving performance and practice, and builds an evidence base in the field of citizen voice, government responsiveness, transparency and accountability (T&A) and technology for T&A (Tech4T&A).

About the Foundation for Professional Development

The Foundation for Professional Development (FPD) was established in 1997 as a department of the South African Medical Association; it was registered as a separate legal entity in 2000. It prides itself on being one of the few private higher educational institutions that fully engages in the three scholarships of higher education: teaching and learning, research, and community engagement. FPD's mission is to catalyse social change through developing people, strengthening systems and providing innovative solutions. Its research priorities focus on promoting operational research, and studying health outcomes and educational practice. FPD encourages and uses action research as a methodology for professional development and transformational practice.

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