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The impact of pensions on health and wellbeing in rural South Africa: Does gender matter?

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Abstract

Unique to Africa, a means-tested non-contributory pension is available to South Africans. In 2006, women over 60 and men over 65 were pension-eligible. To explore the effect of the pension for health and wellbeing indicators of rural South African men and women, we analyze data from the WHO-INDEPTH Study of Global Ageing and Adult Health Survey, carried out in the Agincourt sub-district by the MRC/Wits Rural Public Health and Health Transitions Research Unit (Agincourt) in 2006. Because pension receipt was not measured directly, our findings represent *intent-to-treat (ITT)* rather than *treatment-on-the-treated (TOT)* effects using age as an indicator for intent-to-treat. Overall, women report poorer wellbeing compared to men. However, women have a “honeymoon” period at ages 60–64, the first years of pension-eligibility, in which they report lower levels of worry and sadness, and higher overall happiness, life satisfaction, and quality of life as compared to younger and older women. For men, in contrast, reports of wellbeing worsen in the pre-pension years, followed by a similar but not as prominent pattern of favorable reports in the five years following pension-eligibility, and a decline in the next five-year period. Thus, while pensions continue to enhance financial wellbeing, our results suggest that their effect on social wellbeing may be gendered and transitory. Further research is needed to improve understanding of these dynamics.

Keywords

South Africa; gender; pension; social wellbeing; quality of life; health and demographic surveillance system; aging

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Introduction

Earlier qualitative and quantitative analyses of older persons' health and wellbeing from the MRC/Wits Rural Public Health and Health Transitions Research Unit (Agincourt) in rural South Africa considered sex differences and pension receipt separately (Gómez-Olivé et al., 2010; Ogunmefun & Schatz, 2009; Schatz et al., 2011). We build on these studies to investigate ways in which South Africa's old-age pension mediates wellbeing and health outcomes differently for men and women.

Gómez-Olivé et al. (2010), using WHO-INDEPTH Study on Global Aging and Adult Health (WHO-SAGE) data collected in 2006 in the Agincourt sub-district, found that scores for women were lower than men on composite measures of health status, functional ability (WHODASi) and quality of life (WHOQoL). Using logistic regression and dichotomizing the dependent variables, their work shows that women, the unmarried, and those who were not working in 2004 had poorer scores; and that both poor health and disability increased with age and decreased with education. The results did not differ significantly by socio-economic status. Women's risk of scoring poorly on state of health was 30% higher than men. Results were similar for quality of life with the exception that poor quality of life increased with poverty; controlling for poverty, women (who were significantly poorer than men) did not report significantly worse quality of life than men. Importantly, they also found that 60–69 year olds did not report significantly worse health status or function compared to 50–59 year olds. At the time of the study, South Africa provided a means-tested non-contributory pension at age 60 and over for women and at age 65 and older for men (South African Department of Social Development [SADSD], 2002).

Gómez-Olivé and colleagues (2010) suggest that the plateau in reported health and wellbeing may be related to pension receipt “which allows [pensioners] a better life with higher food security and, importantly, with greater capacity to help children in their households who then enjoy higher food security and better schooling” (p. 32). Qualitative evidence shows that older women without pensions worry more about making ends meet (Ogunmefun & Schatz, 2009). Further, older female household heads who are pensioners manage AIDS-related financial and emotional stressors better than younger counterparts (Schatz et al., 2011). Other recent studies show a positive association between health and pension receipt in poor populations (Brenes-Camacho, 2011; Case, 2004; Case & Menendez, 2007; Duflo, 2003).

Our primary hypothesis is that women are positively but temporarily more affected than men by the availability of the pension. Pensions may matter more in women's perceived wellbeing because of differences in gender roles and gendered stresses and strains pre- and post-pension receipt. Pensions may allow women to fulfill caregiving and social reproductive roles, and thus reduce worry and sadness while improving perceptions of overall happiness and satisfaction with their lives. We predict, however, that as women move further in years from initial eligibility, perhaps falling into ill health and continuing to struggle with diverse demands, the ‘honeymoon period’ created by initial pension receipt (at age 60) wanes so that improvement in wellbeing is most prominent in the five-year period directly following initial pension-eligibility. Since men are more likely to have income prior to pension receipt, and their pensions do less for household members' health and wellbeing (Case & Deaton, 1998; Duflo, 2003), we expect men to show some but not as great improvements after reaching pension age-eligibility (at age 65). The 2006 WHO-SAGE data for Agincourt do not include a direct measure of pension receipt. Therefore, our findings represent *intent-to-treat (ITT)* rather than *treatment-on-the-treated (TOT)* effects (Bloom, 1984).

Literature Review

The United Nations (2006) predicts that 13% of the South African population will be over 60 in 2050, compared to just 7% in 2006. The elderly population is not only increasing, it is increasing in the context of a double burden of disease. Non-communicable diseases—e.g. hypertension, diabetes, stroke—among older persons, particularly among women aged 50–64 are increasingly prevalent (Anderson & Phillips, 2006; Kahn, 2006; Zuberi, Sibanda, & Udjo, 2005). At the same time, high HIV prevalence creates stresses for families and household systems. Older people, more often women, may assume caregiving roles, particularly in multigenerational households (Møller, 1998; Møller & Devey, 2003; Munthre & Maharaj, 2010). AIDS caregivers may experience increased emotional, economic, and physical strain (Ferreira, 2004; HelpAgeInternational, 2003, 2008). A second aspect is that they must cope with the loss of income and support previously provided by those who become sick or are lost to AIDS (HelpAgeInternational, 2005; Williams & Tumwekwase, 2001). A third issue is that the death of prime age adults is likely to alter household composition and in particular, the positioning of older persons in the household (HelpAgeInternational, 2004a, 2004b; Monasch & Boerma, 2004). In the Agincourt sub-district, fostered and orphaned children are two and three times more likely, respectively, to live in a household with an older woman (Schatz, 2007). In this context, elements of social wellbeing may be greatly impacted both by the gendered expectations and financial obligations brought about by household structure and family ties (Oppong, 2006).

South Africa has a long history of extensive governmental social support, beginning in 1928 (SADSD, 2002; Sagner, 2000). Deracializing of social grants only truly began in the early 1990s, however, by extending pension access to the majority of Black South Africans (Legido-Quigley, 2003). Whereas women historically became pension-eligible at age 60, until 2008 men could not begin pension receipt until age 65. Between 2008 and 2010, age-eligibility for men decreased incrementally from age 65 to age 60. Besides the age requirement, pensions are further restricted to individuals with South African identification documents (either citizen or permanent resident) and to those that meet the income means-test. [For a description of the means-test and program see Case & Deaton, 1998; SADSD, 2002. For details on changing eligibility see: <http://www.sassa.gov.za/Grant-for-older-persons-668.aspx>.] More than 90% of black older South Africans access the pension (Burns, Keswell, & Leibbrandt, 2005; Ferreira, 2006). As women until recently began pension receipt at a younger age, and have a longer life expectancy, a larger number of women receive pensions in South Africa than men (Burns et al., 2005).

Pension receipt may significantly increase income in black South African households (Barrientos, 2003; May, 2003; Møller & Devey, 2003), as the cash transfer is as much as twice the median per capita income (Case & Deaton, 1998). In 2005, the monthly pension was SAR780 (approximately USD130) (Overseas Development Institute, 2006). Many rural households depend on a variety of social grants to sustain them; income-pooling of pensions and other social grants provides a reliable and regular safety net improving overall food security and wellbeing in older people's households (Barrientos, 2003; May, 2003; Møller & Devey, 2003; Sagner & Mtati, 1999).

Ardington and colleagues (2010) provide evidence that pensions buffer financial and emotional impacts of an adult child's death, and the resulting carework for grandchildren left behind. Further, measures of depression among adult household members are inversely related to the number of pension recipients (Case, 2004). This suggests that money provided by the pension reduces stress for all adults; other evidence suggests improvements in health and wellbeing among adults and children living in households with pensioners (Case, 2004; Case & Deaton, 1998; Duflo, 2003).

The use and meaning of pensions, as with access to and control over other economic resources, is likely to be gendered (Maitra & Ray, 2003; Posel, Fairburn, & Lund, 2006). Women are less likely to be employed than men at all ages (World Bank, 2009) and, when employed, often garner lower wages and defer spending decisions to a male in the household. Pensions may provide a new, reliable resource within women's control, to an extent greater than other household income in the past (Ståhlberg, Kruse, & Sundén, 2005). Given statistics on spending habits, time-use and carework, the pension may ease financial strains and extensive carework that women take on related to adult children's unemployment, AIDS-related illness and death (Ogunmefun, Gilbert, & Schatz, 2011; Schatz & Ogunmefun, 2007); men are less likely to do caregiving activities (Munthree & Maharaj, 2010). The reliable nature of the pension may allow women to plan for the future, reducing stress related to these burdens.

Previous research from Agincourt has shown that self-identified Mozambicans are less well off than the host South African population in terms of education, socioeconomic status (SES), and child mortality (Gómez-Olivé et al., 2010; Hargreaves et al., 2004). Prior to 2006, Mozambican permanent residents were not eligible for South African social grants; a large number of Mozambicans still managed to access pensions (Polzer, 2007; Schatz, 2009).

While pension receipt may improve perceived wellbeing in the short term (Brenes-Camacho, 2011), particularly for women, there are a number of potentially gendered reasons why initial gains may fade. First, the physical and emotional toll of aging and the stress of caregiving may impact older women's physical health. Emerging hypertension and related non-communicable diseases may be evidence of these effects (Mayosi et al., 2009; Thorogood et al., 2007; Westaway, 2010). Second, as women prove their willingness to share their pensions to maintain and sustain their households (Schatz & Ogunmefun, 2007), the burdens asked of them may increase, including increasing number of dependents in their households—such that they become unable to fulfill all the demands that they face.

Data & Methods

Data

The WHO-INDEPTH Study of Global Ageing and Adult Health Survey (WHO-SAGE) was conducted in 2006 in the Agincourt sub-district in rural northeast South Africa near the border with Mozambique. The MRC/Wits Rural Public Health and Health Transitions Research Unit supports a well-established health and socio-demographic surveillance system (HDSS) in Agincourt, which has collected census data since 1992 (Kahn et al., 2007). In 2010, the Agincourt HDSS covered a population of approximately 85,000 people in 15,300 households over 25 villages. The INDEPTH/WHO-SAGE initiative is a multi-country longitudinal project to increase understanding of health and wellbeing of adult populations in developing countries. Comparable data were collected in three additional African and four Asian HDSS sites and are publicly available (<http://www.who.int/healthinfo/systems/sage/en/index.html>). These data begin to fill a gap in knowledge about older persons' health and wellbeing in sub-Saharan Africa (Cohen & Menken, 2006). The WHO-SAGE survey and Agincourt Health and Demographic Surveillance System are both approved through the University of the Witwatersrand Human Research Ethics Committee (Medical) (clearance number M960720). The University of Missouri Health Sciences IRB awarded additional exempt status for secondary data analysis (clearance number 1194277).

The WHO-SAGE Short Questionnaire was incorporated as a module for persons 50 years and older in the 2006 Agincourt HDSS census. All households with a member aged 50 or older were selected into the study; all individuals aged 50 or older within each household

were included as part of the study. The module included questions on self-reported health, functionality, and wellbeing. The census collected additional demographic and household-level data. Approximately 65% (N=4085) of the target population completed the module. Nearly two-thirds of those who completed the module were women due to high and persisting male labor migration even in the older age groups. [For details of the sample, response rates, and data collection, see Gómez-Olivé et al., 2010; Kowal et al., 2010.]

We replicate the Gómez-Olivé et al. (2010) models analyzing health, disability and quality of life; however, instead of 10-year age groups, we use 5-year groups to assess whether pension eligibility diminishes or amplifies differences between men and women found in the previous analysis. In our preliminary analysis (available at http://www.colorado.edu/ibs/pop/Impact_of_Pensions_South_Africa/), we examined individual domains included in the WHO-SAGE questionnaire. We found that women reported poorer health on all key variables, including general self-reported health, presence of pain, trouble falling asleep, affect (depression, worry and anxiety), and difficulty with interpersonal activities. Women had lower scores on questions pertaining to mobility, functionality, and health; more often, they selected the “moderate” or middle -most answer whereas men were more likely to select an answer at extreme ends of the scale. For example, in general more men reported having “no difficulties” with mobility while more women reported having “moderate difficulties.”

Variables

The measures that we use to explore social wellbeing come from two constructs of subjective wellbeing—affect and quality of life. These constructs are often put together, with a number of others, to determine overall quality of life (e.g. as in the WHO measure WHOQoL). We examine four individual wellbeing domains to assess whether some reveal greater differences by sex and pension-eligibility than others. We created four dichotomous variables: *sad*, *worry*, *dissatisfied* and *unhappy*. Respondents were asked the extent to which, in the last 30 days, they felt sad, low, or depressed (*sad*), felt worry or anxiety (*worry*), were satisfied with life as a whole (*dissatisfied*) and felt happy in general (*unhappy*). Following Gómez-Olivé et al. (2010), we also use three composite measures—health status, disability assessment schedule (WHODASI) and quality of life (WHOQoL). Health Status measures physical health, not social wellbeing; however, we have included it to show ways that physical health and social wellbeing mirror one another, and to parallel the analysis by Gómez-Olivé et al. (2010). Table 1 shows the variables, original coding, and recoding to create dichotomous variables.

Like Gómez-Olivé et al. (2010), we consider factors associated with wellbeing in this population: age, sex, education, marital status, household assets (as a proxy for socio-economic status (SES)), nationality, employment status, and household structure. We report age in five-year intervals to capture recent pension-eligibility. Age proxies pension-receipt, as there was no direct measure in 2006; virtually all age-eligible Agincourt residents qualify for pension access.

Education is categorized as no formal education or some education. Marital unions in rural South Africa may be traditional, civic, and a minority is polygamous. Thus, to simplify we dichotomize marital status—currently married or unmarried (those never married, separated, divorced, or widowed). To evaluate the relationship of health to other measures, we used self-rated health, categorized as “bad” or not. Employment status, collected for 2004 in the 2005 Agincourt census update, is coded as currently working or not. The majority of those not working were not looking for work but had retired. Employment status focused on permanent formal work, so may underestimate informal income-generating activities.

We measure SES using a household asset score derived from 34 variables collected in 2005 (including information about the type and size of dwelling, access to water and electricity appliances and livestock owned and transport available). The score was derived through principal component factor analysis and then divided into quintiles. We follow Gómez-Olivé et al. (2010) in using the dichotomous version in which those in the three lowest quintiles were categorized as poor.

About one-third of the Agincourt population is of Mozambican origin, most of whom came to Agincourt during and soon after the Mozambican civil war (mid-1970s to early-1980s). “Nationality” captures self-identification as South African or Mozambican. We consider three household structure variables to capture the multi-generational nature of many Agincourt households (Kahn et al., 2007): *household size* (grouped in the descriptive table, but continuous in the regression analysis), *older persons’ living arrangements* (whether they lived alone, in skipped-generation households, or in multi-generational households), and the *percent of individuals in the household under age 15*.

Analysis

Using Stata10.1 (College Station, Texas, USA), we first described the study population by summarizing socio-demographic variables by age and sex (Table 2); we used regression or logistic regression with sex, age group, and sex*age-group interactions as predictors to test for differentials in the socio-demographic variables. Next we performed logistic regression to assess the relations between potential associated factors, confounders, and each of the seven outcome measures. We carried out bivariate analyses of each outcome and each socio-demographic variable and then constructed multivariate models. The first set of multivariate models, shown in Table 3, used only age group, sex and related interaction terms as predictors. In Table 4, variables which were significantly related to the outcome measures in a univariate analysis were introduced into the models sequentially and then discarded if the effect was not significant at the level of $p \leq 0.05$. Finally, for all multivariate models we tested whether there were significant pre- to post-pension eligibility differences in the dependent variables for men and women.

Results

Table 2 displays characteristics by sex and age group. Using the regression models described above (and available at http://www.colorado.edu/ibs/pop/Impact_of_Pensions_South_Africa/), we found that, controlling for age, men were more likely than women to live in smaller households and in households with all members over age 50. Women’s households were more dependent-heavy (higher percent under age 15) and multigenerational. Skip generation households were rare and the likelihood of living in one did not vary significantly by sex or age group. A lower percentage of women lived in households in the top two SES quintiles. Women were more likely to be unmarried and have no formal education, while men were more likely to be working in 2004. For women, mean household size declined with age. Women showed a steady increase in the percentage unmarried as they aged. The percent with no formal education steadily increased with age for both men and women, but a higher percentage of women had no formal education in each age group (50% of women compared to 37% of men among 50–55 year olds; 85% compared to 71% at 70+). A much smaller percentage of women compared to men worked at each age. The percent self-reporting bad health generally increased with age.

Distinctive patterns emerged for the ages of recent pension eligibility, which are highlighted and italicized. We focused on changes in the background variables between pre-eligibility, eligibility and post-eligibility. Household composition variables did not show clear pension-eligibility related changes for men. However a much lower percentage of men were in the

lowest three SES quintiles (a household measure) just after pension-eligibility (ages 65–69). Percent working also dropped significantly after men turn 65. For women, the shifts in SES and percent working occurred at ages 60–64 – when they reached pension-eligibility, after which they were less likely to be in the lowest quintile and more likely to be in the top two quintiles.

Given shifts for women and men in wellbeing as they became pension-eligible (shown in Table 2), we hypothesized that while self-reported indicators of wellbeing normally worsen with age, pension-eligibility moderated these effects. Pension access led to reporting better health and wellbeing, at least in the short term. We tested these hypotheses in the regression models in Tables 3 and 4.

Table 3 shows a set of logistic regression models for each of the wellbeing outcomes under study using only sex, five-year age groups, and interactions between sex and age groups as predictors. The original models (not shown) contained all sex/age-group interactions; however, Table 3 shows reestimated models that retain only the significant interactions (for age group 60–64 and, in one case, for age group 75-plus). We found that women are significantly more likely than men to report being sad and worried, and significantly more likely to have poor outcomes on the three composite measures. Relative changes with age were similar for men and women with the exception of the initial pension age-eligible group —60–64—for women. For men, the odds of poor wellbeing at age 60–64 (the five years *prior* to pension-eligibility) were higher than ages 50–54 (ten years prior to pension-eligibility).

We then tested differences in wellbeing for recently pension-eligible women (aged 60–64) compared to women in the pre-pension eligible category (age 55–59). For all wellbeing measures, pension-eligible women were significantly better off. And for all wellbeing measures, women five years post-pension eligibility (65–69) were significantly worse off than the initial pension-eligible category (60–64). This increase with pension-eligibility and decrease in the next age group was not as evident for men. Men showed significant improvement in three of the seven measures at pension-eligibility (65–69), and a significant decline in three measures at five years post-pension eligibility (70–74). The pattern of improvement upon pension-eligibility followed by decline was prominent and consistent across wellbeing indicators for women but less so for men.

In Table 4, we add covariates that are relevant for older persons' health and wellbeing. These include marital status, self-rated health, education, household SES, household size, percent of household under age 15, work status in 2004, and nationality. Variables that were individually non-significant were also jointly non-significant; they were deleted and the models re-estimated. Controlling for these covariates, we found that women still have significantly poorer wellbeing. Women were more likely to report feeling sad or worried, and to report poor health status and functionality compared to men. Being unmarried increased the odds of reporting being worried, unhappy, and dissatisfied, and of reporting poor function and quality of life. The strongest and most consistent predictor of all the basic and composite measures was “bad health”—a self-rating of bad or very bad health, rather than moderate, good or very good health. (Self-rated health is excluded from the Health Status model as it was incorporated into this variable). Those with no education had higher odds of feeling unhappy in the past thirty days and reporting poor health status and quality of life. Those who worked in 2004, however, had lower odds of reporting poor health status, functionality, and quality of life. None of the remaining individual or household characteristics had consistent impacts across outcomes. Being in the highest SES category reduced reported dissatisfaction with life, poor health status and quality of life, but did not have significant effects on the other outcome variables. Household size had a significant

impact only on quality of life. South Africans, compared to Mozambican immigrants, were more likely to report poor health and function status. Percent of household under age 15 and its interaction term had minimal effects, and only on the Health Status outcome.

To investigate how pension-eligibility affected men and women, we again tested for a significant improvement from the pre-pension to pension-eligible age group. Even with the covariates in the models, pension-eligible women (60–64) had decreased odds of reporting being sad, worried, unhappy, or dissatisfied, or having poor health status, function and quality of life, compared to pre-pension eligible women (55–59). Similarly, there was a significant decline for women post-pension (65–69) in all seven outcomes; these women were more likely to report negative outcomes. For men, we saw a pension-eligible (65–69) improvement in happiness, health status, life satisfaction and quality of life; and a post-pension (70–74) decline in life satisfaction, functionality and quality of life. While pension-eligibility seemed important for the wellbeing of both men and women, the results were more consistent and significant for women both in terms of improvements at pension-eligibility, and in the temporary nature of these improvements, as shown by significant declines post-pension-eligibility.

Discussion

Three main findings from the above analysis provide important insights into the role of pensions and gender in older persons' wellbeing in rural South Africa. (1) Composite measures provide an important overview, but it is equally important to unpack these by looking at individual measures of wellbeing. (2) There are significant sex differences in wellbeing at older ages—with women reporting worse outcomes than men. (3) Finally, we find that pension-eligibility increases reported wellbeing for men and women, more strongly for women, but only temporarily. The improvement in perceived health with pension-eligibility echoes Brenes-Camacho's (2011) findings among older Costa Rican non-contributory pension recipients. He suggests pension recipients may report better health because they feel less stressed about their socio-economic situation.

First, our paper extends past work by examining individual indicators of wellbeing as well as composite measures. We assess worry, sadness, life (dis)satisfaction and (un)happiness in addition to WHO composite measures of health status, disability and quality of life. For each measure, self-reported "bad health" had a strong and highly significant association; this finding was expected, given the connections between social and physical wellbeing (Gilbert & Selikow, 2010; Kendell, 2009; Patel et al., 1999). The strength of this relationship can be considered a validity measure of the other relationships that we show. Despite their importance, the composite measures are difficult to interpret due to the number of variables they encompass. Figures 1a and 1b provide visual evidence of a pattern related to pension-eligibility despite magnitude differences across outcomes and by sex. While there is emerging work to validate various composite measures of wellbeing in low and middle income countries (LMICs), and their comparability across settings, there are still questions about how well these measures capture cross-cultural understandings of concepts included within composite measures (Ice et al., 2010; Kowal, Gunthorpe, & Bailie, 2007; Lau, Cummins, & McPherson, 2005). One approach is to examine individual variables that make up these outcome measures to assess if some have stronger relationships to gender or pension exposure than others, as we have done here.

Second, as in Gómez-Olivé and colleagues (2010), our analysis found women to be significantly more likely than men to report poor outcomes on the three composite measures. Further, we find that these sex differences hold, and are at times even more significant for the single-dimension measures. There are different expectations and roles throughout the life

course for men and women, including at older ages (Burns et al., 2005; Gilbert & Selikow, 2010; Oppong, 2006). It is thus not surprising, particularly in an AIDS-endemic setting, that older men and women perceive their health and wellbeing differently.

Further, the covariates related to older persons' wellbeing vary by sex. When running separate models for men and women (not shown) marital status, household size and percent of household under age 15 were not significant in any of the men's models, but were for women; work status in 2004 and nationality were not significant in the women's models, but were for men. This may be an argument for tailored interventions that treat men and women separately in the future.

Third, pensions have a particularly strong impact on older women's reports of wellbeing. Women in these settings often take on caregiving roles for those sick with or orphaned by HIV/AIDS (Munthre & Maharaj, 2010; Schatz & Ogunmefun, 2007); therefore, the cash influx that comes with pension-eligibility at age 60 for women, seems to have a heightened, although temporary, effect on reported wellbeing for women (see Figures 1a and 1b). Women's reports of improved wellbeing spike at pension-eligibility and then decline again. While the pattern is less prominent for men, as shown in Figure 1b, men report being better-off 10-years prior to pension eligibility (55–59), being worse-off immediately pre-pension (60–64), and then being better-off again—significantly for some outcomes—when they reach pension-eligibility (65–69), before gradually reporting worsening outcomes as they move further in time into post-pension eligibility.

As seen in Figures 1a and 1b, there is a precipitous increase in reported poor self-rated health and function (WHODASi) with age as disability and burden of disease increases. Additionally, both men and women report poorer wellbeing and quality of life at older ages. While there is an expectation of a decline in objective health with age, the decline in self-reported health, wellbeing and quality of life do not always correlate directly with measured declines in objective health (Pinquart, 2001). In some cases, despite increasing illness and disability, older persons adjust how they conceptualize and report health and wellbeing. According to the “disability paradox”, even when quality of life appears objectively worse, older persons may assess it more favorably (Bowling et al., 2007). Instead of focusing on decline, they may emphasize overall life satisfaction based on how the presence of positive social ties, resources, and coping strategies aid them in living well despite increasing illness and disability (Prieto-Flores et al., 2010). Much of the research on the connections between health and quality of life in later life have been conducted in high income settings; an important future step is to assess these relationships in low and middle-income settings with higher burdens of disease and fewer available health resources, like South Africa (Molzahn et al., 2011).

The effects of pension-eligibility may interrupt a linear increase in poor self-assessment with age more extremely for women for several reasons. Pension-eligible women are more likely than men to be unmarried, due to longer life expectancy and lower entry into a new union after one has ended (Ståhlberg et al., 2005). Older women are less likely than men to have had formal employment during their lifetime, so the pension may be a woman's first regular income (Ståhlberg et al., 2005). Gender roles may affect how the pension is used within the household and family, as well. The SES measure in the models is based on household assets—making it hard to assess the pensions' impact. However, qualitative data suggest that men initially use their pension to purchase large household items, whereas women use their pension for daily household maintenance (Schatz & Ogunmefun, 2007).

Our study has some notable limitations. Persistent high levels of male labor migration skew the population make-up; this is reflected in the high proportion of full-time female residents

in much of rural South Africa including Agincourt, and in the make-up of the study sample which has nearly three times as many women as men (Gómez-Olivé et al., 2010; Kahn et al., 2007). As reported in Gómez-Olivé et al. (2010) the response rate for the WHO-SAGE survey was 65.8%. Analysis of Agincourt census data showed significant differences in non-respondents—who were younger, more educated and more likely to be South African and male. Given some of the findings in our paper, missing data on non-respondents could affect results, particularly among men pre-pension, since some of the missing younger men may be healthier and more likely to be working.

Somewhat surprisingly, the measures of household composition that we explored in the models—household size, percent of household under age 15, number of generations in the household (not shown)—did not produce the expected results. It is unclear why household composition is not impacting older persons' health and wellbeing in expected ways, and needs to be examined further. Unfortunately, questions on caregiving were not included in the 2006 WHO-SAGE survey, so despite its clear importance, it is not possible to assess its relationship to health and wellbeing, particularly in terms of differences in gendered experiences and roles. We were able to capture a variety of wellbeing outcome measures; however, other research has shown that men often underreport sadness, worry, and life dissatisfaction (Moynihan, 1998; Verbrugge, 1989). This could affect the comparison of men and women, but is less likely to impact reported changes related to pension-eligibility for each group. Finally, we were limited in assessing only intent-to-treat results, using age as a proxy for pension-receipt, rather than identifying those individuals receiving a pension.

Our finding that pension-eligibility, especially for women, is related to a remarkable improvement in reported wellbeing with diminishing returns post-pension eligibility, demands further research. An investigation into the strength of the moderating effect of pension-eligibility on wellbeing, as well as covariates that may weaken or strengthen this effect is necessary if we are to strengthen efforts to ensure the positive wellbeing of older people. Future analyses of these data, and more recently collected data, from the Agincourt sub-district will allow us to further an examination of the relationships among gender, pensions and wellbeing. In addition, future work will examine more specific compositional characteristics – such as number/age/sex of labor migrants, number of fostered and orphaned children in the household, and number of child grants received. These may provide more salient explanatory variables than the ones presented above.

As of 2010, the age of eligibility for the male pension equalized with that of women—i.e. men's pension-eligible age was lowered from 65 to 60 years. This is a major policy shift, argued on the basis of gender equality (Case number: 32838/05 in the High Court of South Africa). This change was initiated in 2008; thus, the data presented represent a baseline prior to the policy change. The shift to younger age-eligibility for men, captured in a second wave of WHO-SAGE collected in 2010, will allow us to assess the impact of this policy change on age patterns in wellbeing. If “improvements” in wellbeing outcomes shift to match the new pension-eligibility age (60–64 rather than 65–69) in the 2010 survey, this would confirm that these age-related patterns could indeed be attributed to the pension and its effects. We will also be able to investigate if the pre-pension-eligibility fall in men's wellbeing remains, or if women and men receiving the pension at different ages compounded this.

In 2010, Agincourt began collecting individual data on pension receipt. Thus, we can now compare intent-to-treat findings with treatment-on-the-treated results. We believe sex differences in the strength and temporary nature of pensions reflect very different gender roles and expectations of older persons in South Africa, evident both within and beyond the household. We will use qualitative data to uncover whether and how pension-receipt is

accompanied by changing and gendered roles and demands. Additionally, we will be able to make use of anchoring vignettes, collected as part of the Long WHO-SAGE survey in Agincourt, to understand how men and women in this context evaluate their health, functioning and wellbeing to strengthen our understanding of the gender comparison. This paper provides a starting point for thinking about how older persons' health and wellbeing are connected to larger social systems including social grants, gender systems, and the health and wellbeing of others in their networks. This merits our future attention, has important policy implications, and should be explored with similar data elsewhere.

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Research Highlights

- Older South African women (aged 50-plus) report poorer wellbeing on individual indicators and composite measures than men.
- The South African non-contributory means tested pension impacts reported health and wellbeing.
- Women report better wellbeing during a striking “honeymoon” period in the first years of pension-eligibility (ages 60–64).
- Men’s wellbeing drops pre-pension eligibility (ages 60–64), increases at pension-eligibility (65–69), then declines (70–74).
- Pensions may enhance financial wellbeing, but our results show their effect on social wellbeing is gendered and temporary.

Figure 1a. Women

Figure 1b. Men

Figure 1.

Figures 1a & 1b: Predicted Odds Ratios by sex and age group (based on Table 3)

Table 1

Wellbeing Outcome Measures

Variable	Original coding	Dichotomous Recoding
Sad *	None	0=none/mild
	Mild	
	Moderate	1= at least some sad
	Severe	
	Extreme	
Worry	None	0=none/mild
	Mild	
	Moderate	1= at least some worry
	Severe	
	Extreme	
Unhappy	Very happy	0= happy
	Happy	
	Neither	1=at least some unhappy
	Unhappy	
	Very Unhappy	
Dissatisfied	Very satisfied	0= satisfied
	Satisfied	
	Neither	1= at least some dissatisfied
	Dissatisfied	
	Very dissatisfied	
Variable	Components	Dichotomous recoding of quintiles
Health Status	Mobility, Self-care, Pain and discomfort, Cognition, Interpersonal activities, Sleep/energy, Affect, Vision Scale 0 (poor health) to 100 (good health)	0=60% best health 1=40% poorest health
WHODASi (Function)	Interpersonal activities, Difficulties in daily living: Standing, Walking, Household duties, Learning, Concentrating, Self-care Scale 0 (low ability) to 100 (high ability)	0=60% best WHODASi 1=40% worst WHODASi
WHOQoL (Quality of Life)	Enough energy for daily life, Enough money to meet needs, Satisfaction with: Your health, Yourself, Ability to perform daily activities, Personal relationships, Condition of your living space, Rate your overall quality of life Scale 0 (low QOL) to 100 (high QOL)	0=60% best WHOQoL 1=40% worst WHOQoL

* Questions translated into Shangaan for WHO-SAGE: Overall in the last 30 days, how much of a problem did you have ... **SAD**:... with feeling sad, low or depressed?; **WORRY**: ... with worry or anxiety?; **DISSATISFIED**: Taking all things together, how satisfied are you with your life as a whole these days?; **UNHAPPY**: Taking all things together, how would you say you are these days?

Table 2

Background Characteristics and Wellbeing by Sex and 5-Year Age Group, Agincourt HDSS and SAGE 2006 Recent pension-eligible age highlighted

	MEN										WOMEN							
	50-54	55-59	60-64	65-69	70-74	75+	50-54	55-59	60-64	65-69	70-74	75+	50-54	55-59	60-64	65-69	70-74	75+
Mean household size	6.6	6.3	7.3	7.0	6.9	6.0	8.3	8.0	7.5	7.0	6.5	6.4						
Mean percent of household under 15	26.4	20.9	22.3	21.5	21.3	19.0	30.0	26.5	26.0	26.3	25.3	23.9						
Living Arrangements																		
Only 50+ in household	12.5	20.8	14.2	13.2	10.8	20.7	3.9	3.6	3.4	8.4	9.1	11.0						
Skip generation household	2.7	1.6	1.9	1.7	2.5	1.6	2.4	2.3	2.2	1.8	2.0	2.6						
3+ generations in household	84.8	77.6	84.0	85.1	86.7	77.6	93.7	94.1	94.4	89.8	88.9	86.3						
Socio-economic status (quintiles)																		
First (lowest)	13.4	16.0	17.0	9.8	18.3	17.1	13.9	12.8	9.8	13.6	17.4	17.2						
Second	21.4	18.4	14.2	10.3	13.3	16.3	15.9	16.4	17.4	16.8	21.4	23.3						
Third	16.1	17.6	27.4	20.1	13.3	19.1	20.9	22.4	17.9	23.8	18.9	18.0						
Fourth	16.1	18.4	11.3	29.3	23.3	19.1	23.9	19.2	25.8	24.9	22.6	23.4						
Fifth (highest)	33.0	29.6	30.2	30.5	31.7	28.5	25.4	29.2	29.1	20.9	19.7	18.2						
Percent unmarried	25.9	24.0	18.9	19.5	20.0	23.6	43.9	49.8	53.8	64.4	75.4	84.3						
Percent with no formal education	36.6	42.4	44.3	53.5	65.8	70.7	50.4	54.6	57.2	71.5	85.1	84.6						
Percent working in 2004	39.3	29.6	36.8	17.8	15.0	5.7	26.1	24.0	16.4	8.6	5.4	2.2						
Percent South African	82.3	79.9	83.8	75.4	72.0	68.8	73.1	71.0	75.6	71.4	67.6	71.1						
Percent bad self-rated health	12.5	16.0	22.6	21.8	10.8	17.5	9.4	13.0	12.2	15.2	18.3	24.7						
Wellbeing variables (Percent scored 1)																		
Sad	39.3	35.2	44.3	35.1	34.2	43.1	45.0	44.8	39.1	47.9	52.3	51.1						
Worry	50.9	42.4	50.9	39.1	40.0	49.2	52.6	57.1	44.0	55.8	59.1	60.7						
Dissatisfied	30.0	29.0	39.3	32.4	31.6	34.4	32.6	33.7	23.6	29.8	36.8	39.0						

	MEN						WOMEN					
	50-54	55-59	60-64	65-69	70-74	75+	50-54	55-59	60-64	65-69	70-74	75+
Unhappy	34.3	27.7	38.3	27.7	28.7	37.8	33.2	33.4	25.5	32.9	36.3	39.3
Poor Health Status	39.7	41.7	53.8	46.8	47.5	60.1	48.4	52.8	48.0	58.9	65.3	72.6
Poor WHODASi	28.4	30.9	30.8	29.6	32.2	40.9	30.7	35.1	29.5	41.6	50.8	60.1
Poor WHOQoL	37.9	31.6	41.9	34.7	35.9	41.7	39.4	41.4	30.6	38.3	45.3	50.0
N	112	125	106	174	120	246	460	438	409	382	350	644

Table 3

Relationships of Sex and 5-year Age Group to Health and Wellbeing Measures, Agincourt HDSS and SAGE 2006 Logistic regression odds ratios and (95% confidence intervals)¹

	SAD	WORRY	UNHAPPY	DISSATISFIED	POOR HEALTH STATUS	POOR WHODASI	POOR WHOQOL
Female	1.53 *** (1.31, 1.79)	1.60 *** (1.37, 1.86)	1.16 (0.99, 1.37)	1.13 (0.96, 1.33)	1.67 *** (1.43, 1.96)	1.36 *** (1.09, 1.70)	1.31 *** (1.03, 1.39)
Age Groups							
50-54 (omitted)	1	1	1	1	1	1	1
55-59	0.96 (0.77, 1.20)	1.09 (0.88, 1.36)	0.95 (0.75, 1.19)	1.03 (0.82, 1.30)	1.17 (0.94, 1.45)	1.21 (0.96, 1.52)	1.01 (0.81, 1.26)
60-64	1.51 * (1.00, 2.29)	1.24 (0.82, 1.87)	1.40 (0.91, 2.15)	1.52 * (0.99, 2.32)	2.02 *** (1.33, 3.05)	1.31 (0.83, 2.08)	1.40 (0.92, 2.12)
65-69	1.09 (0.88, 1.36)	1.06 (0.85, 1.31)	0.92 (0.73, 1.16)	0.95 (0.76, 1.20)	1.49 *** (1.20, 1.85)	1.45 *** (1.15, 1.82)	0.95 (0.76, 1.19)
70-74	1.16 (0.92, 1.46)	1.13 (0.90, 1.43)	1.06 (0.83, 1.35)	1.18 (0.92, 1.49)	1.84 *** (1.46, 2.33)	1.40 (0.89, 2.21)	1.19 (0.95, 1.50)
75plus	1.30 *** (1.07, 1.58)	1.29 *** (1.07, 1.58)	1.28 * (1.05, 1.57)	1.30 *** (1.06, 1.59)	2.70 *** (2.20, 3.30)	2.05 *** (1.45, 2.88)	1.45 *** (1.19, 1.77)
Female * Age 60-64	0.50 *** (0.32, 0.77)	0.54 *** (0.35, 0.84)	0.47 *** (0.30, 0.75)	0.42 *** (0.27, 0.67)	0.47 *** (0.31, 0.73)	0.69 (0.42, 1.13)	0.47 *** (0.30, 0.73)
Female * Age 75-plus	--	--	--	--	--	1.60 *** (1.11, 2.29)	--
Tests run on above models to assess differences between specific age/sex groups							
Improvement at pension-eligibility							
Women 60-64 vs 55-59	*	***	**	***	*	*	***
Men 65-69 vs 60-64	NS	NS	*	**	NS	NS	*
Decline in next age group after pension-eligibility							
Women 65-69 vs 60-64	**	***	**	**	***	***	**
Men 70-74 vs 65-69	NS	NS	NS	*	*	NS	**
N	4060	4016	4021	4059	4069	4069	4065

¹Models were first estimated with all sex*age-group interactions. Interactions that were jointly non-significant were deleted and the models re-estimated.

NS p>.05,

* p<=.05,

** p<=.01,

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Table 4

Relationships of Sex, Age, and Other Characteristics to Health and Wellbeing Measures, Agincourt HDSS and SAGE 2006 Logistic regression odds ratios and (95% confidence intervals), recent pension-eligible age group highlighted¹

	SAD	WORRY	UNHAPPY	DISSATISFIED	POOR HEALTH STATUS	POOR WHODASI	POOR WHOQOL
Age Groups							
50–54 (omitted)	1	1	1	1	1	1	1
55–59	0.92 (0.74, 1.15)	1.05 (0.84, 1.31)	0.92 (0.72, 1.17)	0.97 (0.77, 1.24)	1.22 (0.95, 1.56)	1.13 (0.87, 1.48)	0.90 (0.70, 1.17)
60–64	1.34 (0.88, 2.05)	1.08 (0.71, 1.65)	1.26 (0.81, 1.97)	1.32 (0.84, 2.06)	2.29 *** (1.44, 3.63)	1.45 (0.87, 2.39)	1.25 (0.77, 2.04)
65–69	1.00 (0.80, 1.25)	0.95 (0.77, 1.19)	0.79 (0.62, 1.00)	0.80 (0.63, 1.34)	1.34 * (1.05, 1.72)	1.17 (0.89, 1.53)	0.63 *** (0.48, 0.82)
70–74	1.09 (0.86, 1.37)	1.03 (0.81, 1.30)	0.89 (0.69, 1.15)	1.04 (0.81, 1.34)	1.52 *** (1.16, 1.99)	1.63 *** (1.22, 2.16)	0.83 (0.63, 1.11)
75plus	1.14 (0.94, 1.40)	1.10 (0.90, 1.35)	1.03 (0.82, 1.28)	1.01 (0.81, 1.25)	2.35 *** (1.85, 2.99)	2.12 *** (1.64, 2.73)	0.88 (0.68, 1.13)
Female	1.52 *** (1.30, 1.79)	1.47 *** (1.25, 1.75)	0.98 (0.82, 1.18)	0.99 (0.83, 1.19)	2.20 *** (1.67, 2.90)	1.52 *** (1.24, 1.86)	1.13 (0.92, 1.39)
Unmarried	--	1.18 * (1.02, 1.35)	1.36 *** (1.17, 1.59)	1.21 *** (1.04, 1.41)	--	1.23 *** (1.04, 1.45)	1.36 *** (1.15, 1.62)
Bad Health	3.32 *** (2.77, 3.97)	2.74 *** (2.27, 3.29)	2.40 *** (2.01, 2.86)	3.37 *** (2.83, 4.01)	NA	3.07 *** (2.51, 3.75)	5.19 *** (4.21, 6.41)
No Education	--	--	1.25 ** (1.07, 1.46)	--	1.32 *** (1.12, 1.55)	1.39 *** (1.17, 1.65)	1.20 * (1.01, 1.42)
Highest SES	--	--	--	0.70 *** (0.59, 0.83)	0.82 * (0.69, 0.97)	--	0.69 *** (0.57, 0.82)
Household Size	--	--	--	--	--	--	1.02 * (1.00, 1.04)
Percent Under 15	--	--	--	--	1.01 (1.00, 1.02)	--	--
Working 2004	--	--	--	--	0.77 ** (0.62, 0.94)	0.75 * (0.60, 0.95)	0.73 ** (0.59, 0.92)
South African	--	--	--	--	1.35 *** (1.13, 1.62)	1.23 * (1.03, 1.48)	--
Female * Age 60–64	0.55 ** (0.35, 0.87)	0.60 * (0.39, 0.94)	0.50 *** (0.31, 0.81)	0.47 ** (0.29, 0.77)	0.39 *** (0.24, 0.64)	0.53 * (0.31, 0.90)	0.44 ** (0.26, 0.74)
Female * Percent under 15	--	--	--	--	0.99 ** (0.98, 0.99)	--	--

	SAD	WORRY	UNHAPPY	DISSATISFIED	POOR HEALTH STATUS	POOR WHODASI	POOR WHOQOL
Tests run on above models to assess differences between specific age/sex groups							
Improvement at pension-eligibility							
Women 60–64 vs 55–59	*	***	**	***	**	**	***
Men 65–69 vs 60–64	NS	NS	*	**	**	NS	**
Decline in next age group							
Women 65–69 vs 60–64	**	***	NS	*	**	**	NS
Men 70–74 vs 65–69	NS	NS	NS	*	NS	**	*
N	4057	4013	3887	3955	3291	3302	3287

[†]Models were first estimated with all background variables and sex*age-group interactions. Variables that were each non-significant and jointly non-significant were omitted and the models reestimated.

NS p>.05,

* p<=.05,

** p<=.01,

*** p<=.001