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## Community health worker-delivered counselling for common mental disorders among chronic disease patients in South Africa: a feasibility study

Journal:	<i>BMJ Open</i>
Manuscript ID	bmjopen-2018-024277
Article Type:	Research
Date Submitted by the Author:	18-May-2018
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Keywords:	community health worker, mental health counselling, alcohol, depression, chronic disease, South Africa

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Manuscripts

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3 **Community health worker-delivered counselling for common mental**  
4 **disorders among chronic disease patients in South Africa: a feasibility study**  
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10  
11  
12 Abstract word count: 287  
13

14  
15 Manuscript word count: 3603  
16  
17  
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## ABSTRACT

**Objectives:** To examine the feasibility and acceptability of integrating a “designated” approach to community health worker (CHW)-delivered mental health counselling (where existing CHWs deliver counselling in addition to usual duties) and a “dedicated” approach (where additional CHWs have the sole responsibility of delivering mental health counselling) into chronic disease care.

**Design:** A feasibility test of a designated and designated approach to CHW-delivered counselling and qualitative interviews of CHWs delivering the counselling.

**Setting:** Four primary health care clinics in the Western Cape, South Africa allocated to either a designated or dedicated approach and stratified by urban/rural status.

**Participants:** Forty chronic disease patients (20 with HIV, 20 with diabetes) reporting hazardous alcohol use or depression. Interviews with 7CHWs.

**Intervention:** Three sessions of structured mental health counselling.

**Main Outcome Measures:** We assessed feasibility by examining the proportion of patients who were willing to be screened, met inclusion criteria, provided consent, completed counselling, and were retained in the study. Acceptability of these delivery approaches was assessed through qualitative interviews of CHWs.

**Results:** Regardless of approach, a fair proportion (67%) of eligible patients were willing to receive mental health counselling. Patients who screened positive for depression were more likely to be interested in counselling than those with hazardous alcohol only. Retention in counselling (85%) and the study (90%) was good and did not differ by approach. Both dedicated

1  
2  
3 and designated CHWs viewed the counselling package as highly acceptable but requested  
4  
5 additional training and support to facilitate implementation.  
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7  
8 **Conclusions:** Dedicated and designated approaches to CHW-delivered mental health counselling  
9  
10 were matched in terms of their feasibility and acceptability. A comparative efficacy trial of these  
11  
12 approaches is justified, with some adjustments to the training and implementation protocols to  
13  
14 provide further support to CHWs.  
15

## 16 17 18 19 **ARTICLE SUMMARY**

### 20 21 **Strengths and limitations of the study**

- 22 • The first study to compare the feasibility and acceptability of two different approaches to  
23  
24 resourcing CHW-delivered mental health counselling.  
25
- 26 • The use of mixed methods enables triangulation of findings, increasing confidence in the  
27  
28 results.  
29
- 30 • Qualitative interviews provide a rich description of CHWs' experiences of delivering  
31  
32 mental health counselling.  
33
- 34 • There were only a small number of clusters, therefore we cannot draw inferences from  
35  
36 the quantitative data.  
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- 38 • The CHWs included in this study may not be representative of the total population of  
39  
40 CHWs working in chronic disease care.  
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49  
50 **Keywords:** community health worker, mental health counselling, hazardous alcohol, depression,  
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52 chronic disease, South Africa, HIV, Diabetes  
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## BACKGROUND

In South Africa, like other low- and middle-income countries (LMIC), there is a substantial treatment gap for common mental disorders (CMDs).<sup>1</sup> Untreated mental disorders contribute to the country's large burden of disease associated with other non-communicable diseases (NCDs) such as diabetes and chronic communicable diseases (such as HIV).<sup>2</sup> South African studies have demonstrated high levels of CMD and other NCD multi-morbidity among the general population<sup>3-4</sup> and among patients attending primary health care (PHC) facilities.<sup>5</sup> As untreated CMDs are associated with poorer adherence to chronic disease treatment and more adverse outcomes,<sup>6-7</sup> there is a public health imperative to reduce the treatment gap for these patients.

A recommended strategy for reducing this gap is the integration of counselling for CMDs into chronic disease services provided in PHC clinics<sup>8</sup>. Severe shortages of mental health specialists in South Africa have impacted on the implementation of this strategy.<sup>9</sup> To overcome this challenge, and in keeping with the World Health Organisation's (WHO) recommendations for increasing mental health care access,<sup>10</sup> South Africa has endorsed task sharing of basic mental health counselling to non-specialist providers, including community health workers (CHWs) deployed within PHC services.<sup>11</sup> Systematic reviews highlight the feasibility and acceptability of using trained CHWs to deliver counselling in LMICs.<sup>12-14</sup> There is also emerging evidence suggesting that CHW-delivered interventions may reduce both depression and hazardous alcohol use.<sup>15</sup> Despite this promising evidence, uncertainty about how best to configure resources within the PHC system to enable CHW-delivered mental health interventions within chronic disease care has delayed implementation. Some argue that CHWs working in chronic disease teams have spare capacity and can be *designated* to deliver counselling in addition to their usual responsibilities.<sup>16</sup> Others contend that these CHWs are

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2  
3 already overloaded so it is impossible for them to deliver additional counselling. In this view,  
4  
5 CHWs *dedicated* to the delivery of mental health care are needed to ensure the feasibility of this  
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7 service.<sup>11</sup>  
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10 To guide health planners in their decisions about how to integrate mental health  
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12 counselling into chronic disease care, the feasibility, acceptability and cost-effectiveness of these  
13  
14 approaches to CHW-delivered counselling must be established. This study examined the  
15  
16 feasibility of integrating a dedicated and a designated approach to CHW-delivered counselling  
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18 for CMDs into chronic disease care in PHC facilities in the Western Cape province of South  
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20 Africa. Specific aims were to explore (i) the feasibility of recruiting and retaining chronic disease  
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22 patients for CHW-delivered mental health counselling and (ii) dedicated and designated CHWs'  
23  
24 perceptions of the feasibility and acceptability of delivering mental health counselling to chronic  
25  
26 disease patients. Findings will inform patient recruitment and retention protocols and CHW  
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28 training and intervention protocols that will be used in a future trial examining the relative  
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30 effectiveness and cost-effectiveness of these two approaches to CHW-delivered counselling.  
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## 38 **METHODS**

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40 This manuscript is in accordance with the "Good reporting of a mixed methods study guidelines"  
41  
42 (GRAMMS). See Supplementary file 1 for the GRAMM checklist. The study, conducted from  
43  
44 May to October 2016, comprised a feasibility test of CHW-delivered counselling and qualitative  
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46 interviews of CHWs.  
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### 51 **Study sites, participants and procedures**

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3 We recruited chronic disease patients from four PHC clinics in the Western Cape. Two sites  
4 (stratified by urban/rural status) used *dedicated* CHWs and the remaining two sites (stratified by  
5 urban/rural status) used *designated* CHWs to deliver the counselling. At the designated sites, the  
6 job descriptions of CHWs employed by non-governmental organisations (NGOs) to deliver HIV  
7 adherence counselling within these facilities were expanded to include mental health counselling.  
8 At the dedicated sites, additional CHWs were appointed with the sole responsibility of delivering  
9 this new service.  
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19 During the recruitment period, health providers asked all patients presenting for HIV or  
20 diabetes treatment were asked about their past-year alcohol use and recent low mood. Patients  
21 who responded positively were referred to a study assessor who requested verbal consent for  
22 study eligibility screening. Eligibility criteria included being (i) at least 18 years old; (ii) on  
23 antiretroviral therapy (ART) for HIV or medication for diabetes; and (iii) reporting  
24 hazardous/harmful drinking using the Alcohol Use Disorders Identification Test (AUDIT)<sup>17</sup> or  
25 probable depression using the Center for Epidemiological Studies Depression scale (CES-D).<sup>18</sup>  
26 The AUDIT has been validated for use in South Africa, with cut off scores  $\geq 8$  indicating  
27 hazardous alcohol use.<sup>19</sup> The CES-D measures change in symptoms of depression, with a cut-off  
28 score  $\geq 16$  indicating probable depression.<sup>20</sup> Patients receiving other mental health treatment or  
29 participating in another study were excluded. We followed these procedures until we recruited  
30 10 participants per site (five unique participants with HIV and five unique participants with  
31 diabetes) for a total sample of 40 participants.  
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49 At the enrolment appointment, the assessor obtained informed consent before  
50 administering the baseline assessment in English, Afrikaans or isiXhosa (main languages of the  
51 region). This computer-assisted assessment collected socio-demographic information on age,  
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3 race, gender, education level, and employment status; HIV and diabetes status; and used the  
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5 AUDIT and CES-D to assess extent of hazardous/harmful alcohol use and depression. After  
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7 completing this assessment, three counselling sessions (spaced at least a week apart) were  
8  
9 scheduled with the CHW. Participants had six weeks to complete all three sessions. Participants  
10  
11 returned for a follow-up appointment one month after their last counselling session. At this  
12  
13 appointment, the assessor re-administered the baseline assessment. All study activities occurred  
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15 in private rooms at the PHC facility. Participants received grocery vouchers for completing each  
16  
17 research assessment; they were not incentivised to attending counselling.  
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22 After this feasibility test, in order to better understand and corroborate the quantitative  
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24 findings, an independent qualitative researcher interviewed the seven CHWs who delivered the  
25  
26 intervention. Interviews were conducted in English, were audio-recorded, and lasted up to 60  
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28 minutes. Interviews followed a semi-structured guide with opening questions and follow-up  
29  
30 probes to elicit CHWs' experiences of delivering the intervention, barriers to delivery, and  
31  
32 suggestions for altering the proposed training and intervention protocols to enhance feasibility  
33  
34 and acceptability.  
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38 Our stakeholder advisory group, that comprises representatives from the Department of  
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40 Health, PHC facilities, charities, and service user organisations informed all aspects of the design  
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42 of this feasibility test and contributed to the interpretation of findings.  
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### 46 47 **Description of counselling programme and CHWs**

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49 Counselling comprised three structured sessions of motivational interviewing (MI) and problem-  
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51 solving therapy (PST) which has evidence for efficacy among South African PHC patients.<sup>21</sup>  
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53 The rationale for selecting this approach has been described elsewhere.<sup>22</sup> During this programme,  
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3 the CHW and participant collaborated to identify and explore problems within the participant's  
4 life while the CHW taught the participant a structured PST approach to resolving these concerns.  
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8 Participants learned strategies for addressing problems that are important and resolvable, for  
9  
10 dealing with negative and intrusive worries that are unrelated to their life goals, and strategies for  
11  
12 coping with important problems that are unresolvable. Participants rehearsed these new skills  
13  
14 through exercises and take-home activities contained in a patient handbook.  
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16  
17 Dedicated and designated CHWs who were selected and trained to deliver the  
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19 intervention were matched on qualifications (completion of high school and training as HIV  
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21 adherence counsellors), experience as HIV adherence counsellors, and remuneration. Both the  
22  
23 dedicated and designated CHWs received three days of training in screening for  
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25 hazardous/harmful alcohol use and depression, the counselling programme, and referral  
26  
27 pathways. All counselling sessions were audiotaped; a registered psychological counsellor  
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29 reviewed a random sample of these for fidelity. During weekly supervision, this registered  
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31 counsellor provided both dedicated and designated CHWs with feedback on how to improve  
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33 fidelity and quality of counselling.  
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#### 40 **Analyses**

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42 SPSS version 25.0 was used to assess the proportion of patients who (i) were willing to be  
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44 screened, (ii) met inclusion criteria, (iii) enrolled into counselling, (iv) completed counselling,  
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46 and (v) were retained in the study. Possible differences in performance on recruitment and  
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48 retention indicators by site (urban versus rural; dedicated versus designated) and patient  
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50 characteristics were explored using Chi-square tests for categorical and t-tests for continuous  
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52 variables. All testing was two-sided and used a significance level of 0.05.  
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3 We used the framework approach<sup>23</sup> to analyze qualitative data. Two study staff used  
4 NVivo version 11 to code interview transcripts; they met regularly to compare notes and resolve  
5 discrepancies. A third person was not needed to break coding ties. No new codes emerged after  
6 coding half the transcripts, implying thematic saturation. Inter-coder reliability was high, with a  
7 Kappa score of 0.92.  
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## 14 15 16 17 **RESULTS**

### 18 19 **Feasibility of recruitment and retention**

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21 Of the 553 chronic disease patients screened for recent alcohol use and depressed mood, 262  
22 (48%) were potentially eligible for study inclusion and referred for eligibility screening. About a  
23 quarter (26%, n= 69) declined screening, mainly due to lack of time or interest. Patients from  
24 rural sites were more likely to decline screening than those from urban sites (95% versus 5%; p  
25 <0.001).  
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33 Of the 193 remaining patients, 101 met inclusion criteria. Sixteen patients (16%) were  
34 eligible on their AUDIT scores, 69 (58%) on their CES-D scores, and 16 (16%) on their AUDIT  
35 and CES-D scores. Sixty-seven (66%) of these eligible patients were interested in participation.  
36 Figure one (Fig 1) presents reasons for declining participation. Site characteristics were not  
37 associated with declining participation. Patients who were eligible based on their CES-D scores  
38 were more likely to be interested in participation (74%) than those who were only eligible based  
39 on their AUDIT scores (33%; p = 0.005). Gender was associated with interest in participation:  
40 74% of eligible women versus 46% of eligible men (p = 0.018). Only 40 of these 67 patients  
41 returned for their enrolment visit; the remainder were untraceable. Participants who were  
42 untraceable were more likely to be recruited from urban than rural sites (51% vs. 26%; p =  
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0.038). There were no other differences between eligible, interested patients who were enrolled and those who were not.

Of these 40 participants, 22 were HIV positive and 18 had diabetes (two had both conditions). Almost all participants (n=38, 95%) had CES-D scores  $\geq 16$  while only 20% of the sample (n=8) met criteria for hazardous/harmful alcohol use. Table 1 depicts the demographic and clinical characteristics of the sample. Of these 40 participants, 34 (85%) completed the entire counselling programme (Fig. 1 shows reasons for not completing counselling). Treatment completers and non-completers did not differ on demographic or clinical characteristics. Participants from rural sites were more likely to complete treatment than those from urban sites (95% versus 75%;  $p = 0.04$ ). Participants from dedicated and designated sites were equally likely to complete treatment. Thirty-six (90%) participants completed the follow-up assessment. Fig. 1 provides reasons for attrition. Study completers and non-completers did not differ on any demographic or clinical characteristics. Site characteristics were not associated with study completion.

### **Perceptions of the feasibility and acceptability of the counselling programme**

Three themes emerged from the data that reflect CHWs' perceptions of the feasibility and acceptability of implementing the proposed counselling program. The first theme describes CHWs' perceived confidence in their ability to deliver this new service. The second theme describes the acceptability of the proposed counselling package to CHWs. The third theme describes CHWs' experiences of barriers to counselling delivery and their recommendations for mitigating these barriers.

### *Confidence in ability to deliver mental health counselling*

Both dedicated and designated CHWs had limited experience in delivering psychological counselling; this programme represented an expansion of their scope of work. They described the intervention as “something new” and “different from the counselling we did”. As this was a shift in practice, they had some concerns about whether the training protocols adequately prepared them for intervention delivery. Most CHWs thought additional time was needed rehearse the content of the sessions and to build their confidence and competency:

The training should be about five days. Five days gives you enough time to role play and ask questions and grasp everything ... The role play, there was not actually proper time for that.

[dedicated CHW]

While most CHWs reported initially being a “bit scared because it was something new”, they still viewed their involvement with the programme as an opportunity to learn how to work more effectively with their patients and “to develop their skills”:

In the past I was running out of options because they [patients] were depressed ... I learned through this intervention to give the participant space to open up.

[designated CHW]

### *Perceived benefits of the intervention*

All CHWs viewed the intervention as acceptable and beneficial to chronic disease patients. Dedicated and designated CHWs emphasised how “there is really a need for this intervention” and that “a lot of patients here can benefit.” The acceptability of the programme to patients seemed high, with CHWs commenting on how well patients engaged with the intervention. As one dedicated CHW described, “It seems like when I’m doing session one, they can’t wait for session two to give me feedback”. All CHWs were able to provide concrete examples of how

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3 patients applied the problem-solving skills they had learned to resolve problems. They also  
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5 observed positive changes in patients, which was personally rewarding:  
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8 I saw that each session is making a difference to other people. And to see that people are  
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10 coming again to finish their sessions ... it's telling me the intervention is making a  
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12 difference to people. [designated CHW]  
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15 Nonetheless, some CHWs felt that patients could benefit from more sessions for there to  
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17 be "a difference in a person's life." Some CHWs suggested offering an additional counselling  
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19 session to review the patient's progress in reaching their goals.  
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22 Not only were there benefits for patients who received this intervention, but other patients  
23  
24 also seemed to benefit from the designated CHWs' enhanced counselling skills. Several  
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26 designated CHWs noted how they now routinely used their new counseling skills in their  
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28 interactions with other patients:  
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31 I put it as part of my daily work ... when I am busy with a session with another patient,  
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33 then I also try to bring in Project Mind problem solving. It helps me understand where  
34  
35 my patient is coming from. [designated CHW]  
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38 In addition, both the dedicated and designated CHWs appeared to benefit personally from  
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40 this programme, describing how they now applied PST strategies to resolve problems in their  
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42 own lives and limit negative thoughts:  
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45 I used to worry a lot ... when I was doing the intervention then I realised that there are  
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47 things we worry about that are not important. ... so it seems like I am helping someone  
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49 else, and I am also helping myself. [dedicated CHW]  
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54 *Lessons for future implementation*  
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3 According to CHWs, support from the PHC facility, other CHWs, and the NGOs that employed  
4 them (where applicable) was critical for facilitating counselling delivery. In facilities where the  
5 designated and dedicated CHWs described facility staff as “supportive” and “interested”, the  
6 counselling proceeded smoothly. However, in PHC facilities where staff seemed less interested,  
7 CHWs were often interrupted during counselling, impacting on the therapeutic alliance. For  
8 these facilities, CHWs recommended that facility managers and staff are thoroughly informed  
9 about the initiative so that “they know what it is all about so when you are busy with a client they  
10 just give you some time to do it.”  
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21 For designated CHWs, competing priorities and limited time were barriers to counselling  
22 delivery. These CHWs felt they were “doing three jobs”, with almost all mentioning that it  
23 would be easier to deliver the programme if all they did “was concentrate on the intervention.”  
24 This was not an issue for dedicated CHWs who had more time available to conduct the  
25 counselling. Where fellow CHWs assisted the designated CHW with their usual HIV care  
26 responsibilities, thereby freeing up some of the designated CHW’s time, the CHW felt more  
27 empowered to deliver the intervention. This realignment of the responsibilities of the CHW team  
28 to accommodate mental health counselling happened organically at some (but not all) of the  
29 designated sites. To facilitate this re-alignment in the future, designated CHWs thought it would  
30 be helpful for NGO employers and supervisors to be more involved in training and discussions  
31 about the implementation of the intervention, so that they “have a better understanding” about  
32 what is required from their staff:  
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49 There was some miscommunication because they [NGO] didn’t have a lot of  
50 understanding as to what was expected from us. So for future, it would be nice if the  
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3 managers could be in one of the training sessions just to know what it is all about ... to  
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5 avoid confusion as to the time spent with patients [designated CHW]  
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## 10 **DISCUSSION**

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12 This study examined the feasibility and acceptability of a dedicated or designated approach to  
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14 CHW-delivered mental health counselling within the context of chronic disease care in South  
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16 Africa and found few differences. Findings suggest that regardless of approach, (i) a fair  
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18 proportion of patients were willing to receive mental health counselling; (ii) retention in  
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20 counselling and the study was good; and (iii) CHWs viewed the counselling package as highly  
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22 acceptable but requested additional training and support to facilitate implementation.  
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26 More specifically, findings suggest high levels of unmet need for and adequate uptake of  
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28 mental health counselling among chronic disease patients in this setting. This supports the  
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30 feasibility of recruiting chronic disease patients for mental health counselling for a larger study.  
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32 However, the counselling refusal rate was higher than anticipated - particularly among hazardous  
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34 drinkers without depression. As we approached patients who were not actively seeking mental  
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36 health care, some may have been ambivalent about the offer of counselling. Concern about  
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38 health provider stigma towards people with alcohol problems also may have contributed to this  
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40 finding.<sup>24</sup> Further, as psychological distress is a known driver of counselling readiness among  
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42 patients with alcohol problems,<sup>25</sup> patients who reported hazardous alcohol use without co-  
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44 occurring depression may have been less motivated to initiate counselling than those with  
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46 depression. Guided by these findings, we have modified our recruitment protocols to ensure a  
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48 future trial is able to recruit sufficient numbers of people with hazardous alcohol use and  
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50 depression to allow for the assessment of change on either outcome. Recruitment protocols now  
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3 include health talks at PHC facilities to help reduce the stigma associated with CMDs;  
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5 distribution of handouts that provide patients with information about the study before they are  
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7 approached for screening; and additional opportunities for eligible patients who decline the  
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9 initial offer of counselling to receive counselling.  
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12 Findings also show the feasibility of retaining chronic disease patients in CHW-delivered  
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14 mental health counselling, regardless of whether a dedicated or designated approach is used.  
15  
16 However, counselling completion rates were better for the rural sites - possibly because some  
17  
18 participants from urban sites gained employment and were unable to attend facility-based  
19  
20 counselling. To overcome this challenge, we have adjusted our protocols to allow CHWs to  
21  
22 deliver counselling via telephone. Nonetheless, taken together the high counselling completion  
23  
24 rate, feedback about patient engagement, and requests for additional sessions suggest that  
25  
26 patients found the counselling acceptable and beneficial. Given these requests, we have decided  
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28 to add an optional problem-solving session to our counselling protocol, which we anticipate may  
29  
30 enhance and maintain treatment gains.  
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35 Both dedicated and designated CHWs generally thought the counselling was feasible to  
36  
37 implement. Initially, many CHWs had reservations about delivering mental health counselling,  
38  
39 but these reservations dissipated with training, delivery experience, and supportive supervision.  
40  
41 CHWs' observations that counselling improved participants' well-being reinforced their views of  
42  
43 programme acceptability. Designated CHWs also noted how these additional counselling skills  
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45 improved their interactions with other patients; augmenting their positive views of this  
46  
47 programme. CHWs did however, believe that additional training and more opportunities for  
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49 counselling skills rehearsal would enhance the quality of counselling. Based on this feedback, we  
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51 have extended the training schedule to five days to incorporate additional opportunities for role  
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3 play and rehearsal, added a step-by-step guide to each counselling session in the training manual,  
4  
5 and we plan to integrate additional training opportunities into weekly supervision for CHWs.  
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7  
8 Finally, we found that CHWs require substantial support to overcome barriers to  
9  
10 counselling implementation in chronic disease services. In this study, CHWs reported  
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12 counselling and space challenges. Where chronic disease care teams were more supportive of  
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14 mental health counselling integrated, they created an enabling environment that facilitated  
15  
16 counselling implementation. Given that PHC facilities are likely heterogenous with regards to  
17  
18 readiness to implement mental health counselling, the start-up phase of a future trial will include  
19  
20 facility readiness workshops aimed at ensuring relevant stakeholders are aware of and willing to  
21  
22 support mental health counselling implementation. Designated CHWs had the additional  
23  
24 constraint of managing their current workload in addition to this new service. Where designated  
25  
26 CHWs were supported by their peers (who assisted with some of their usual tasks), they  
27  
28 managed the additional responsibilities of delivering this intervention better. Based on this  
29  
30 finding, we have developed a protocol for engaging with NGOs who employ designated CHWs  
31  
32 that includes discussions about restructuring some of their usual HIV care responsibilities to  
33  
34 accommodate mental health counselling activities.  
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40 Findings should be interpreted in the light of some limitations. We gathered limited  
41  
42 information on patients who refused screening and cannot determine if there were patient  
43  
44 characteristics that distinguished those who declined and those who accepted screening. This  
45  
46 should be addressed in future studies. Second, as there were only a small number of clusters in  
47  
48 this feasibility test, we cannot draw inferences from the quantitative data. Similarly, the  
49  
50 designated CHWs responsible for intervention delivery are probably not representative of the  
51  
52 total population of CHWs working in chronic disease care. Finally, as the study was based in  
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3 PHC facilities in the Western Cape where resourcing for health care is somewhat better than  
4  
5 other provinces, findings may not be generalizable to other parts of the country.  
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7

## 10 CONCLUSION

11  
12 Findings suggest that while it is largely feasible and acceptable to use either approach to CHW-  
13  
14 delivered mental health counselling, a few modifications to the recruitment, CHW training, and  
15  
16 counselling implementation protocols may enhance the likelihood of successful implementation.  
17  
18 We have adjusted these protocols which are now being used in a cluster randomized controlled  
19  
20 trial comparing the clinical and cost- effectiveness of a dedicated approach and a designated  
21  
22 approach to CHW-delivered mental health counselling for improving the mental health and  
23  
24 chronic disease outcomes of patients.<sup>22</sup>  
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## 31 Author Contributions

32  
33 BM and KS conceived the project, performed the analyses and drafted the manuscript. CL, TN,  
34  
35 CJL, NSL, JAJ, PM, CB and DJS helped develop and refine the project, including data tools, and  
36  
37 revised the draft versions of the manuscript critically. PPW and CvdW played major roles in  
38  
39 developing and organizing the project, data collection and analyses, and revised draft versions of  
40  
41 the manuscript critically. All authors read and approved the final manuscript.  
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46

47 **Funding:** This study was supported by the joint-funded initiatives of the British Medical  
48  
49 Research Council, Wellcome Trust and Department for International Development  
50  
51 (MR/M014290/1) as well as funding from the South African Medical Research Council.  
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3 **Competing Interests:** None declared.  
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8 **Patient Consent:** Not required  
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11  
12 **Ethics approval:** The South African Medical Research Council (EC 004-02/2015), the  
13 University of Cape Town (089/2015), and Oxford University (OxTREC 567-15) provided ethical  
14 approval for this study. The Western Cape Department of Health approved all procedures (WC  
15 2015\_RP 28-480).  
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24 **Data sharing:** Quantitative data are available on reasonable request from the corresponding  
25 author.  
26  
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29

### 30 31 **Acknowledgements**

32  
33 We thank all study participants, participating facilities, NGOs, our stakeholder advisory group  
34 and our field team.  
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3 **Legend: Figure 1. Patient flow diagram.**  
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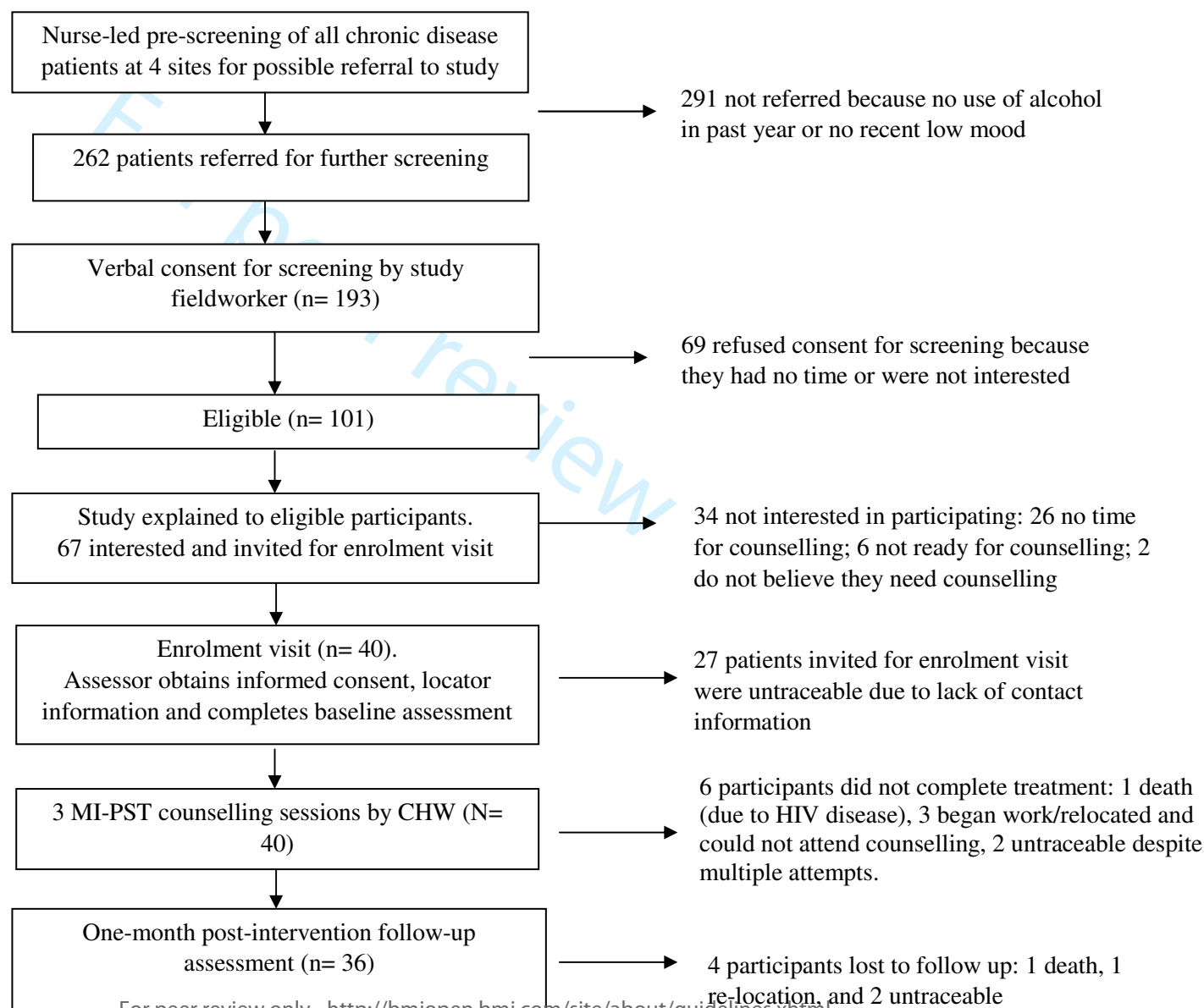
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**Table 1. Baseline demographic and clinical characteristics of the overall sample (n= 40) and by chronic condition sub-group.**

Variable	Overall sample N (%)	Treatment for HIV			Treatment for Diabetes		
		Yes (n= 22) N (%)	No (n= 18) N (%)	<i>p</i>	Yes (n= 20) N (%)	No (n= 20) N (%)	<i>p</i>
Gender: Female	34 (85.0%)	18 (81.8)	16 (88.9)	.673	18 (90.0)	16 (80.0)	.661
Race: Coloured <sup>1</sup>	22 (55.0%)	8 (36.4)	14 (77.8)	.012*	14 (70.0)	8 (40.0)	.111
Education				.408			.337
Some primary	12 (30.0)	7 (31.8)	5 (27.8)		7 (35.0)	5 (25.0)	
Some secondary	23 (57.5)	11 (50.0)	12 (66.7)		12 (60.0)	11 (55.0)	
Completed secondary	5 (12.5)	4 (18.2)	1 (5.6)		1 (5.0)	4 (20.0)	
Employment (yes)	14 (35.0)	10 (45.5)	4 (22.2)	.186	5 (25.0)	9 (45.0)	.320
Age in years ( <i>M, SD</i> )	44 (12.2)	38.9 (9.7)	50.3 (12.2)	.002*	50.0 (11.8)	38.1 (9.5)	.001*
AUDIT ≥8	8 (20.0)	6 (27.3)	2 (11.1)	.258	2 (10.0)	6 (30.0)	.235
CES-D ≥ 16	38 (95.0)	20 (90.9)	18 (100)	.492	20 (100)	18 (90.0)	.487

<sup>1</sup> Coloured refers to a designated demographic group of mixed African and European ancestry in comparison to African only ancestry.

\*Significant association at  $p < 0.05$

**Figure 1. Patient flow diagram.**

**Good Reporting of A Mixed Methods Study (GRAMMS) checklist**

<b>Guideline</b>	<b>Section: page</b>
Describe the justification for using a mixed methods approach to the research question	Methods- under procedures pg. 8
Describe the design in terms of the purpose, priority and sequence of methods	Methods- procedures pg. 7-8
Describe each method in terms of sampling, data collection and analysis	Procedures pg 7-8 Analysis: pg. 9-10
Describe where integration has occurred, how it has occurred and who has participated in it	Design: pg. 7-8
Describe any limitation of one method associated with the present of the other method	Discussion pg. 15-17
Describe any insights gained from mixing or integrating methods	Discussion: pg. 15-17

O'Cathain A, Murphy E, Nicholl J. The quality of mixed methods studies in health services research. *J Health Serv Res Policy*. 2008;13: 92-98.



**Community health worker-delivered counselling for  
common mental disorders among chronic disease patients  
in South Africa: a feasibility study**

Journal:	<i>BMJ Open</i>
Manuscript ID	bmjopen-2018-024277.R1
Article Type:	Research
Date Submitted by the Author:	01-Oct-2018
Complete List of Authors:	Myers, Bronwyn; South African medical Research Council, Alcohol, Tobacco and Other Drug Research Unit Petersen-Williams, Petal; South African Medical Research Council, Alcohol, Tobacco and Other Drug Research Unit van der westhuizen, Claire; University of Cape Town, Centre for Public Mental Health Lund, Crick; University of Cape Town, Centre for Public Mental Health Lombard, Carl; South Africa Medical Research Council, Biostatistics Unit Joska, John; University of Cape Town, Department of Psychiatry and Mental Health Levitt, Naomi; University of Cape Town , medicine Butler, C; University of Oxford, Nuffield School of Primary Care Naledi, Tracey; University of Cape Town, Desmond Tutu HIV/TB Research Centre Milligan, Peter; Western Cape Department of Health, Mental Health Stein, Dan; University of Cape Town, Department of Psychiatry and Mental Health Sorsdahl, Katherine; University of Cape Town, Centre for Public Mental Health
<b>Primary Subject Heading</b>:	Mental health
Secondary Subject Heading:	Addiction, Global health, Health services research
Keywords:	community health worker, mental health counselling, alcohol, depression, chronic disease, South Africa

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3 **Community health worker-delivered counselling for common mental**  
4 **disorders among chronic disease patients in South Africa: a feasibility study**  
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11  
12 Abstract word count: 287  
13

14 Manuscript word count: 3603  
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## ABSTRACT

**Objectives:** To examine the feasibility and acceptability of integrating a “designated” approach to community health worker (CHW)-delivered mental health counselling (where existing CHWs deliver counselling in addition to usual duties) and a “dedicated” approach (where additional CHWs have the sole responsibility of delivering mental health counselling) into chronic disease care.

**Design:** A feasibility test of a designated and dedicated approach to CHW-delivered counselling and qualitative interviews of CHWs delivering the counselling.

**Setting:** Four primary health care clinics in the Western Cape, South Africa allocated to either a designated or dedicated approach and stratified by urban/rural status.

**Participants:** Forty chronic disease patients (20 with HIV, 20 with diabetes) reporting hazardous alcohol use or depression. Interviews with 7CHWs.

**Intervention:** Three sessions of structured mental health counselling.

**Main Outcome Measures:** We assessed feasibility by examining the proportion of patients who were willing to be screened, met inclusion criteria, provided consent, completed counselling, and were retained in the study. Acceptability of these delivery approaches was assessed through qualitative interviews of CHWs.

**Results:** Regardless of approach, a fair proportion (67%) of eligible patients were willing to receive mental health counselling. Patients who screened positive for depression were more likely to be interested in counselling than those with hazardous alcohol only. Retention in counselling (85%) and the study (90%) was good and did not differ by approach. Both dedicated

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3 and designated CHWs viewed the counselling package as highly acceptable but requested  
4 additional training and support to facilitate implementation.  
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7 **Conclusions:** Dedicated and designated approaches to CHW-delivered mental health counselling  
8 were matched in terms of their feasibility and acceptability. A comparative efficacy trial of these  
9 approaches is justified, with some adjustments to the training and implementation protocols to  
10 provide further support to CHWs.  
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## 16 17 18 19 **ARTICLE SUMMARY**

### 20 21 **Strengths and limitations of the study**

- 22 • The first study to compare the feasibility and acceptability of two different approaches to  
23 resourcing CHW-delivered mental health counselling.
- 24 • The use of mixed methods enables triangulation of findings, increasing confidence in the  
25 results.
- 26 • Qualitative interviews provide a rich description of CHWs' experiences of delivering  
27 mental health counselling.
- 28 • There were only a small number of clusters, therefore we cannot draw inferences from  
29 the quantitative data.
- 30 • The CHWs included in this study may not be representative of the total population of  
31 CHWs working in chronic disease care.  
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49 **Keywords:** community health worker, mental health counselling, hazardous alcohol, depression,  
50 chronic disease, South Africa, HIV, Diabetes  
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## BACKGROUND

In South Africa, like other low- and middle-income countries (LMIC), there is a substantial treatment gap for common mental disorders (CMDs).<sup>1</sup> Untreated mental disorders contribute to the country's large burden of disease associated with other non-communicable diseases (NCDs) such as diabetes and chronic communicable diseases (such as HIV).<sup>2</sup> South African studies have demonstrated high levels of CMD and other NCD multi-morbidity among the general population<sup>3-4</sup> and among patients attending primary health care (PHC) facilities.<sup>5</sup> As untreated CMDs are associated with poorer adherence to chronic disease treatment and more adverse outcomes,<sup>6-7</sup> there is a public health imperative to reduce the treatment gap for these patients.

A recommended strategy for reducing this gap is the integration of counselling for CMDs into chronic disease services provided in PHC clinics<sup>8</sup>. Severe shortages of mental health specialists in South Africa have impacted on the implementation of this strategy.<sup>9</sup> To overcome this challenge, and in keeping with the World Health Organisation's (WHO) recommendations for increasing mental health care access,<sup>10</sup> South Africa has endorsed task sharing of basic mental health counselling to non-specialist providers, including community health workers (CHWs) deployed within PHC services.<sup>11</sup> Systematic reviews highlight the feasibility and acceptability of using trained CHWs to deliver counselling in LMICs.<sup>12-14</sup> There is also emerging evidence suggesting that CHW-delivered interventions may reduce both depression and hazardous alcohol use.<sup>15</sup> Despite this promising evidence, uncertainty about how best to configure resources within the PHC system to enable CHW-delivered mental health interventions within chronic disease care has delayed implementation. Some argue that CHWs working in chronic disease teams have spare capacity and can be *designated* to deliver counselling in addition to their usual responsibilities.<sup>16</sup> Others contend that these CHWs are

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3 already overloaded so it is impossible for them to deliver additional counselling. In this view,  
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5 CHWs *dedicated* to the delivery of mental health care are needed to ensure the feasibility of this  
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7 service.<sup>11</sup>  
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10 To guide health planners in their decisions about how to integrate mental health  
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12 counselling into chronic disease care, the feasibility, acceptability and cost-effectiveness of these  
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14 approaches to CHW-delivered counselling must be established. This study examined the  
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16 feasibility of integrating a dedicated and a designated approach to CHW-delivered counselling  
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18 for CMDs into chronic disease care in PHC facilities in the Western Cape province of South  
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20 Africa. Specific aims were to explore (i) the feasibility of recruiting and retaining chronic disease  
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22 patients for CHW-delivered mental health counselling and (ii) dedicated and designated CHWs'  
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24 perceptions of the feasibility and acceptability of delivering mental health counselling to chronic  
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26 disease patients. Findings will inform patient recruitment and retention protocols and CHW  
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28 training and intervention protocols that will be used in a future trial examining the relative  
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30 effectiveness and cost-effectiveness of these two approaches to CHW-delivered counselling.  
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## 38 **METHODS**

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40 This manuscript is in accordance with the "Good reporting of a mixed methods study guidelines"  
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42 (GRAMMS). See Supplementary file 1 for the GRAMM checklist. The study, conducted from  
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44 May to October 2016, comprised a feasibility test of CHW-delivered counselling and qualitative  
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46 interviews of CHWs.  
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### 51 **Study sites, participants and procedures**

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3 We recruited chronic disease patients from four PHC clinics in the Western Cape. Two sites  
4 (stratified by urban/rural status) used *dedicated* CHWs and the remaining two sites (stratified by  
5 urban/rural status) used *designated* CHWs to deliver the counselling. At the designated sites, the  
6 job descriptions of CHWs employed by non-governmental organisations (NGOs) to deliver HIV  
7 adherence counselling within these facilities were expanded to include mental health counselling.  
8 At the dedicated sites, additional CHWs were appointed with the sole responsibility of delivering  
9 this new service.  
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19 During the recruitment period, health providers asked all patients presenting for HIV or  
20 diabetes treatment were asked about their past-year alcohol use and recent low mood. Patients  
21 who responded positively were referred to a study assessor who requested verbal consent for  
22 study eligibility screening. Eligibility criteria included being (i) at least 18 years old; (ii) on  
23 antiretroviral therapy (ART) for HIV or medication for diabetes; and (iii) reporting  
24 hazardous/harmful drinking using the Alcohol Use Disorders Identification Test (AUDIT)<sup>17</sup> or  
25 probable depression using the Center for Epidemiological Studies Depression scale (CES-D).<sup>18</sup>  
26 The AUDIT has been validated for use in South Africa, with cut off scores  $\geq 8$  indicating  
27 hazardous alcohol use.<sup>19</sup> The CES-D measures change in symptoms of depression, with a cut-off  
28 score  $\geq 16$  indicating probable depression.<sup>20</sup> Patients receiving other mental health treatment or  
29 participating in another study were excluded. We followed these procedures until we recruited  
30 10 participants per site (five unique participants with HIV and five unique participants with  
31 diabetes) for a total sample of 40 participants.  
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49 At the enrolment appointment, the assessor obtained informed consent before  
50 administering the baseline assessment in English, Afrikaans or isiXhosa (main languages of the  
51 region). This computer-assisted assessment collected socio-demographic information on age,  
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3 race, gender, education level, and employment status; HIV and diabetes status; and used the  
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5 AUDIT and CES-D to assess extent of hazardous/harmful alcohol use and depression. After  
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7 completing this assessment, three counselling sessions (spaced at least a week apart) were  
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9 scheduled with the CHW. Participants had six weeks to complete all three sessions. Participants  
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11 returned for a follow-up appointment one month after their last counselling session. At this  
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13 appointment, the assessor re-administered the baseline assessment. All study activities occurred  
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15 in private rooms at the PHC facility. Participants received grocery vouchers for completing each  
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17 research assessment; they were not incentivised to attending counselling.  
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22 After this feasibility test, in order to better understand and corroborate the quantitative  
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24 findings, an independent qualitative researcher interviewed the seven CHWs who delivered the  
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26 intervention. Interviews were conducted in English, were audio-recorded, and lasted up to 60  
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28 minutes. Interviews followed a semi-structured guide with opening questions and follow-up  
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30 probes to elicit CHWs' experiences of delivering the intervention, barriers to delivery, and  
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32 suggestions for altering the proposed training and intervention protocols to enhance feasibility  
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34 and acceptability.  
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## 42 **Description of counselling programme and CHWs**

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44 Counselling comprised three structured sessions of motivational interviewing (MI) and problem-  
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46 solving therapy (PST) which has evidence for efficacy among South African PHC patients.<sup>21</sup>  
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48 The rationale for selecting this approach has been described elsewhere.<sup>22</sup> During this programme,  
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50 the CHW and participant collaborated to identify and explore problems within the participant's  
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52 life while the CHW taught the participant a structured PST approach to resolving these concerns.  
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3 Participants learned strategies for addressing problems that are important and resolvable, for  
4 dealing with negative and intrusive worries that are unrelated to their life goals, and strategies for  
5 coping with important problems that are unresolvable. Participants rehearsed these new skills  
6 through exercises and take-home activities contained in a patient handbook.  
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12 Dedicated and designated CHWs who were selected and trained to deliver the  
13 intervention were matched on qualifications (completion of high school and training as HIV  
14 adherence counsellors), experience as HIV adherence counsellors, and remuneration. Both the  
15 dedicated and designated CHWs received three days of training in screening for  
16 hazardous/harmful alcohol use and depression, the counselling programme, and referral  
17 pathways. All counselling sessions were audiotaped; a registered psychological counsellor  
18 reviewed a random sample of these for fidelity using a simple fidelity check-list. No differences  
19 in fidelity were observed between the designated and dedicated CHWs. Supervision and de-  
20 briefing of all the CHWs in the dedicated and designated arms was task-shared from a  
21 psychologist to a registered psychological counsellor, in line with the South African National  
22 Mental Health Policy Frameworks vision of district mental health teams. If referred to registered  
23 psychological counsellors in line with the national mental health policy framework.<sup>11</sup> This  
24 psychological counsellor provided both dedicated and designated CHWs with weekly individual  
25 supervision in which feedback on counselling sessions and how to improve fidelity and quality  
26 of counselling, re-training in aspects of the programme occurred if needed, and de-briefing was  
27 provided for difficult or challenging cases.  
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## 51 **Patient and public involvement**

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3 Chronic disease patients and the broader public were involved in the design and implementation  
4 of this study. The two task-sharing models and the design of the feasibility test were informed by  
5 interviews with chronic disease patients with untreated depression or hazardous alcohol use.<sup>23</sup>  
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7 Our stakeholder advisory group, that comprises representatives from the Department of Health,  
8 PHC facilities, charities, and service user organisations proposed this feasibility test and  
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10 contributed to the design of the study and the interpretation of findings.  
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### 19 **Analyses**

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21 SPSS version 25.0 was used to assess the proportion of patients who (i) were willing to be  
22 screened, (ii) met inclusion criteria, (iii) enrolled into counselling, (iv) completed counselling,  
23 and (v) were retained in the study. Possible differences in performance on recruitment and  
24 retention indicators by site (urban versus rural; dedicated versus designated) and patient  
25 characteristics were explored using Chi-square tests for categorical and t-tests for continuous  
26 variables. All testing was two-sided and used a significance level of 0.05.  
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35 We used the framework approach<sup>24</sup> to analyze qualitative data. Two study staff used  
36 NVivo version 11 to code interview transcripts; they met regularly to compare notes and resolve  
37 discrepancies. A third person was not needed to break coding ties. No new codes emerged after  
38 coding half the transcripts, implying thematic saturation. Inter-coder reliability was high, with a  
39 Kappa score of 0.92.  
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## 49 **RESULTS**

### 50 **Feasibility of recruitment and retention**

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3 Of the 553 chronic disease patients screened for recent alcohol use and depressed mood, 262  
4 (48%) were potentially eligible for study inclusion and referred for eligibility screening. About a  
5 quarter (26%, n= 69) declined screening, mainly due to lack of time or interest. There were no  
6 demographic and site differences between those that accepted and those that declined the offer of  
7 screening..  
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14 Of the 193 remaining patients, 101 met inclusion criteria. Sixteen patients (16%) were  
15 eligible on their AUDIT scores, 69 (58%) on their CES-D scores, and 16 (16%) on their AUDIT  
16 and CES-D scores. Sixty-seven (66%) of these eligible patients were interested in participation.  
17 Figure one (Fig 1) presents reasons for declining participation. Site characteristics were not  
18 associated with declining participation. Patients who were eligible based on their CES-D scores  
19 were more likely to be interested in participation (74%) than those who were only eligible based  
20 on their AUDIT scores (33%;  $p = 0.005$ ). Gender was associated with interest in participation:  
21 74% of eligible women versus 46% of eligible men ( $p = 0.018$ ). Only 40 of these 67 patients  
22 returned for their enrolment visit; the remainder were untraceable. Participants who were  
23 untraceable were more likely to be recruited from urban than rural sites (51% vs. 26%;  $p =$   
24 0.038). There were no other differences between eligible, interested patients who were enrolled  
25 and those who were not.  
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42 Of these 40 participants, 22 were HIV positive and 18 had diabetes (two had both  
43 conditions). Almost all participants (n=38, 95%) had CES-D scores  $\geq 16$  while only 20% of the  
44 sample (n=8) met criteria for hazardous/harmful alcohol use. Table 1 depicts the demographic  
45 and clinical characteristics of the sample. Of these 40 participants, 34 (85%) completed the entire  
46 counselling programme (Fig. 1 shows reasons for not completing counselling). Treatment  
47 completers and non-completers did not differ on demographic or clinical characteristics.  
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3 Participants from rural sites were more likely to complete treatment than those from urban sites  
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5 (95% versus 75%;  $p = 0.04$ ). Participants from dedicated and designated sites were equally likely  
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7 to complete treatment. Thirty-six (90%) participants completed the follow-up assessment. Fig. 1  
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9 provides reasons for attrition. Study completers and non-completers did not differ on any  
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11 demographic or clinical characteristics. Site characteristics were not associated with study  
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13 completion.  
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### 16 17 18 19 **Perceptions of the feasibility and acceptability of the counselling programme**

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21 Three themes emerged from the data that reflect CHWs' perceptions of the feasibility and  
22  
23 acceptability of implementing the proposed counselling program. The first theme describes  
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25 CHWs' perceived confidence in their ability to deliver this new service. The second theme  
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27 describes the acceptability of the proposed counselling package to CHWs. The third theme  
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29 describes CHWs' experiences of barriers to counselling delivery and their recommendations for  
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31 mitigating these barriers.  
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#### 34 35 36 37 *Confidence in ability to deliver mental health counselling*

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39 Both dedicated and designated CHWs had limited experience in delivering psychological  
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41 counselling; this programme represented an expansion of their scope of work. They described the  
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43 intervention as “something new” and “different from the counselling we did”. As this was a shift  
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45 in practice, they had some concerns about whether the training protocols adequately prepared  
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47 them for intervention delivery. Most CHWs thought additional time was needed rehearse the  
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49 content of the sessions and to build their confidence and competency:  
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3 The training should be about five days. Five days gives you enough time to role play and  
4 ask questions and grasp everything ... The role play, there was not actually proper time  
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7 for that. [dedicated CHW]  
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10 While most CHWs reported initially being a “bit scared because it was something new”,  
11 they still viewed their involvement with the programme as an opportunity to learn how to work  
12 more effectively with their patients and “to develop their skills”:  
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15 In the past I was running out of options because they [patients] were depressed ... I  
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17 learned through this intervention to give the participant space to open up.  
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21 [designated CHW]  
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#### 24 *Perceived benefits of the intervention*

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26 All CHWs viewed the intervention as acceptable and beneficial to chronic disease patients.  
27 Dedicated and designated CHWs emphasised how “there is really a need for this intervention”  
28 and that “a lot of patients here can benefit.” The acceptability of the programme to patients  
29 seemed high, with CHWs commenting on how well patients engaged with the intervention. As  
30 one dedicated CHW described, “It seems like when I’m doing session one, they can’t wait for  
31 session two to give me feedback”. All CHWs were able to provide concrete examples of how  
32 patients applied the problem-solving skills they had learned to resolve problems. They also  
33 observed positive changes in patients, which was personally rewarding:  
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44 I saw that each session is making a difference to other people. And to see that people are  
45 coming again to finish their sessions ... it’s telling me the intervention is making a  
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47 difference to people. [designated CHW]  
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3 these facilities, CHWs recommended that facility managers and staff are thoroughly informed  
4 about the initiative so that “they know what it is all about so when you are busy with a client they  
5 just give you some time to do it.”  
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10 For designated CHWs, competing priorities and limited time were barriers to counselling  
11 delivery. These CHWs felt they were “doing three jobs”, with almost all mentioning that it  
12 would be easier to deliver the programme if all they did “was concentrate on the intervention.”  
13 This was not an issue for dedicated CHWs who had more time available to conduct the  
14 counselling. Where fellow CHWs assisted the designated CHW with their usual HIV care  
15 responsibilities, thereby freeing up some of the designated CHW’s time, the CHW felt more  
16 empowered to deliver the intervention. This realignment of the responsibilities of the CHW team  
17 to accommodate mental health counselling happened organically at some (but not all) of the  
18 designated sites. To facilitate this re-alignment in the future, designated CHWs thought it would  
19 be helpful for NGO employers and supervisors to be more involved in training and discussions  
20 about the implementation of the intervention, so that they “have a better understanding” about  
21 what is required from their staff:  
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37 There was some miscommunication because they [NGO] didn’t have a lot of  
38 understanding as to what was expected from us. So for future, it would be nice if the  
39 managers could be in one of the training sessions just to know what it is all about ... to  
40 avoid confusion as to the time spent with patients. [designated CHW]  
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## 49 **DISCUSSION**

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51 This study examined the feasibility and acceptability of a dedicated or designated approach to  
52 CHW-delivered mental health counselling within the context of chronic disease care in South  
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3 Africa and found few differences. It contributes to the growing evidence-base of the feasibility  
4 and acceptability of task shared mental health interventions in Africa and other LMICs.<sup>25, 26, 27</sup>  
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6 Findings suggest that regardless of whether counselling was delivered by a dedicated or  
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8 designated CHW, (i) a fair proportion of patients were willing to receive mental health  
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10 counselling; (ii) retention in counselling and the study was good; and (iii) both dedicated and  
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12 designated CHWs viewed the counselling package as highly acceptable but requested additional  
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14 training and support to facilitate implementation.  
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19 More specifically, findings suggest high levels of unmet need for and adequate uptake of  
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21 mental health counselling among chronic disease patients in this setting. This supports the  
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23 feasibility of recruiting chronic disease patients for mental health counselling for a larger study.  
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25 However, the counselling refusal rate was higher than anticipated - particularly among hazardous  
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27 drinkers without depression and men. Counselling refusals rates were similar for the dedicated  
28  
29 and designated models. As we approached patients who were not actively seeking mental health  
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31 care, some may have been ambivalent about the offer of counselling. Concern about health  
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33 provider stigma towards people with alcohol problems also may have contributed to this  
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35 finding.<sup>28</sup> Further, as psychological distress is a known driver of counselling readiness among  
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37 patients with alcohol problems,<sup>29</sup> patients who reported hazardous alcohol use without co-  
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39 occurring depression may have been less motivated to initiate counselling than those with  
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41 depression. Guided by these findings, we have modified our recruitment protocols to ensure a  
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43 future trial is able to recruit sufficient numbers of people with hazardous alcohol use and  
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45 depression to allow for the assessment of change on either outcome. Recruitment protocols now  
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47 include health talks at PHC facilities to help reduce the stigma associated with CMDs;  
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49 distribution of handouts that provide patients with information about the study before they are  
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3 approached for screening; and additional opportunities for eligible patients who decline the  
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5 initial offer of counselling to receive counselling.  
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8 Our finding of men being less interested in screening and counselling is similar in other  
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10 parts of Africa,<sup>26</sup> and in keeping with the generally poor rates of health care utilization by men.<sup>30</sup>  
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12 All the CHWs in this pilot test were women which, along with views that clinics are places for  
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14 women and children,<sup>30</sup> may have contributed to men's reluctance to accept the offer of  
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16 counselling. To enhance the uptake of mental health counselling among men, more work needs  
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18 to be done to understand men's counselling preferences and barriers to health service utilization.  
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20 Consideration should also be given to actively seeking to appoint men in the dedicated  
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22 counsellor role.  
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26 Findings also show the feasibility of retaining chronic disease patients in CHW-delivered  
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28 mental health counselling, regardless of whether a dedicated or designated approach is used.  
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30 However, counselling completion rates were better for the rural sites - possibly because some  
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32 participants from urban sites gained employment and were unable to attend facility-based  
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34 counselling. To overcome this challenge, we have adjusted our protocols to allow CHWs to  
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36 deliver counselling via telephone. Nonetheless, taken together the high counselling completion  
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38 rate, feedback about patient engagement, and requests for additional sessions suggest that  
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40 patients found the counselling acceptable and beneficial. Given these requests, we have decided  
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42 to add an optional problem-solving session to our counselling protocol, which we anticipate may  
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44 enhance and maintain treatment gains.  
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49 Both dedicated and designated CHWs generally thought the counselling was feasible to  
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51 implement. Initially, many CHWs had reservations about delivering mental health counselling,  
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53 but these reservations dissipated with training, delivery experience, and supportive supervision.  
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3 CHWs' observations that counselling improved participants' well-being reinforced their views of  
4 programme acceptability. Designated CHWs also noted how these additional counselling skills  
5 improved their interactions with other patients that they provided with chronic disease care;  
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7 augmenting their positive views of this programme. Both designated and dedicated CHWs did  
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9 however, believe that additional training and more opportunities for counselling skills rehearsal  
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11 would enhance the quality of counselling. Based on this feedback, we have extended the training  
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13 schedule to five days to incorporate additional opportunities for role play and rehearsal, added a  
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15 step-by-step guide to each counselling session in the training manual, and we plan to integrate  
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17 additional training opportunities into weekly supervision for both the dedicated and designated  
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19 CHWs. While this weekly supervision provides opportunities for CHWs to develop confidence  
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21 and competence in their new job role, there may be some challenges to the provision of  
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23 supervision in usual care. We anticipate challenges such as negative attitudes towards  
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25 supervision, lack of space to provide supervision, and a lack of priority given to supervision  
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27 within the context of other priorities. Finding a suitably qualified person to deliver psychosocial  
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29 supervision and support could also be a systems-level barrier that will require consideration  
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31 before scaling up counselling. Qualitative work with CHWs tasked with delivering this  
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33 programme and their experiences of supervision may help elucidate these barriers to supervision.  
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42 Finally, we found that CHWs require substantial support to overcome barriers to  
43 counselling implementation in chronic disease services. In this study, CHWs reported  
44 counselling and space challenges. Where chronic disease care teams were more supportive of  
45 mental health counselling, they created an enabling, therapeutic environment that facilitated  
46 counselling implementation. This is not altogether surprising given theories of implementation<sup>31</sup>  
47 and prior research in PHC services<sup>32,33,34</sup> that highlight contextual and organizational factors  
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3 (such as leadership and climate) as critical drivers of counselling implementation. Given that  
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5 PHC facilities are likely heterogenous with regards to readiness to implement mental health  
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7 counselling, the start-up phase of a future trial will include facility readiness workshops aimed at  
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9 ensuring relevant stakeholders are aware of and willing to support mental health counselling  
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11 implementation. Although these barriers were raised by both dedicated and designated CHWs,  
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13 on a whole the issue was more salient for designated CHWs as they were managing multiple  
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15 expectations from the chronic disease care team. Designated CHWs had the additional constraint  
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17 of managing their current workload in addition to this new service. Where designated CHWs  
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19 were supported by their peers (who assisted with some of their usual tasks), they managed the  
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21 additional responsibilities of delivering this intervention better. Based on this finding, we have  
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23 developed a protocol for engaging with NGOs who employ designated CHWs that includes  
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25 discussions about restructuring some of their usual HIV care responsibilities to accommodate  
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27 mental health counselling activities.  
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33 Findings should be interpreted in the light of some limitations. First, we gathered limited  
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35 information on patients who refused screening and cannot determine if there were patient  
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37 characteristics that distinguished those who declined and those who accepted screening. This  
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39 should be addressed in future studies. Second, as there were only a small number of clusters in  
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41 this feasibility test, we cannot draw inferences from the quantitative data. Similarly, the  
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43 designated CHWs responsible for intervention delivery are probably not representative of the  
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45 total population of CHWs working in chronic disease care. Third, our assessment of counselling  
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47 fidelity was limited to a simple fidelity check-list that was not sensitive enough to detect more  
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49 nuanced differences in counselling quality between dedicated and designated counsellors. As  
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51 potential differences in counselling quality may help inform decisions about which model of care  
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3 to invest in, we have developed a more comprehensive assessment of counselling fidelity for use  
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5 in future studies.<sup>22</sup> Finally, as the study was based in PHC facilities in the Western Cape where  
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7 resourcing for health care is somewhat better than other provinces, findings may not be  
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9 generalizable to other parts of the country.  
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## 14 **CONCLUSION**

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16 Findings suggest that while it is largely feasible and acceptable to use either a dedicated or a  
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18 designated approach to CHW-delivered mental health counselling, a few modifications to the  
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20 recruitment, CHW training, and counselling implementation protocols may enhance the  
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22 likelihood of successful implementation. We have adjusted these protocols which are now being  
23  
24 used in a cluster randomized controlled trial comparing the clinical and cost- effectiveness of a  
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26 dedicated approach and a designated approach to CHW-delivered mental health counselling for  
27  
28 improving the mental health and chronic disease outcomes of patients.<sup>22</sup>  
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## 35 **Author Contributions**

36  
37 BM and KS conceived the project, performed the analyses and drafted the manuscript. CL, TN,  
38  
39 CJL, NSL, JAJ, PM, CB and DJS helped develop and refine the project, including data tools, and  
40  
41 revised the draft versions of the manuscript critically. PPW and CvdW played major roles in  
42  
43 developing and organizing the project, data collection and analyses, and revised draft versions of  
44  
45 the manuscript critically. All authors read and approved the final manuscript.  
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3 **Funding:** This study was supported by the joint-funded initiatives of the British Medical  
4  
5 Research Council, Wellcome Trust and Department for International Development  
6  
7 (MR/M014290/1) as well as funding from the South African Medical Research Council.  
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11  
12 **Competing Interests:** None declared.  
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17 **Patient Consent:** Not required  
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20  
21 **Ethics approval:** The South African Medical Research Council (EC 004-02/2015), the  
22  
23 University of Cape Town (089/2015), and Oxford University (OxTREC 567-15) provided ethical  
24  
25 approval for this study. The Western Cape Department of Health approved all procedures (WC  
26  
27 2015\_RP 28-480).  
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33 **Data sharing:** Quantitative data are available on reasonable request from the corresponding  
34  
35 author.  
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### 38 39 40 **Acknowledgements**

41  
42 We thank all study participants, participating facilities, NGOs, our stakeholder advisory group  
43  
44 and our field team.  
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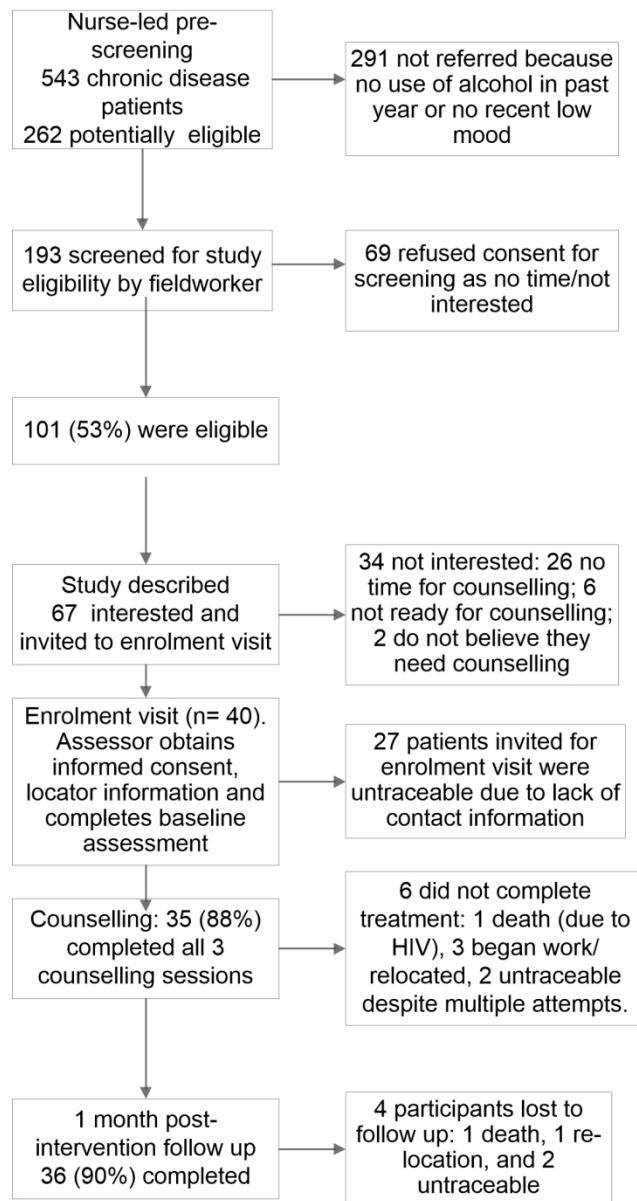
**Legend: Figure 1. Patient flow diagram.**

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**Table 1. Baseline demographic and clinical characteristics of the overall sample (n= 40) and by chronic condition sub-group.**

Variable	Overall sample  N (%)	Treatment for HIV			Treatment for Diabetes		
		Yes (n= 22)	No (n= 18)	<i>p</i>	Yes (n= 20)	No (n= 20)	<i>p</i>
		N (%)	N (%)		N (%)	N (%)	
Gender: Female	34 (85.0%)	18 (81.8)	16 (88.9)	.673	18 (90.0)	16 (80.0)	.661
Race: Mixed race ancestry	22 (55.0%)	8 (36.4)	14 (77.8)	.012*	14 (70.0)	8 (40.0)	.111
Education				.408			.337
Some primary	12 (30.0)	7 (31.8)	5 (27.8)		7 (35.0)	5 (25.0)	
Some secondary	23 (57.5)	11 (50.0)	12 (66.7)		12 (60.0)	11 (55.0)	
Completed secondary	5 (12.5)	4 (18.2)	1 (5.6)		1 (5.0)	4 (20.0)	
Employment (yes)	14 (35.0)	10 (45.5)	4 (22.2)	.186	5 (25.0)	9 (45.0)	.320
Age in years ( <i>M, SD</i> )	44 (12.2)	38.9 (9.7)	50.3 (12.2)	.002*	50.0 (11.8)	38.1 (9.5)	.001*
AUDIT $\geq 8$	8 (20.0)	6 (27.3)	2 (11.1)	.258	2 (10.0)	6 (30.0)	.235
CES-D $\geq 16$	38 (95.0)	20 (90.9)	18 (100)	.492	20 (100)	18 (90.0)	.487

\*Significant association at  $p < 0.05$



Participant flow diagram

95x179mm (300 x 300 DPI)

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3 **Good Reporting of A Mixed Methods Study (GRAMMS) checklist**  
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<b>Guideline</b>	<b>Section: page</b>
Describe the justification for using a mixed methods approach to the research question	Methods- under procedures pg. 8
Describe the design in terms of the purpose, priority and sequence of methods	Methods- procedures pg. 7-8
Describe each method in terms of sampling, data collection and analysis	Procedures pg 7-8 Analysis: pg. 9-10
Describe where integration has occurred, how it has occurred and who has participated in it	Design: pg. 7-8
Describe any limitation of one method associated with the present of the other method	Discussion pg. 15-17
Describe any insights gained from mixing or integrating methods	Discussion: pg. 15-17

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**Community health worker-delivered counselling for  
common mental disorders among chronic disease patients  
in South Africa: a feasibility study**

Journal:	<i>BMJ Open</i>
Manuscript ID	bmjopen-2018-024277.R2
Article Type:	Research
Date Submitted by the Author:	12-Dec-2018
Complete List of Authors:	Myers, Bronwyn; South African medical Research Council, Alcohol, Tobacco and Other Drug Research Unit Petersen-Williams, Petal; South African Medical Research Council, Alcohol, Tobacco and Other Drug Research Unit van der westhuizen, Claire; University of Cape Town, Centre for Public Mental Health Lund, Crick; University of Cape Town, Centre for Public Mental Health Lombard, Carl; South Africa Medical Research Council, Biostatistics Unit Joska, John; University of Cape Town, Department of Psychiatry and Mental Health Levitt, Naomi; University of Cape Town , medicine Butler, C; University of Oxford, Nuffield School of Primary Care Naledi, Tracey; University of Cape Town, Desmond Tutu HIV/TB Research Centre Milligan, Peter; Western Cape Department of Health, Mental Health Stein, Dan; University of Cape Town, Department of Psychiatry and Mental Health Sorsdahl, Katherine; University of Cape Town, Centre for Public Mental Health
<b>Primary Subject Heading</b>:	Mental health
Secondary Subject Heading:	Addiction, Global health, Health services research
Keywords:	community health worker, mental health counselling, alcohol, depression, chronic disease, South Africa

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3 **Community health worker-delivered counselling for common mental**  
4 **disorders among chronic disease patients in South Africa: a feasibility study**  
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10 Bronwyn Myers,<sup>1,2</sup> Petal Petersen Williams,<sup>1-2</sup> Claire van der Westhuizen,<sup>3</sup> Crick Lund,<sup>3,4</sup> Carl  
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12 Abstract word count: 287  
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14  
15 Manuscript word count: 3603  
16  
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## ABSTRACT

**Objectives:** To examine the feasibility and acceptability of integrating a “designated” approach to community health worker (CHW)-delivered mental health counselling (where existing CHWs deliver counselling in addition to usual duties) and a “dedicated” approach (where additional CHWs have the sole responsibility of delivering mental health counselling) into chronic disease care.

**Design:** A feasibility test of a designated and dedicated approach to CHW-delivered counselling and qualitative interviews of CHWs delivering the counselling.

**Setting:** Four primary health care clinics in the Western Cape, South Africa allocated to either a designated or dedicated approach and stratified by urban/rural status.

**Participants:** Forty chronic disease patients (20 with HIV, 20 with diabetes) reporting hazardous alcohol use or depression. Interviews with 7 CHWs.

**Intervention:** Three sessions of structured mental health counselling.

**Main Outcome Measures:** We assessed feasibility by examining the proportion of patients who were willing to be screened, met inclusion criteria, provided consent, completed counselling, and were retained in the study. Acceptability of these delivery approaches was assessed through qualitative interviews of CHWs.

**Results:** Regardless of approach, a fair proportion (67%) of eligible patients were willing to receive mental health counselling. Patients who screened positive for depression were more likely to be interested in counselling than those with hazardous alcohol only. Retention in counselling (85%) and the study (90%) was good and did not differ by approach. Both dedicated



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3 and designated CHWs viewed the counselling package as highly acceptable but requested  
4 additional training and support to facilitate implementation.  
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7 **Conclusions:** Dedicated and designated approaches to CHW-delivered mental health counselling  
8 were matched in terms of their feasibility and acceptability. A comparative efficacy trial of these  
9 approaches is justified, with some adjustments to the training and implementation protocols to  
10 provide further support to CHWs.  
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## 16 17 18 19 **ARTICLE SUMMARY**

### 20 21 **Strengths and limitations of the study**

- 22 • The first study to compare the feasibility and acceptability of two different approaches to  
23 resourcing CHW-delivered mental health counselling.
- 24 • The use of mixed methods enables triangulation of findings, increasing confidence in the  
25 results.
- 26 • Qualitative interviews provide a rich description of CHWs' experiences of delivering  
27 mental health counselling.
- 28 • There were only a small number of clusters, therefore we cannot draw inferences from  
29 the quantitative data.
- 30 • The CHWs included in this study may not be representative of the total population of  
31 CHWs working in chronic disease care.  
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49 **Keywords:** community health worker, mental health counselling, hazardous alcohol, depression,  
50 chronic disease, South Africa, HIV, Diabetes  
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## BACKGROUND

In South Africa, like other low- and middle-income countries (LMIC), there is a substantial treatment gap for common mental disorders (CMDs).<sup>1</sup> Untreated mental disorders contribute to the country's large burden of disease associated with other non-communicable diseases (NCDs) such as diabetes and chronic communicable diseases (such as HIV).<sup>2</sup> South African studies have demonstrated high levels of CMD and other NCD multi-morbidity among the general population<sup>3-4</sup> and among patients attending primary health care (PHC) facilities.<sup>5</sup> As untreated CMDs are associated with poorer adherence to chronic disease treatment and more adverse outcomes,<sup>6-7</sup> there is a public health imperative to reduce the treatment gap for these patients.

A recommended strategy for reducing this gap is the integration of counselling for CMDs into chronic disease services provided in PHC clinics<sup>8</sup>. Severe shortages of mental health specialists in South Africa have impacted on the implementation of this strategy.<sup>9</sup> To overcome this challenge, and in keeping with the World Health Organisation's (WHO) recommendations for increasing mental health care access,<sup>10</sup> South Africa has endorsed task sharing of basic mental health counselling to non-specialist providers, including community health workers (CHWs) deployed within PHC services.<sup>11</sup> Systematic reviews highlight the feasibility and acceptability of using trained CHWs to deliver counselling in LMICs.<sup>12-14</sup> There is also emerging evidence suggesting that CHW-delivered interventions may reduce both depression and hazardous alcohol use.<sup>15</sup> Despite this promising evidence, uncertainty about how best to configure resources within the PHC system to enable CHW-delivered mental health interventions within chronic disease care has delayed implementation. Some argue that CHWs working in chronic disease teams have spare capacity and can be *designated* to deliver counselling in addition to their usual responsibilities.<sup>16</sup> Others contend that these CHWs are

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3 already overloaded so it is impossible for them to deliver additional counselling. In this view,  
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5 CHWs *dedicated* to the delivery of mental health care are needed to ensure the feasibility of this  
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7 service.<sup>11</sup>  
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10 To guide health planners in their decisions about how to integrate mental health  
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12 counselling into chronic disease care, the feasibility, acceptability and cost-effectiveness of these  
13  
14 approaches to CHW-delivered counselling must be established. This study examined the  
15  
16 feasibility of integrating a dedicated and a designated approach to CHW-delivered counselling  
17  
18 for CMDs into chronic disease care in PHC facilities in the Western Cape province of South  
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20 Africa. Specific aims were to explore (i) the feasibility of recruiting and retaining chronic disease  
21  
22 patients for CHW-delivered mental health counselling and (ii) dedicated and designated CHWs'  
23  
24 perceptions of the feasibility and acceptability of delivering mental health counselling to chronic  
25  
26 disease patients. Findings will inform patient recruitment and retention protocols and CHW  
27  
28 training and intervention protocols that will be used in a future trial examining the relative  
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30 effectiveness and cost-effectiveness of these two approaches to CHW-delivered counselling.  
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## 38 **METHODS**

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40 This manuscript is in accordance with the “Good reporting of a mixed methods study guidelines”  
41  
42 (GRAMMS). See Supplementary file 1 for the GRAMM checklist. The study, conducted from  
43  
44 May to October 2016, comprised a feasibility test of CHW-delivered counselling and qualitative  
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46 interviews of CHWs.  
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### 51 **Study sites, participants and procedures**

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3 We recruited chronic disease patients from four PHC clinics in the Western Cape. Two sites  
4 (stratified by urban/rural status) used *dedicated* CHWs and the remaining two sites (stratified by  
5 urban/rural status) used *designated* CHWs to deliver the counselling. At the designated sites, the  
6 job descriptions of CHWs employed by non-governmental organisations (NGOs) to deliver HIV  
7 adherence counselling within these facilities were expanded to include mental health counselling.  
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9 At the dedicated sites, additional CHWs were appointed with the sole responsibility of delivering  
10 this new service.  
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19 During the recruitment period, health providers asked all patients presenting for HIV or  
20 diabetes treatment were asked about their past-year alcohol use and recent low mood. Patients  
21 who responded positively were referred to a study assessor who requested verbal consent for  
22 study eligibility screening. Eligibility criteria included being (i) at least 18 years old; (ii) on  
23 antiretroviral therapy (ART) for HIV or medication for diabetes; and (iii) reporting  
24 hazardous/harmful drinking using the Alcohol Use Disorders Identification Test (AUDIT)<sup>17</sup> or  
25 probable depression using the Center for Epidemiological Studies Depression scale (CES-D).<sup>18</sup>  
26 The AUDIT has been validated for use in South Africa, with cut off scores  $\geq 8$  indicating  
27 hazardous alcohol use.<sup>19</sup> The CES-D measures change in symptoms of depression, with a cut-off  
28 score  $\geq 16$  indicating probable depression.<sup>20</sup> Patients receiving other mental health treatment or  
29 participating in another study were excluded. We followed these procedures until we recruited  
30 10 participants per site (five unique participants with HIV and five unique participants with  
31 diabetes) for a total sample of 40 participants.  
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49 At the enrolment appointment, the assessor obtained informed consent before  
50 administering the baseline assessment in English, Afrikaans or isiXhosa (main languages of the  
51 region). This computer-assisted assessment collected socio-demographic information on age,  
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3 race, gender, education level, and employment status; HIV and diabetes status; and used the  
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5 AUDIT and CES-D to assess extent of hazardous/harmful alcohol use and depression. After  
6  
7 completing this assessment, three counselling sessions (spaced at least a week apart) were  
8  
9 scheduled with the CHW. Participants had six weeks to complete all three sessions. Participants  
10  
11 returned for a follow-up appointment one month after their last counselling session. At this  
12  
13 appointment, the assessor re-administered the baseline assessment. All study activities occurred  
14  
15 in private rooms at the PHC facility. Participants received grocery vouchers for completing each  
16  
17 research assessment; they were not incentivised to attending counselling.  
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21  
22 After this feasibility test, in order to better understand and corroborate the quantitative  
23  
24 findings, an independent qualitative researcher interviewed the seven CHWs who delivered the  
25  
26 intervention. Interviews were conducted in English, were audio-recorded, and lasted up to 60  
27  
28 minutes. Interviews followed a semi-structured guide with opening questions and follow-up  
29  
30 probes to elicit CHWs' experiences of delivering the intervention, barriers to delivery, and  
31  
32 suggestions for altering the proposed training and intervention protocols to enhance feasibility  
33  
34 and acceptability.  
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## 42 **Description of counselling programme and CHWs**

43  
44 Counselling comprised three structured sessions of motivational interviewing (MI) and problem-  
45  
46 solving therapy (PST) which has evidence for efficacy among South African PHC patients.<sup>21</sup>  
47  
48 The rationale for selecting this approach has been described elsewhere.<sup>22</sup> During this programme,  
49  
50 the CHW and participant collaborated to identify and explore problems within the participant's  
51  
52 life while the CHW taught the participant a structured PST approach to resolving these concerns.  
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3 Participants learned strategies for addressing problems that are important and resolvable, for  
4 dealing with negative and intrusive worries that are unrelated to their life goals, and strategies for  
5 coping with important problems that are unresolvable. Participants rehearsed these new skills  
6 through exercises and take-home activities contained in a patient handbook.  
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12 Dedicated and designated CHWs who were selected and trained to deliver the  
13 intervention were matched on qualifications (completion of high school and training as HIV  
14 adherence counsellors), experience as HIV adherence counsellors, and remuneration. Both the  
15 dedicated and designated CHWs received three days of training in screening for  
16 hazardous/harmful alcohol use and depression, the counselling programme, and referral  
17 pathways. All counselling sessions were audiotaped; a registered psychological counsellor  
18 reviewed a random sample of these for fidelity using a simple fidelity check-list. No differences  
19 in fidelity were observed between the designated and dedicated CHWs. Supervision and de-  
20 briefing of all the CHWs in the dedicated and designated arms was task-shared from a  
21 psychologist to a registered psychological counsellor, in line with the South African National  
22 Mental Health Policy Frameworks vision of district mental health teams.<sup>11</sup> This psychological  
23 counsellor provided both dedicated and designated CHWs with weekly individual supervision in  
24 which feedback on counselling sessions and how to improve fidelity and quality of counselling,  
25 re-training in aspects of the programme occurred if needed, and de-briefing was provided for  
26 difficult or challenging cases.  
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### 49 **Patient and public involvement**

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51 Chronic disease patients and the broader public were involved in the design and implementation  
52 of this study. The two task-sharing models and the design of the feasibility test were informed by  
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3 interviews with chronic disease patients with untreated depression or hazardous alcohol use.<sup>23</sup>  
4  
5 Our stakeholder advisory group, that comprises representatives from the Department of Health,  
6  
7 PHC facilities, charities, and service user organisations proposed this feasibility test and  
8  
9 contributed to the design of the study and the interpretation of findings.  
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## 14 **Analyses**

15  
16 SPSS version 25.0 was used to assess the proportion of patients who (i) were willing to be  
17  
18 screened, (ii) met inclusion criteria, (iii) enrolled into counselling, (iv) completed counselling,  
19  
20 and (v) were retained in the study. Possible differences in performance on recruitment and  
21  
22 retention indicators by site (urban versus rural; dedicated versus designated) and patient  
23  
24 characteristics were explored using Chi-square tests for categorical and t-tests for continuous  
25  
26 variables. All testing was two-sided and used a significance level of 0.05.  
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31 We used the framework approach<sup>24</sup> to analyze qualitative data. Two study staff used  
32  
33 NVivo version 11 to code interview transcripts; they met regularly to compare notes and resolve  
34  
35 discrepancies. A third person was not needed to break coding ties. No new codes emerged after  
36  
37 coding half the transcripts, implying thematic saturation. Inter-coder reliability was high, with a  
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39 Kappa score of 0.92.  
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## 44 **RESULTS**

### 45 **Feasibility of recruitment and retention**

46  
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48 Of the 553 chronic disease patients screened for recent alcohol use and depressed mood, 262  
49  
50 (48%) were potentially eligible for study inclusion and referred for eligibility screening. About a  
51  
52 quarter (26%, n= 69) declined screening, mainly due to lack of time or interest. There were no  
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3 demographic and site differences between those that accepted and those that declined the offer of  
4 screening..  
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8 Of the 193 remaining patients, 101 met inclusion criteria. Sixteen patients (16%) were  
9 eligible on their AUDIT scores, 69 (58%) on their CES-D scores, and 16 (16%) on their AUDIT  
10 and CES-D scores. Sixty-seven (66%) of these eligible patients were interested in participation.  
11  
12 Figure one (Fig 1) presents reasons for declining participation. Site characteristics were not  
13 associated with declining participation. Patients who were eligible based on their CES-D scores  
14 were more likely to be interested in participation (74%) than those who were only eligible based  
15 on their AUDIT scores (33%;  $p = 0.005$ ). Gender was associated with interest in participation:  
16 74% of eligible women versus 46% of eligible men ( $p = 0.018$ ). Only 40 of these 67 patients  
17 returned for their enrolment visit; the remainder were untraceable. Participants who were  
18 untraceable were more likely to be recruited from urban than rural sites (51% vs. 26%;  $p =$   
19 0.038). There were no other differences between eligible, interested patients who were enrolled  
20 and those who were not.  
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35 Of these 40 participants, 22 were HIV positive and 18 had diabetes (two had both  
36 conditions). Almost all participants ( $n=38$ , 95%) had CES-D scores  $\geq 16$  while only 20% of the  
37 sample ( $n=8$ ) met criteria for hazardous/harmful alcohol use. Table 1 depicts the demographic  
38 and clinical characteristics of the sample. Of these 40 participants, 34 (85%) completed the entire  
39 counselling programme (Fig. 1 shows reasons for not completing counselling). Treatment  
40 completers and non-completers did not differ on demographic or clinical characteristics.  
41  
42 Participants from rural sites were more likely to complete treatment than those from urban sites  
43 (95% versus 75%;  $p = 0.04$ ). Participants from dedicated and designated sites were equally likely  
44 to complete treatment. Thirty-six (90%) participants completed the follow-up assessment. Fig. 1  
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3 provides reasons for attrition. Study completers and non-completers did not differ on any  
4 demographic or clinical characteristics. Site characteristics were not associated with study  
5 completion.  
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### 10 11 12 **Perceptions of the feasibility and acceptability of the counselling programme**

13  
14 Three themes emerged from the data that reflect CHWs' perceptions of the feasibility and  
15 acceptability of implementing the proposed counselling program. The first theme describes  
16 CHWs' perceived confidence in their ability to deliver this new service. The second theme  
17 describes the acceptability of the proposed counselling package to CHWs. The third theme  
18 describes CHWs' experiences of barriers to counselling delivery and their recommendations for  
19 mitigating these barriers.  
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#### 31 *Confidence in ability to deliver mental health counselling*

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33 Both dedicated and designated CHWs had limited experience in delivering psychological  
34 counselling; this programme represented an expansion of their scope of work. They described the  
35 intervention as "something new" and "different from the counselling we did". As this was a shift  
36 in practice, they had some concerns about whether the training protocols adequately prepared  
37 them for intervention delivery. Most CHWs thought additional time was needed rehearse the  
38 content of the sessions and to build their confidence and competency:  
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47 The training should be about five days. Five days gives you enough time to role play and  
48 ask questions and grasp everything ... The role play, there was not actually proper time  
49 for that.  
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51 [dedicated CHW]

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3 While most CHWs reported initially being a “bit scared because it was something new”,  
4 they still viewed their involvement with the programme as an opportunity to learn how to work  
5 more effectively with their patients and “to develop their skills”:  
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10 In the past I was running out of options because they [patients] were depressed ... I  
11 learned through this intervention to give the participant space to open up.  
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15 [designated CHW]  
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### 17 *Perceived benefits of the intervention*

18  
19 All CHWs viewed the intervention as acceptable and beneficial to chronic disease patients.  
20 Dedicated and designated CHWs emphasised how “there is really a need for this intervention”  
21 and that “a lot of patients here can benefit.” The acceptability of the programme to patients  
22 seemed high, with CHWs commenting on how well patients engaged with the intervention. As  
23 one dedicated CHW described, “It seems like when I’m doing session one, they can’t wait for  
24 session two to give me feedback”. All CHWs were able to provide concrete examples of how  
25 patients applied the problem-solving skills they had learned to resolve problems. They also  
26 observed positive changes in patients, which was personally rewarding:  
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37 I saw that each session is making a difference to other people. And to see that people are  
38 coming again to finish their sessions ... it’s telling me the intervention is making a  
39 difference to people.  
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42 [designated CHW]  
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44 Nonetheless, some CHWs felt that patients could benefit from more sessions for there to  
45 be “a difference in a person’s life.” Some CHWs suggested offering an additional counselling  
46 session to review the patient’s progress in reaching their goals.  
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51 Not only were there perceived benefits for patients who received this intervention, but  
52 other patients also seemed to benefit from the designated CHWs’ enhanced counselling skills.  
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3 Several designated CHWs noted how they now routinely used their new counseling skills in their  
4  
5 interactions with other patients:  
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8 I put it as part of my daily work ... when I am busy with a session with another patient,  
9  
10 then I also try to bring in Project Mind problem solving. It helps me understand where  
11  
12 my patient is coming from. [designated CHW]  
13

14  
15 In addition, both the dedicated and designated CHWs appeared to benefit personally from  
16  
17 this programme, describing how they now applied PST strategies to resolve problems in their  
18  
19 own lives and limit negative thoughts:  
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21  
22 I used to worry a lot ... when I was doing the intervention then I realised that there are  
23  
24 things we worry about that are not important. ... so it seems like I am helping someone  
25  
26 else, and I am also helping myself. [dedicated CHW]  
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### 31 *Lessons for future implementation*

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33 According to CHWs, support from the PHC facility, other CHWs, and the NGOs that employed  
34  
35 them (where applicable) was critical for facilitating counselling delivery. In facilities where the  
36  
37 designated and dedicated CHWs described facility staff as “supportive” and “interested”, the  
38  
39 counselling proceeded smoothly. However, in PHC facilities where staff seemed less interested,  
40  
41 CHWs were often interrupted during counselling, impacting on the therapeutic alliance. For  
42  
43 these facilities, CHWs recommended that facility managers and staff are thoroughly informed  
44  
45 about the initiative so that “they know what it is all about so when you are busy with a client they  
46  
47 just give you some time to do it.”  
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52 For designated CHWs, competing priorities and limited time were barriers to counselling  
53  
54 delivery. These CHWs felt they were “doing three jobs”, with almost all mentioning that it  
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3 would be easier to deliver the programme if all they did “was concentrate on the intervention.”  
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5 This was not an issue for dedicated CHWs who had more time available to conduct the  
6  
7 counselling. Where fellow CHWs assisted the designated CHW with their usual HIV care  
8  
9 responsibilities, thereby freeing up some of the designated CHW’s time, the CHW felt more  
10  
11 empowered to deliver the intervention. This realignment of the responsibilities of the CHW team  
12  
13 to accommodate mental health counselling happened organically at some (but not all) of the  
14  
15 designated sites. To facilitate this re-alignment in the future, designated CHWs thought it would  
16  
17 be helpful for NGO employers and supervisors to be more involved in training and discussions  
18  
19 about the implementation of the intervention, so that they “have a better understanding” about  
20  
21 what is required from their staff:  
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25  
26 There was some miscommunication because they [NGO] didn’t have a lot of  
27  
28 understanding as to what was expected from us. So for future, it would be nice if the  
29  
30 managers could be in one of the training sessions just to know what it is all about ... to  
31  
32 avoid confusion as to the time spent with patients. [designated CHW]  
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## 37 **DISCUSSION**

38  
39 This study examined the feasibility and acceptability of a dedicated or designated approach to  
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41 CHW-delivered mental health counselling within the context of chronic disease care in South  
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43 Africa and found few differences. It contributes to the growing evidence-base of the feasibility  
44  
45 and acceptability of task shared mental health interventions in Africa and other LMICs.<sup>25, 26, 27</sup>  
46  
47 Findings suggest that regardless of whether counselling was delivered by a dedicated or  
48  
49 designated CHW, (i) a fair proportion of patients were willing to receive mental health  
50  
51 counselling; (ii) retention in counselling and the study was good; and (iii) both dedicated and  
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3 designated CHWs viewed the counselling package as highly acceptable but requested additional  
4  
5 training and support to facilitate implementation.  
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8 More specifically, findings suggest high levels of unmet need for and adequate uptake of  
9  
10 mental health counselling among chronic disease patients in this setting. This supports the  
11  
12 feasibility of recruiting chronic disease patients for mental health counselling for a larger study.  
13  
14 However, the counselling refusal rate was higher than anticipated - particularly among hazardous  
15  
16 drinkers without depression and men. Counselling refusals rates were similar for the dedicated  
17  
18 and designated models. As we approached patients who were not actively seeking mental health  
19  
20 care, some may have been ambivalent about the offer of counselling. Concern about health  
21  
22 provider stigma towards people with alcohol problems also may have contributed to this  
23  
24 finding.<sup>28</sup> Further, as psychological distress is a known driver of counselling readiness among  
25  
26 patients with alcohol problems,<sup>29</sup> patients who reported hazardous alcohol use without co-  
27  
28 occurring depression may have been less motivated to initiate counselling than those with  
29  
30 depression. Guided by these findings, we have modified our recruitment protocols to ensure a  
31  
32 future trial is able to recruit sufficient numbers of people with hazardous alcohol use and  
33  
34 depression to allow for the assessment of change on either outcome. Recruitment protocols now  
35  
36 include health talks at PHC facilities to help reduce the stigma associated with CMDs;  
37  
38 distribution of handouts that provide patients with information about the study before they are  
39  
40 approached for screening; and additional opportunities for eligible patients who decline the  
41  
42 initial offer of counselling to receive counselling.  
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49 Our finding of men being less interested in screening and counselling is similar in other  
50  
51 parts of Africa,<sup>26</sup> and in keeping with the generally poor rates of health care utilization by men.<sup>30</sup>  
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53 All the CHWs in this pilot test were women which, along with views that clinics are places for  
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3 women and children,<sup>30</sup> may have contributed to men's reluctance to accept the offer of  
4 counselling. To enhance the uptake of mental health counselling among men, more work needs  
5  
6 to be done to understand men's counselling preferences and barriers to health service utilization.  
7  
8 Consideration should also be given to actively seeking to appoint men in the dedicated  
9  
10 counsellor role.  
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15 Findings also show the feasibility of retaining chronic disease patients in CHW-delivered  
16  
17 mental health counselling, regardless of whether a dedicated or designated approach is used.  
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19 However, counselling completion rates were better for the rural sites - possibly because some  
20  
21 participants from urban sites gained employment and were unable to attend facility-based  
22  
23 counselling. To overcome this challenge, we have adjusted our protocols to allow CHWs to  
24  
25 deliver counselling via telephone. Nonetheless, taken together the high counselling completion  
26  
27 rate, feedback about patient engagement, and requests for additional sessions suggest that  
28  
29 patients found the counselling acceptable and beneficial. Given these requests, we have decided  
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31 to add an optional problem-solving session to our counselling protocol, which we anticipate may  
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33 enhance and maintain treatment gains.  
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37  
38 Both dedicated and designated CHWs generally thought the counselling was feasible to  
39  
40 implement. Initially, many CHWs had reservations about delivering mental health counselling,  
41  
42 but these reservations dissipated with training, delivery experience, and supportive supervision.  
43  
44 CHWs' observations that counselling improved participants' well-being reinforced their views of  
45  
46 programme acceptability. Designated CHWs also noted how these additional counselling skills  
47  
48 improved their interactions with other patients that they provided with chronic disease care;  
49  
50 augmenting their positive views of this programme. Both designated and dedicated CHWs did  
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52 however, believe that additional training and more opportunities for counselling skills rehearsal  
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3 would enhance the quality of counselling. Based on this feedback, we have extended the training  
4 schedule to five days to incorporate additional opportunities for role play and rehearsal, added a  
5 step-by-step guide to each counselling session in the training manual, and we plan to integrate  
6 additional training opportunities into weekly supervision for both the dedicated and designated  
7 CHWs. While this weekly supervision provides opportunities for CHWs to develop confidence  
8 and competence in their new job role, there may be some challenges to the provision of  
9 supervision in usual care. We anticipate challenges such as negative attitudes towards  
10 supervision, lack of space to provide supervision, and a lack of priority given to supervision  
11 within the context of other priorities. Finding a suitably qualified person to deliver psychosocial  
12 supervision and support could also be a systems-level barrier that will require consideration  
13 before scaling up counselling. Qualitative work with CHWs tasked with delivering this  
14 programme and their experiences of supervision may help elucidate these barriers to supervision.  
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31 Finally, we found that CHWs require substantial support to overcome barriers to  
32 counselling implementation in chronic disease services. In this study, CHWs reported  
33 counselling and space challenges. Where chronic disease care teams were more supportive of  
34 mental health counselling, they created an enabling, therapeutic environment that facilitated  
35 counselling implementation. This is not altogether surprising given theories of implementation<sup>31</sup>  
36 and prior research in PHC services<sup>32,33,34</sup> that highlight contextual and organizational factors  
37 (such as leadership and climate) as critical drivers of counselling implementation. Given that  
38 PHC facilities are likely heterogenous with regards to readiness to implement mental health  
39 counselling, the start-up phase of a future trial will include facility readiness workshops aimed at  
40 ensuring relevant stakeholders are aware of and willing to support mental health counselling  
41 implementation. Although these barriers were raised by both dedicated and designated CHWs,  
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3 on a whole the issue was more salient for designated CHWs as they were managing multiple  
4 expectations from the chronic disease care team. Designated CHWs had the additional constraint  
5 of managing their current workload in addition to this new service. Where designated CHWs  
6 were supported by their peers (who assisted with some of their usual tasks), they managed the  
7 additional responsibilities of delivering this intervention better. Based on this finding, we have  
8 developed a protocol for engaging with NGOs who employ designated CHWs that includes  
9 discussions about restructuring some of their usual HIV care responsibilities to accommodate  
10 mental health counselling activities.  
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21 Findings should be interpreted in the light of some limitations. First, we gathered limited  
22 information on patients who refused screening and cannot determine if there were patient  
23 characteristics that distinguished those who declined and those who accepted screening. This  
24 should be addressed in future studies. Second, as there were only a small number of clusters in  
25 this feasibility test, we cannot draw inferences from the quantitative data. Similarly, the  
26 designated CHWs responsible for intervention delivery are probably not representative of the  
27 total population of CHWs working in chronic disease care. Third, our assessment of counselling  
28 fidelity was limited to a simple fidelity check-list that was not sensitive enough to detect more  
29 nuanced differences in counselling quality between dedicated and designated counsellors. As  
30 potential differences in counselling quality may help inform decisions about which model of care  
31 to invest in, we have developed a more comprehensive assessment of counselling fidelity for use  
32 in future studies.<sup>22</sup> Finally, as the study was based in PHC facilities in the Western Cape where  
33 resourcing for health care is somewhat better than other provinces, findings may not be  
34 generalizable to other parts of the country.  
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## CONCLUSION

Findings suggest that while it is largely feasible and acceptable to use either a dedicated or a designated approach to CHW-delivered mental health counselling, a few modifications to the recruitment, CHW training, and counselling implementation protocols may enhance the likelihood of successful implementation. We have adjusted these protocols which are now being used in a cluster randomized controlled trial comparing the clinical and cost-effectiveness of a dedicated approach and a designated approach to CHW-delivered mental health counselling for improving the mental health and chronic disease outcomes of patients.<sup>22</sup>

### Author Contributions

BM and KS conceived the project, performed the analyses and drafted the manuscript. CL, TN, CJL, NSL, JAJ, PM, CB and DJS helped develop and refine the project, including data tools, and revised the draft versions of the manuscript critically. PPW and CvdW played major roles in developing and organizing the project, data collection and analyses, and revised draft versions of the manuscript critically. All authors read and approved the final manuscript.

**Funding:** This study was supported by the joint-funded initiatives of the British Medical Research Council, Wellcome Trust and Department for International Development (MR/M014290/1) as well as funding from the South African Medical Research Council.

**Competing Interests:** None declared.

**Patient Consent:** Not required

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5 **Ethics approval:** The South African Medical Research Council (EC 004-02/2015), the  
6 University of Cape Town (089/2015), and University of Oxford (OxTREC 567-15) provided  
7 ethical approval for this study. The Western Cape Department of Health approved all procedures  
8 (WC 2015\_RP 28-480).  
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17 **Data sharing:** Quantitative data are available on reasonable request from the corresponding  
18 author.  
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## 22 **Acknowledgements**

23  
24 We thank all study participants, participating facilities, NGOs, our stakeholder advisory group  
25 and our field team.  
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**Legend: Figure 1. Patient flow diagram.**

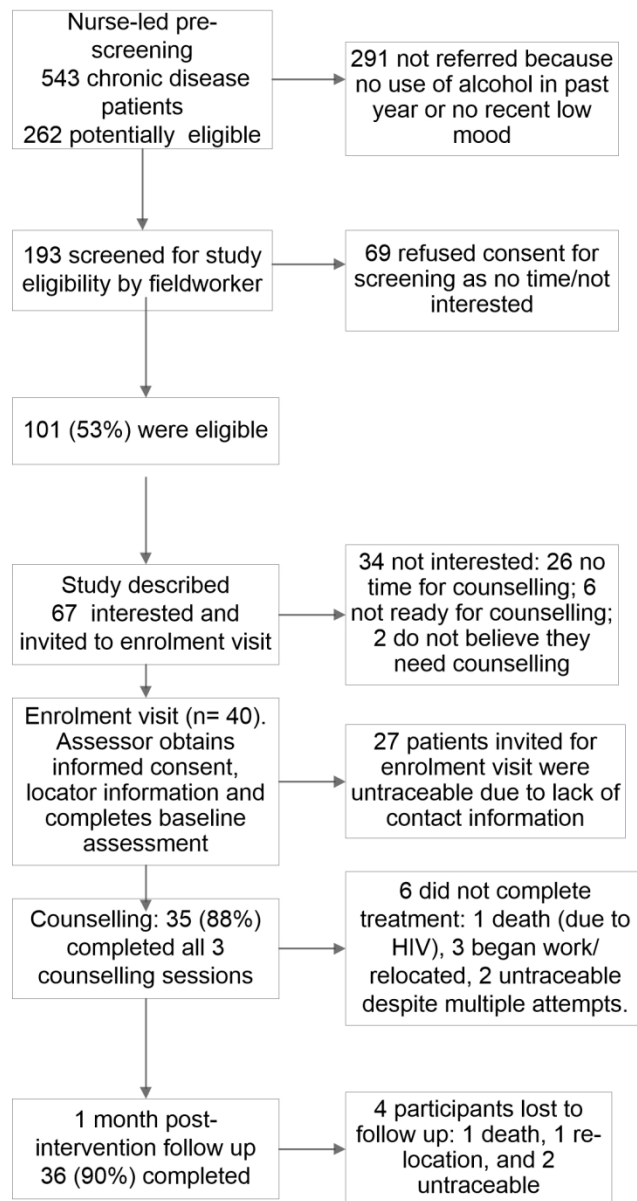
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**Table 1. Baseline demographic and clinical characteristics of the overall sample (n= 40) and by chronic condition sub-group.**

Variable	Overall sample  N (%)	Treatment for HIV			Treatment for Diabetes		
		Yes (n= 22)	No (n= 18)	<i>p</i>	Yes (n= 20)	No (n= 20)	<i>p</i>
		N (%)	N (%)		N (%)	N (%)	
Gender: Female	34 (85.0%)	18 (81.8)	16 (88.9)	.673	18 (90.0)	16 (80.0)	.661
Race: Mixed race ancestry	22 (55.0%)	8 (36.4)	14 (77.8)	.012*	14 (70.0)	8 (40.0)	.111
Education				.408			.337
Some primary	12 (30.0)	7 (31.8)	5 (27.8)		7 (35.0)	5 (25.0)	
Some secondary	23 (57.5)	11 (50.0)	12 (66.7)		12 (60.0)	11 (55.0)	
Completed secondary	5 (12.5)	4 (18.2)	1 (5.6)		1 (5.0)	4 (20.0)	
Employment (yes)	14 (35.0)	10 (45.5)	4 (22.2)	.186	5 (25.0)	9 (45.0)	.320
Age in years ( <i>M, SD</i> )	44 (12.2)	38.9 (9.7)	50.3 (12.2)	.002*	50.0 (11.8)	38.1 (9.5)	.001*
AUDIT ≥8	8 (20.0)	6 (27.3)	2 (11.1)	.258	2 (10.0)	6 (30.0)	.235
CES-D ≥ 16	38 (95.0)	20 (90.9)	18 (100)	.492	20 (100)	18 (90.0)	.487

\*Significant association at  $p < 0.05$



Participant flow diagram

95x179mm (300 x 300 DPI)

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3 **Good Reporting of A Mixed Methods Study (GRAMMS) checklist**  
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<b>Guideline</b>	<b>Section: page</b>
Describe the justification for using a mixed methods approach to the research question	Methods- under procedures pg. 8
Describe the design in terms of the purpose, priority and sequence of methods	Methods- procedures pg. 7-8
Describe each method in terms of sampling, data collection and analysis	Procedures pg 7-8 Analysis: pg. 9-10
Describe where integration has occurred, how it has occurred and who has participated in it	Design: pg. 7-8
Describe any limitation of one method associated with the present of the other method	Discussion pg. 15-17
Describe any insights gained from mixing or integrating methods	Discussion: pg. 15-17

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