Published in final edited form as:

Community Ment Health J. 2016 July ; 52(5): 541–550. doi:10.1007/s10597-016-0003-9.

Passive Suicidal Ideation and Community Mental Health Resources in South Africa

Pamela Y. Collins¹, Leeza Kondos², Aravind Pillai³, Sarah S. Joestl⁴, and Janet Frohlich⁵

Pamela Y. Collins: pamelacollins@nih.gov; Leeza Kondos: lmcondos@gmail.com; Aravind Pillai: ap2664@cumc.columbia.edu; Sarah S. Joestl: sjoestl@cdc.gov; Janet Frohlich: Janet.Frohlich@caprisa.org

¹National Institute of Mental Health/NIH, Bethesda, MD, USA

²Public Health Institute, Global Health Bureau, United States Agency for International Development, Washington, DC, USA

³Mailman School of Public Health, Columbia University, New York, NY, USA

⁴National Center for Health Statistics, Center for Disease Control, Hyattsville, MD, USA

⁵Center for the AIDS Programme of Research in South Africa, University of KwaZulu-Natal, Durban, South Africa

Abstract

South African communities continue to experience elevated incidence and prevalence of HIV infection. Passive suicidal ideation (PSI) may be one expression of distress in high prevalence communities. We report the prevalence of PSI and examine the relationship between PSI and participation in community organizations in a semi-rural sample of South African adults (N = 594). The prevalence of PSI in the 2 weeks prior to the interview was 9.1 %. Members of burial societies ($X^2 = 7.34$; $p = 0.01$) and stokvels ($X^2 = 4.1$; $p = 0.04$) (community-based savings groups) reported significantly less PSI compared to other respondents. Using a multivariate model adjusted for demographic characteristics, psychological distress, and socioeconomic status, we found lower odds of reporting PSI for members of burial societies (OR 0.48, CI 0.25–0.91). Participation in community organizations that provide contextually salient resources in settings with high levels of distress may be a resource for mental health.

Keywords

Passive suicidal ideation; Community resources; Community mental health; Africa; HIV/AIDS

Correspondence to: Pamela Y. Collins, pamelacollins@nih.gov.

Conflict of interest The authors declare that they have no conflict of interest.

Ethical Approval All applicable international, national, and/or institutional guidelines for the care and use of animals were followed in the parent study from which the data were generated. The current study on which the manuscript is based is restricted to a secondary data analysis of previously collected anonymous data, and no human participants were involved in this analysis. For this type of study formal consent is not required.

Introduction

Rapid expansion of access to antiretroviral therapy in southern sub-Saharan Africa has yielded a significant increase in life-years since 2008 (Mossong et al. 2014; UNAIDS 2012b); yet, AIDS remained the leading contributor to premature death in southern sub-Saharan Africa in 2010 (Murray et al. 2012), and the region continued to have the highest HIV-associated mortality in the world in 2013 (Murray et al. 2014). South Africa has the largest number of people living with HIV globally, and approximately 31 % of people living with HIV had received access to antiretroviral therapy by the middle of 2012 (Shisana et al. 2014). In tandem with expanded HIV care and treatment, elevated HIV incidence rates among young women in urban and rural communities persist (Abdool-Karim et al. 2010). The prevalence of HIV in the province of Kwa-Zulu Natal, South Africa's most highly affected province, increased to 28 % in 2012, due to greater survival of people with HIV and to new infections (Shisana et al. 2014). KwaZulu-Natal (KZN) is expected to have witnessed the deaths of 40 % of its population by 2025 (Thurlow et al. 2009). In this context, one would expect a significant emotional toll amongst HIV-affected communities.

Few studies have systematically investigated the psychological effects of high HIV prevalence and consequent morbidity and mortality on South African communities. Myer and colleagues (Myer et al. 2009) examined the impact of AIDS-related mortality on population mental health in South Africa in a national study and demonstrated that as much as 15 % of mental disorders occurring in the past 12 months diagnosed using DSM-IV criteria might be attributable to knowing someone who died of HIV/AIDS. Knowing someone who died of AIDS was associated with greater levels of non-specific psychological distress in the past 30 days. Importantly, the authors noted the need for mental health care among families affected by HIV in tandem with efforts to prevent new infections and treat existing infection. Although antiretroviral treatment coverage for people living with HIV has increased substantially in South Africa (UNAIDS 2012a), access to mental health services for the population has not expanded as rapidly, despite the continuing need and serious consequences of untreated mental illness (Petersen and Lund 2011).

Passive suicidal ideation, i.e., passive thoughts about wanting to be dead or feeling that you would be better off dead (Posner et al. 2007), may be one expression of distress among individuals in communities facing persistent stressors that the AIDS epidemic compounds. Such communities do often maintain a network of shared resources, and evidence suggests that they can be mobilized to promote good health outcomes. Policymakers, service providers, strategists, and other stakeholders increasingly view community engagement and mobilization of strengths through existing networks as a route to successful interventions for prevention, care, and support (Campbell et al. 2009; Gregson et al. 2011).

The relationship of social networks to mental health is complex; one model suggests that being embedded in the social structure—whether through involvement in community organizations or through the ties of intimate relationships—protects against distress by increasing access to various forms of social support (Kawachi and Berkman 2001). Participating in community relationships “provides a sense of ‘belongingness’” that promotes well-being (Kawachi and Berkman 2001). Engagement in strong social networks

is not uniformly beneficial, however. The inability to reciprocate by providing support in social networks, as well as the potential costs associated with receiving support, can harm well-being (Belle 1983; Kawachi and Berkman 2001). Furthermore, all community members do not have equal access. Discriminatory attitudes of network members as well as social standing in the community may determine one's access to networks and the resources they provide (Kaschula 2011). In fact, communities with strong social ties may exclude marginalized groups (such as people with mental illness) in homogeneous environments (Belle 1983; Kawachi and Berkman 2001; McKenzie et al. 2002). It is plausible that in an impoverished rural South African setting, engagement in social networks through involvement in community organizations could affect levels of distress reported by community members.

We present data on the Brief Patient Health Questionnaire among individuals in a rural KwaZulu Natal community severely affected by the HIV/AIDS epidemic (Mashego et al. 2007a). The results of verbal autopsies conducted in this community showed that 42 % of deaths reported among the households sampled were attributable to AIDS, with disproportionately high death rates among young women in 2004, the time at which the current study data were collected (Mashego et al. 2007a). To our knowledge, the prevalence of passive suicidal ideation at a community level has not been examined in the context of high HIV prevalence and AIDS-related morbidity and mortality, even as UNAIDS and AIDS researchers emphasize the importance of community-level factors in managing the epidemic (Underwood et al. 2014). Nor, to our knowledge, has the relationship of passive suicidal ideation to potential community-based strengths been examined in this context in South Africa. In this manuscript we explore the following questions: (1) what is the prevalence of passive suicidal ideation in a community sample with high HIV prevalence and AIDS-related mortality? (2) What is the relationship between passive suicidal ideation and participation in community organizations?

Methods

A Demographic Health Survey (DHS) was conducted in a subsection of this rural KwaZulu-Natal district, between February and July 2004. The methods have been described in detail elsewhere (Mashego et al. 2007b). Briefly, in a community mapping exercise field workers enumerated the 10,986 residents of the 1686 households in the study area and informed households of the purpose of the proposed survey. A random sample of 562 households was drawn from the sample of 1686 households. A field worker randomly selected one consenting member of the household (age range 18–50) to be interviewed. Eight trained community field workers administered the standardized, piloted instruments to selected participants. Ineligible households and refusals were noted and replaced with the next household on the list. The survey consisted of two interviews, the Household and Respondent Interview Schedules. The current study analyzes data from the Respondent Interview Schedule.

The Research Ethics Committee at the University of KwaZulu-Natal, Nelson R Mandela School of Medicine approved the study. The Columbia University Medical Center Institutional Review Board approved the current analysis.

Primary Outcome Measures

Participation in community organizations was assessed using the Respondent Interview Schedule. The survey included one item that assessed each participant's involvement in eleven community organizations: burial society, *stokvel*, sewing group, gardening, sports, singing/dancing, youth, school committee, clinic committee, development forum, religious group/organization, or self-identified group. Three of these organizations (burial societies, religious groups/organizations, and *stokvels*) have context-specific significance, and membership implies a level of reciprocity, social cohesion and trust (Abdool-Karim et al. 2008). *Stokvels* are informal savings clubs that allow residents of rural communities (where there is limited access to formal banking services) to obtain funding through monthly payments of the individual members and allow members to borrow money from the fund (Verhoef 2001). Burial societies, a type of *stokvel*, represent a group of people that contribute money toward a fund that covers funeral costs for themselves and their families (Thomson and Posel 2002). We created a dichotomous variable for participation in any of the 11 community groups versus no participation in any group (yes or no). In addition, participation in each individual group was dichotomized (yes or no). Because participation in burial societies or *stokvels* was contextually significant, these variables were considered as primary independent variables of interest.

Passive suicidal ideation was assessed using one item on the depression subscale of the Brief-Patient Health Questionnaire (PHQ). The Brief-PHQ derives from the Patient Health Questionnaire (PHQ) (Spitzer et al. 1999), a diagnostic instrument designed for administration in primary care settings to arrive at DSM-IV psychiatric diagnoses that has shown good internal consistency in multiple African study samples (Adewuya et al. 2006; Cholera et al. 2014; Gelaye et al. 2013; Monahan et al. 2008; Omoro et al. 2006; Weobong et al. 2009). The anxiety and depression scales of the Brief-PHQ were integrated into the Respondent Interview Schedule. To ensure the measures' cultural validity, the research coordinator, interviewers from the Vulindlela community, and members of the CAPRISA Community Research Support Group (CRSG) reviewed the items as a group and arrived at consensus on the appropriate Zulu words for psychological terminology. Prior to incorporating the adapted terms into the respondent interview, the items were administered to community interviewers for piloting and validation purposes.

Respondents were asked whether in the 2 weeks preceding the interview they had experienced "Thoughts that you would be better off dead or of hurting yourself in some way." In a US sample, response to this item has predicted increased risk for suicide and death (Simon et al. 2013). Participants respond on a 4-point Likert scale ranging from "not at all," "several days," "more than half the days," to "nearly 7 days." A dichotomous variable for "passive suicidal ideation" was generated (not at all vs. all other response categories).

Secondary Outcome Measures

The Respondent Interview Schedule included assessment of socio-demographic variables. For the analysis of sociodemographic data, we created 3 dichotomous variables for marital status (married or with steady partner vs. all other categories), education (high school and

above vs. primary, adult literacy or none) and employment (employed vs. unemployed, scholar or pensioner).

Data Analysis

First we conducted descriptive analysis of the main outcome (passive suicidal ideation) and independent variables, including membership in community organization, sociodemographic variables and psychological distress. Next, we assessed the relationship between passive suicidal ideation and independent variables. For binary analysis we used Chi square test or Fisher's Exact test when expected cell counts were less than 5.

Finally, using passive suicidal ideation as a binary outcome, a multivariate logistic regression analysis was conducted to assess the relationship between passive suicidal ideation, and participation in community organizations after adjustment for demographic and socioeconomic variables, as well as the presence of major depression and panic disorder. Only three organizations—religious, burial society and stokvels—yielded sufficient sample sizes to test as independent variables in the model. Cumulative indices for participation in organizations (i.e. participation in 2, 3, 4 or more organizations) were also used as independent variables. Although each of these covariates were considered using a stepwise backward elimination with a high threshold ($p = 0.15$), variables with low significance or high collinearity were removed from the final model.

Eleven participants had missing values for either a sociodemographic variable or participation in a community social organization. These participants were removed from the sample and a missing person analysis was conducted to see if there were group differences or differences in outcome associations without their inclusion. There were no significant differences with respect to socioeconomic or demographic variables, passive suicidal ideation or prevalence of depression or anxiety disorders between those with missing data (who were removed) and participants included in the final analysis.

All analyses were conducted using SAS v9.1 or STATA v8 for Windows software packages.

Results

Demographics, Mental Health Variables, and Passive Suicidal Ideation

Table 1 shows the socio-demographic characteristics of the sample. Among the 594 adults who completed the survey, women composed 64 % of the sample. The majority of participants (78 %) comprised young adults between the ages of 18 and 29, and most reported their marital status as single (96 % of men; 88 % of women). More than four-fifths of participants (men 83 % and women 85 %) reported having completed high school.

Nearly one in ten participants (9.1 %) reported passive suicidal ideation during the preceding 2 weeks. The prevalence was slightly lower among men (8.8 %) than among women (9.3 %). Passive suicidal ideation was associated with lower levels of education ($\chi^2 = 4.92$, $p < 0.05$), a diagnosis of panic disorder ($\chi^2 = 27.99$, $p < 0.001$) and a diagnosis of major depression ($\chi^2 = 73.99$, $p < 0.001$). (See Table 1).

Community Involvement and Passive Suicidal Ideation

Table 2 shows the distribution of participation in community organizations. Nearly 65 % of participants reported being a member of a burial society, and almost 55 % reported belonging to a religious group or organization (Table 2). Close to one-third of respondents (30.6 %) participated in a *stokvel*. The largest number of study participants reported involvement in two community organizations (Fig. 1). Participation in burial societies ($X^2 = 7.34$; $p = 0.01$) or *stokvels* ($X^2 = 4.1$; $p = 0.04$) was associated with significantly lower reported passive suicidal ideation.

Regression Analyses

The results of the final multivariate model showed that individuals diagnosed with a depressive disorder or panic disorder were more likely to report passive suicidal ideation, whereas participation in a burial society was associated with 48 % lower odds of passive suicidal ideation (AOR = 0.48, CI 0.25–0.91, $p = 0.02$). (See Table 3).

Discussion

We report the prevalence of passive suicidal ideation in a South African community with high HIV prevalence, AIDS-related morbidity, and mortality and the association between passive suicidal ideation and involvement in community organizations. More than 9 % of study participants reported thinking, in the 2 weeks before the interview, that they would be better off dead. We found a negative association between passive suicidal ideation and participation in burial societies and *stokvels*. After controlling for potential confounders, membership in a burial society remained associated with lower odds of passive suicidal ideation.

Our study examined passive suicidal ideation rather than suicide attempts or completed suicides, which have been well studied in South Africa (Joe et al. 2008a, b); however, the increasing probabilities of escalating suicidal behavior from ideation to plan to attempt demonstrated by other researchers underscore the need for preventive interventions (Joe et al. 2008a). Risk for suicide attempts also increases for those individuals with anxiety symptoms or poor impulse control (Joe et al. 2008b; Nock et al. 2009). In the current sample, the prevalence of panic disorder in the population was 3.7 % (4.5 % among women and 2.7 % among men). Thus, risk in this community may also be driven by untreated anxiety disorders.

Membership and Participation in Community-Based Organizations

Risk of passive suicidal ideation appears to be mitigated by certain kinds of community involvement in Vulindlela. Community involvement can be defined as “individuals’ unpaid work on behalf of others or a collective good and in the context of a formal or semi-formal organization and social networks” (Ramirez-Valles 2002). In North American studies, community involvement has been shown to buffer the effects of poverty and racism on wellbeing, is linked to fewer feelings of alienation, and may increase self-efficacy and greater commitment to the community (Ramirez-Valles 2002). In an urban South African sample of HIV-positive individuals, Odek found that involvement in group-based networks,

per se, did not yield better mental health outcomes; however, access to material resources and social support through the personal networks was associated with better mental health (Odek 2014). Yeji and colleagues showed that instrumental support (e.g. “providing tangible factors for support, such as financial assistance, material goods or services”) was associated with lower odds of depression among HIV positive people in rural KwaZulu Natal (Yeji et al. 2014). Our data are consistent with these studies in that we found mental health benefits tied to groups that provide material (and possibly non-material) resources. The quality of relationships among urban versus rural communities could account for the differences in the associations in the urban study. Qualitative research among mental health providers caring for HIV-affected women and among women with HIV in rural KwaZulu-Natal also underscores the critical importance of social relationships, poverty, and perceived ability to provide for one’s family as drivers of distress and well-being (Burgess 2014; Burgess and Campbell 2014).

The community-based organizations (CBOs) described in this study—burial societies and *stokvels*—respond to immediate local needs and have been classified as coping/survival CBOs (Gavin 2004). Thomson and Posel note that “in addition to providing money for a coffin and funeral ceremony, burial society members may also supply and cook the food required to feed the guests, relieve the bereaved family of any domestic work, and attend the traditional night vigil in honour of the dead person (Thomson and Posel 2002).” Given that completion of mourning rituals requires adequate financial resources, which quickly grow scarce in an environment where death occurs frequently (Demmer 2007), burial societies and *stokvels* respond to the most salient needs of community members in the context of high AIDS-related morbidity and mortality and may be one of the more important means of connection with extended family and neighbors in this particular context.

Interestingly, we found no association between membership in a religious organization—the third most commonly endorsed community organization—and passive suicidal ideation. Findings consistent with these were reported in a sample from Durban—the largest urban center in KwaZulu Natal. Sisack and colleagues showed that religious commitment was not associated with suicidal ideas or behaviors among participants from Durban, South Africa, and, unlike other sites in their study, religious affiliation was more prevalent among suicide attempters (Sisack et al. 2010). The authors attribute the lack of protectiveness to the diversity of South African culture; homogeneity more often fosters the social connections that reduce suicidal behaviors (Sisack et al. 2010). There may be additional explanations. Despite their important role in the community, churches and other faith organizations have sometimes been sources of stigma related to HIV/AIDS (Campbell et al. 2009; Demmer 2007). The results of a study in the same community showed that 88 % of participants said that they would have difficulty talking to church and religious leaders, and only 20 % reported that they would disclose a hypothetical HIV positive status to the church and religious leaders (Abdool-Karim et al. 2008).

Implications for Intervention

Although South Africa has considerable mental health human resources in relation to many sub-Saharan African countries, community mental health providers remain scarce in many

rural settings (Petersen and Lund 2011). Where they exist, complex social needs often leave providers overwhelmed (Burgess 2014; Demmer 2006). Efforts are underway to extend provision of mental health services through new cadres of providers (Petersen et al. 2012). This is particularly relevant in communities with high HIV prevalence because mental illnesses like depression also increase morbidity and mortality associated with HIV infection and AIDS (Antelman et al. 2007).

Our findings suggest that a better understanding of how community-based organizations like burial societies engender support could contribute to effective community-level mental health promotion in tandem with formal primary care, mental health, and social services. We do not yet fully understand how membership in specific kinds of community organizations influences psychological outcomes both for individuals directly and indirectly affected by HIV infection. For example, strength of membership (e.g. depth of connection to members, perceived social support, non-material resources, ability to carry out organizational activities) may play a role in the benefits participants receive.

Limitations

Our findings should be interpreted in light of several limitations. First, the cross-sectional design prevents conclusions about causality; thus, community involvement may protect against passive suicidal ideation, or passive suicidal ideation and attendant depressive or anxiety symptoms may hinder engagement in community social groups. Second, the study was conducted in a rural Zulu community, and the findings may not be generalizable to other communities in South Africa. In addition, the predominance of weekday interviews likely led to greater recruitment of women and unemployed men. Third, the measure of suicidal ideation used in the Brief PHQ elicits information about passive ideas of self-harm or suicide and may be easier to endorse than direct questions about intentions or desires to kill oneself, thus overestimating the point prevalence; however, in other cultural contexts, this item has been found to effectively predict completed suicides (Simon et al. 2013). Fourth, we utilized an individual level measurement of social connectedness, using participation in community groups as a proxy, rather than measuring community level variables to examine these relationships. Fifth, while we assessed self-reported participation in community groups, we did not have rigorous data on frequency, depth and length of participation or on quality of relationships within specific groups. An additional limitation is the solely quantitative nature of this study, which did not permit exploration of the range and quality of relationships or support provided by members of burial societies and *stokvels*. The measures of interest were embedded in a demographic health survey that relied on a structured quantitative assessment. In spite of these limitations, to our knowledge, this is the first study to examine the relationship of passive suicidal ideation and involvement in community social organizations in an African community with high HIV prevalence and AIDS-related morbidity and mortality. The widespread engagement of community members in these organizations makes them a potentially valuable vehicle for mental health promotion; at the same time, lack of engagement in these organizations may signal emotional distress that warrants attention.

Conclusions

Community-based organizations that provide for survival needs may, in fact, be a mental health resource in poor communities severely affected by the AIDS epidemic, although they do not substitute for access to community mental health services when treatment for a mental disorder is needed. Equally important for good mental health outcomes is the provision of HIV care and treatment for individuals with HIV-related disease, which can also be supported through some community-based organizations (Campbell et al. 2009). Exploring how best to optimize these resources in impoverished settings with high HIV prevalence can inform interventions that target social and economic needs while strengthening the community's mental health and HIV care capacity.

Acknowledgments

The majority of this work was conducted while Dr. Collins was at Columbia University and supported by a pilot award through the NIAID Center for AIDS Research grant (PI: Scott Hammer, NIAID P30AI42848). Dr. Sarah Joestl contributed to this work while she was a doctoral candidate at the Mailman School of Public Health at Columbia University. Ms. Leeza Kondos contributed to this work while employed at the National Institute of Mental Health. We gratefully acknowledge the contributions of Lise Werner, Henri Carrara, Robert Sember, Beverly Haddad, Ezra Susser, Dana March, Quarraisha Abdool-Karim and the CAPRISA research team. The views expressed in this manuscript do not necessarily reflect those of the National Institute of Mental Health or the US government.

References

- Abdool-Karim Q, Kharsany ABM, Frohlich JA, Werner L, Matshego M, Mlotshwa M, et al. Stabilizing HIV prevalence masks high HIV incidence rates amongst rural and urban women in KwaZulu-Natal, South Africa. *International Journal of Epidemiology*. 2010; 40(4):922–930. [PubMed: 21047913]
- Abdool-Karim Q, Meyer-Weitz A, Mboyi L, Carrara H, Mahlase G, Frohlich JA, et al. The influence of AIDS stigma and discrimination and social cohesion on HIV testing and willingness to disclose HIV in rural KwaZulu-Natal, South Africa. *Global Public Health*. 2008; 3(4):351–365.
- Adewuya AO, Ola BA, Afolabi OO. Validity of the patient health questionnaire (PHQ-9) as a screening tool for depression amongst Nigerian university students. *Journal of Affective Disorders*. 2006; 96:89–93. [PubMed: 16857265]
- Antelman G, Kaaya S, Wei R, Mbwambo J, Msamango GI, Fawzi WW, et al. Depressive symptoms increase risk of HIV disease progression and mortality among women in Tanzania. *Journal of Acquired Immune Deficiency Syndromes*. 2007; 44(4):470–477. [PubMed: 17179766]
- Belle DE. The impact of poverty on social networks and supports. *Marriage & Family Review*. 1983; 5(4):89–103.
- Burgess RA. Supporting mental health in South African HIV-affected communities: Primary health care professionals' understandings and responses. *Health Policy and Planning*. 2014; 30(7):917–927. [PubMed: 25161270]
- Burgess RA, Campbell C. Contextualising women's mental distress and coping strategies in the time of AIDS: A rural South African case study. *Transcultural Psychiatry*. 2014; 51(6):875–903. [PubMed: 24670517]
- Campbell, C.; Nair, Y.; Maimane, S.; Gibbs, A. Strengthening community responses to AIDS: Possibilities and challenges. In: Rohleder, P.; Swartz, L.; Kalichman, SC.; Simbayi, LC., editors. *HIV/AIDS in South Africa 25 years on: Psychosocial perspectives*. New York: Springer; 2009. p. 221–235.
- Cholera R, Gaynes BN, Pence BW, Bassett J, Qangule N, Macphail C, et al. Validity of the patient health questionnaire-9 to screen for depression in a high-HIV burden primary healthcare clinic in Johannesburg, South Africa. *Journal of Affective Disorders*. 2014; 167:160–166. [PubMed: 24972364]

- Demmer C. Confronting AIDS-related loss and grief: an exploratory study of professional caregivers in KwaZulu-Natal, South Africa. *African Journal of AIDS Research*. 2006; 5(2):97–107. [PubMed: 25875234]
- Demmer C. Responding to AIDS-related bereavement in the South African Context. *Death Studies*. 2007; 31:821–843. [PubMed: 17886413]
- Gavin, M. Survival, development, or advocacy? A preliminary examination of rural CBOs in South Africa. Durban: University of KwaZulu-Natal; 2004.
- Gelaye B, Williams MA, Lemma S, Deyessa N, Bahretibeb Y, Shibire T, et al. Validity of the patient health questionnaire-9 for depression screening and diagnosis in East Africa. *Psychiatry Research*. 2013; 210:653–661. [PubMed: 23972787]
- Gregson S, Mushati P, Grusin H, Nhamo M, Schumacher C, Skovdal M, et al. Social capital and women's reduced vulnerability to HIV infection in rural Zimbabwe. *Population Development Reviews*. 2011; 37(2):333–359.
- Joe S, Stein DJ, Seedat S, Herman A, Williams DR. Non-fatal suicidal behavior among South Africans. *Social Psychiatry and Psychiatric Epidemiology*. 2008a; 43:454–461. [PubMed: 18473134]
- Joe S, Stein DJ, Seedat S, Herman A, Williams DR. Prevalence and correlates of non-fatal suicidal behaviour among South Africans. *The British Journal of Psychiatry*. 2008b; 192:310–311. [PubMed: 18378997]
- Kaschula S. Using people to cope with the hunger: Social networks and food transfers amongst HIV/AIDS afflicted households in KwaZulu-Natal, South Africa. *AIDS and Behavior*. 2011; 15:1490–1502. [PubMed: 21822628]
- Kawachi I, Berkman LF. Social ties and mental health. *Journal of Urban Health*. 2001; 78(3):458–467. [PubMed: 11564849]
- Mashego M, Johnson D, Frohlich J, Carrara H, Abdool-Karim Q. High AIDS-related mortality among young women in rural KwaZulu-Natal. *South African Medical Journal*. 2007a; 97:587–592. [PubMed: 17952215]
- Mashego M, Johnson D, Frohlich J, Carrara H, Karim QA. High AIDS-related mortality among young women in rural KwaZulu-Natal. *South African Medical Journal*. 2007b; 97:587–592. [PubMed: 17952215]
- McKenzie K, Whitley R, Weich S. Social capital and mental health. *The British Journal of Psychiatry*. 2002; 181:280–283. [PubMed: 12356653]
- Monahan PO, Shacham E, Reece M, Kroenke K, Ong'or WO, Omollo O, et al. Validity/reliability of PHQ-9 and PHQ-2 depression scales among adults living with HIV/AIDS in Western Kenya. *Journal of General Internal Medicine*. 2008; 24(2):189–197. [PubMed: 19031037]
- Mossong J, Byass P, Herbst K. Who died of what in rural KwaZulu-Natal, South Africa: A cause of death analysis using InterVA-4. *Global Health Action*. 2014; 7:25496. [PubMed: 25377332]
- Murray CJL, Ortblad KF, Guinovart C, Lim SS, Wolock TM, Roberts DA, et al. Global, regional, and national incidence and mortality for HIV, tuberculosis, and malaria during 1990–2013: A systematic analysis for the Global Burden of Disease Study 2013. *The Lancet*. 2014; 384:1005–1070.
- Murray C, Vos T, Lozano R, Naghavi M, Flaxman A, et al. Disability-adjusted life years (DALYs) for 291 diseases and injuries in 21 regions, 1990–2010: a systematic analysis for the Global Burden of Disease Study 2010. *The Lancet*. 2012; 380:2197–2223.
- Myer L, Seedat S, Stein DJ, Moomal H, Williams DR. The mental health impact of AIDS-related mortality in South Africa: A national study. *Journal of Epidemiology and Community Health*. 2009; 63:293–298.
- Nock MK, Hwang I, Sampson N, Kessler RC, Angermeyer M, Beautrais A, et al. Cross-National analysis of the associations among mental disorders and suicidal behavior: Findings from the WHO World Mental Health Surveys. *PLoS Medicine*. 2009; 6(8):e1000123. [PubMed: 19668361]
- Odek WO. Social networks and mental health among people living with human immunodeficiency virus (HIV) in Johannesburg, South Africa. *AIDS Care*. 2014; 26(8):1042–1049. [PubMed: 24684398]

- Omoro SA, Fann JR, Weymuller EA, Macharia IM, Yeuh B. Swahili translation and validation of the Patient Health Questionnaire-9 depression scale in the Kenyan head and neck cancer patient population. *International Journal of Psychiatry in Medicine*. 2006; 36(3):367–381. [PubMed: 17236703]
- Petersen I, Lund C. Mental health service delivery in South Africa from 2000 to 2010: One step forward, one step back. *South African Medical Journal*. 2011; 101:751–757. [PubMed: 22272856]
- Petersen I, Lund C, Bhana A, Flisher AJ, Mental Health, Poverty Research Programme Consortium. A task shifting approach to primary mental health care for adults in South Africa: Human resource requirements and costs for rural settings. *Health Policy and Planning*. 2012; 27:42–51. [PubMed: 21325270]
- Posner K, Oquendo MA, Gould M, Stanley B, Davies M. Columbia Classification Algorithm of Suicide Assessment (CCASA): Classification of suicidal events in the FDA's pediatric suicidal risk analysis of antidepressants. *American Journal of Psychiatry*. 2007; 164(7):1035–1043. [PubMed: 17606655]
- Ramirez-Valles J. The protective effects of community involvement for HIV risk behavior: A conceptual framework. *Health Education Research: Theory and Practice*. 2002; 17(4):389–403.
- Shisana, O.; Rehle, T.; Simbayi, L.; Zuma, K.; Jooste, S.; Zungu, N., et al. South African National HIV Prevalence, Incidence and Behaviour Survey. Cape Town: Human Sciences Research Council; 2014.
- Simon GE, Rutter CM, Peterson D, Oliver M, Whiteside U, Operskalski B, et al. Does response on the PHQ-9 depression questionnaire predict subsequent suicide attempt or suicide death? *Psychiatric Services*. 2013; 64(12):1195–1202. [PubMed: 24036589]
- Sisack M, Varnik A, Kolves K, Bertolote JM, Bolhari J, Botega NJ, et al. Is religiosity a protective factor against attempted suicide: A cross-cultural case-control study. *Archives of Suicide Research*. 2010; 14(1):44–55. [PubMed: 20112143]
- Spitzer RL, Kroenke K, Williams JBW, Patient Health Questionnaire Primary Care Study Group. Validation and utility of a self-report version of the PRIME-MD: The PHQ Primary Care Study. *Journal of the American Medical Association*. 1999; 282(18):1737–1744.
- Thomson RJ, Posel DB. The management of risk by burial societies in South Africa. *South African Actuarial Journal*. 2002; 2:83–128.
- Thurlow J, Gow J, George G. HIV/AIDS, growth and poverty in KwaZulu-Natal and South Africa: An integrated survey, demographic and economy-wide analysis. *Journal of the International AIDS Society*. 2009; 12(18)doi: 10.1186/1758-2652-12-18
- UNAIDS. Global report:UNAIDS report on the global AIDS epidemic 2012. 2012a
- UNAIDS. Together we will end AIDS. Geneva: 2012c.
- Underwood C, Hendrickson Z, Van Lith LM, Kunda JEL, Mallalieu EC. Role of community-level factors across the treatment cascade: A critical review. *Journal of Acquired Immune Deficiency Syndromes*. 2014; 66:S311–S318. [PubMed: 25007202]
- Verhoef G. Informal financial service institutions for survival: African women and stokvels in urban South Africa, 1930–1998. *Enterprise & Society*. 2001 Jun;2:259–296.
- Weobong B, Akpalu B, Doku V, Owusu-Agyei S, Hurt L, Kirkwood B, Prince M. The comparative validity of screening scales for postnatal common mental disorder in Kintampo, Ghana. *Journal of Affective Disorders*. 2009; 113(1):109–117. [PubMed: 18614241]
- Yeji F, Klipstein-Grobusch K, Newell ML, Hirschhorn LR, Hosegood V, Barnighausen T. Are social support and HIV coping strategies associated with lower depression in adults on antiretroviral treatment? Evidence from rural KwaZulu-Natal. *South Africa AIDS Care*. 2014; 26(12):1482–1489. [PubMed: 24991994]

Fig. 1.
Number of people participating in zero to 6 community social organizations

Table 1

Sociodemographic factors associated with suicidal thoughts

Variable	N (%)	Prevalence of suicidal thoughts (%)	Test statistic
<i>Gender</i>			
Female	378 (63.6)	35 (9.3)	$\chi^2 = 0.36$
Male	216 (36.4)	19 (8.8)	$p = 0.85$
<i>Years living in Vulindlela (n = 585)</i>			
Five years or less	82 (14)	9 (11.0)	$\chi^2 = 3.2$ $p = 0.20$
6–15 years	119 (20.3)	15 (12.6)	
>15 years	384 (65.6)	29 (07.6)	
<i>Age category (n = 593)</i>			
18–29 Years	462 (77.9)	41 (8.9)	$p = 0.76^a$
30–39 Years	111 (18.7)	12 (10.8)	
40 Years	20 (3.4)	1 (5.0)	
<i>Marital status (n = 593)</i>			
Married/steady partner	42 (7.1)	2 (4.8)	$p = 0.55^a$
Single	541 (91.2)	51 (9.4)	
Divorced/widowed	10 (1.7)	1 (10.0)	
<i>Education (n = 592)</i>			
University	3 (0.6)	01 (33.3)	$p = 0.04^a$
College	20 (3.3)	0 (0.0)	
High school	501 (84.6)	41 (8.2)	
Primary school	54 (9.1)	1 (1.8)	
None	14 (2.4)	10 (71.4)	
<i>Listen to radio (n = 592)</i>			
Every day	441 (74.4)	36 (8.2)	$p = 0.12^a$
At least once a week	89 (15)	07 (7.9)	
Not at all	62 (10.5)	11 (17.7)	
<i>Watch TV (n = 592)</i>			
Every day	306 (51.7)	23 (7.5)	$p = 0.34^a$
At least once a week	121 (20.4)	16 (13.2)	
Not at all	145 (24.5)	05 (3.4)	
<i>Employment (n = 592)</i>			
Employed	47 (7.9)	03 (6.4)	$p = 0.046^a$
Unemployed	463 (78.2)	46 (9.9)	
Scholar	70 (11.8)	02 (2.8)	
Pensioner	12 (2)	03 (25.0)	
<i>Panic disorder</i>			
Yes	22 (4)	9 (40.9)	$p < 0.001^a$
No	572 (96)	45 (7.9)	
<i>Major depressive disorder</i>			

Variable	N (%)	Prevalence of suicidal thoughts (%)	Test statistic
Yes	13 (2)	10 (76.9)	$p < 0.001^a$
No	581 (98)	44 (7.6)	

N = 594 unless otherwise specified

^aExact p

Table 2

Community organization membership and association with passive suicidal ideation

Variable	N (%)	Prevalence of passive suicidal ideation (%)	Test statistic
<i>Burial (n = 593)</i>			
Yes	385 (64.9)	26 (6.8)	$\chi^2 = 7.34$
No	208 (35.1)	28 (13.5)	$p = 0.01$
<i>Stokvel</i>			
Yes	182 (30.6)	10 (5.5)	$\chi^2 = 4.1$
No	412 (69.4)	44 (10.7)	$p = 0.04$
<i>Sewing</i>			
Yes	10 (1.7)	0 (0.0)	
No	584 (98.3)	54 (9.25)	$p = 0.61^a$
<i>Garden (n = 593)</i>			
Yes	5 (0.8)	0 (0.0)	
No	588 (99.2)	54 (9.2)	$p = 1.00^a$
<i>Sports</i>			
Yes	92 (15.5)	06 (6.5)	$\chi^2 = 0.87$
No	502 (84.5)	48 (9.6)	$p = 0.35$
<i>Sing</i>			
Yes	28 (4.7)	4 (14.3)	
No	566 (95.3)	50 (8.9)	$p = 0.31^a$
<i>Youth (n = 593)</i>			
Yes	28 (4.7)	3 (10.7)	
No	565 (95.3)	50 (8.8)	$p = 0.73^a$
<i>School (n = 593)</i>			
Yes	10 (1.7)	1 (10.0)	
No	583 (98.3)	53 (9.1)	$p = 1.00^a$
<i>Clinic</i>			
Yes	2 (0.3)	0 (0.0)	
No	592 (99.7)	54 (9.1)	$p = 1.00^a$
<i>Development forum</i>			
Yes	5 (0.8)	2 (40.0)	
No	589 (99.2)	52 (8.8)	$p = 0.07^a$
<i>Religion</i>			
Yes	324 (54.5)	32 (9.9)	$\chi^2 = 0.53$
No	270 (45.5)	22 (8.2)	$p = 0.47$
<i>Other group activities (n = 591)</i>			
Yes	2 (0.3)	0 (0.0)	
No	589 (99.7)	54 (9.2)	$p = 1.00^a$

N = 594 unless otherwise specified

^aExact *p*

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript

Table 3

Effect of sociodemographic and mental health variables on passive suicidal ideation

Sociodemographic and mental health variables	β	AOR	95 % CI
Age	0.03	1.03	0.98–1.08
Gender	−0.11	0.90	0.44–1.83
Religion	0.21	1.24	0.62–2.45
Burial society	−0.74	0.48	0.25–0.91 **
Education	−0.75	0.47	0.21–1.09 *
Marital status	−1.19	0.31	0.06–1.59
Employment status	−0.23	0.80	0.23–2.84
Depressive disorder	3.59	36.25	8.66–151.87 ***
Panic disorder	1.88	6.55	2.40–17.9 ***
Constant	−2.21	0.11	
Pseudo R ²			0.21

Age, Gender (female vs. male), Religious Group Affiliation (yes vs. no), Burial Society affiliation (yes vs. no), education (high school and above vs. below high school), marital status (with partner, married vs. single, divorced, widowed), employment status (employed versus unemployed, pensioner and scholar), depressive disorder, and panic disorder are included in the model as covariates. N = 584. Adjusted Odds Ratios (AOR) are calculated using multivariate logistic regression. CI 95 % confidence interval

*
 $p < 0.1$;

**
 $p < 0.05$;

 $p < 0.01$