Cross-Country Variation in the Sociodemographic Factors Associated with Major Depressive Episode in Norway, the United Kingdom, Ghana, and Kenya

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Abstract

Studies based on Western samples generally show that status characteristics like gender or marital status are associated with better mental health for individuals who occupy advantageous positions, such as men or the married. However, these patterns may not hold in developing regions that differ in important ways from the West. Guided by the Stress Process Model (SPM), this study uses logistic regression to examine the effect of gender, education, and other status characteristics on major depressive episode (MDE). Similarities and differences in these associations across two Western and two African countries are also assessed. Nationally representative data for adults ages 18 years and older are from the World Health Surveys (2002-2004) for Norway ($N = 943$), the United Kingdom (UK: $N = 1,195$), Ghana ($N = 3,922$), and Kenya ($N = 4,331$). Results indicate a mixed pattern of associations between status characteristics and MDE across the four countries. Norwegian men face higher risk of MDE than Norwegian women—an anomalous finding. With some exceptions, education and employment status are not significantly related to MDE across the countries, providing little support for SPM. Marital status differences in risk of MDE are largest for Norway and smallest for Ghana. For the UK, men face lower risk of MDE than women across levels of mastery, and the gender gap in MDE is larger at higher levels of mastery. Overall, there is some heterogeneity in the associations between status characteristics and MDE even in somewhat similar environments like Ghana and Kenya. This study extends the reach of SPM to settings in sub-Saharan Africa, and contributes to the sparse empirical literature on the prevalence and sociodemographic correlates of MDE in the general populations of Ghana and Kenya.

Keywords

Kenya; Ghana; Norway; the UK; depression; sociodemographic factors; status characteristics

INTRODUCTION

The Stress Process Model (Pearlin, Menaghan, Lieberman, & Mullan, 1981) asserts that status positions such as gender and employment status are characterized by unequal exposure to stressors and access to beneficial resources—disparities that place some people at higher risk of depression and other poor health outcomes. Guided by the Stress Process Model (SPM), this study uses data from the World Health Surveys (WHS) to examine the relationship between socio-economic status characteristics and major depressive episode (MDE) in one pair of developed countries, and one pair of developing countries: Norway and the United Kingdom [UK], and Ghana and Kenya. These country-pairs represent macro systems that differ, to varying degrees, in institutional and social resources linked to health. Because WHS data are designed to facilitate cross-country comparisons, they are suitable for assessing whether or not the relationship between status characteristics and MDE are consistent with SPM for the four countries. Specifically, do people who occupy low status positions face higher risk of MDE than their advantaged counterparts across different national contexts? Characteristics of the countries considered here can in turn inform our understanding of patterns that deviate from what is expected in stratified societies characterized by unequal distribution of "...power, privilege, and prestige" (Pearlin, 1999, p. 397).

National Contexts

Individuals live within larger social and physical environments whose structural features impact health (Eikemo, Bambra, Judge, & Ringdal, 2008). Norway and the UK are economically developed countries with universal health care coverage. Their populations are generally healthier and enjoy good standards of living relative to the people of Ghana and Kenya (United Nations Development Programme [UNDP], 2013). Additionally, Norway, in particular, has more extensive social services and financial safety net programs (Arts & Gelissen, 2002; Ferrera, 1996). Welfare regimes that are universal and provide generous benefits, such as Norway, are linked to better population health outcomes (depression: Levecque, Van Rossem, De Boyser, Van de Velde, & Bracke, 2011; self-rated: Eikemo et al., 2008).

Kenya and Ghana, on the other hand, perform poorly on key indicators of population well-being, including unemployment and poverty levels, life expectancy, educational attainment, and gender equality (UNDP, 2013). Kenya lacks universal health insurance and Ghana's coverage is undermined by a shortage of health care professionals (Mills, Ally, Goudge, Gyapong, & Mtei, 2012). Compared to Norway and the UK, less favorable environments in Ghana and Kenya can threaten mental health by exposing residents to stress associated with poor access to health care, unemployment, and poor living conditions. Even so, in the African countries, high levels of social integration through networks of extended family and friends, and social participation in religious and other activities (Gilani, Shahid, & Zuettel, 2012; Oheneba-Sakyi & Baffour, 2006) can encourage social connectedness and support that are beneficial for mental health (Schieman, Bierman, & Ellison, 2013; Turner & Turner, 2013). It is within these national contexts that individual-level analyses of the sociodemographic correlates of MDE are carried out. Even though the four countries

considered here differ from each other in many ways, they were chosen because they have social and economic attributes that may influence, to varying degrees, exposure to stress detrimental to mental health. Cross-country variation in the sociodemographic correlates of MDE may therefore reflect the degree to which different national contexts impact risk of MDE. Findings from this study should motivate future investigations of the joint effects of country and person level factors on depression.

Status Characteristics and Depression

Research generally shows that MDE and other depressive disorders are more common among women than men (Kringlen, Torgersen, & Cramer, 2001; *review*–Rosenfield & Mouzon, 2013; Sipsma et al., 2013). Low socioeconomic status (SES: education, income, occupational class) is also a known risk factor for depression (Dalgard, Mykletun, Rognerud, Johansen, & Zahl, 2007; *review*–Muntaner, Ng, Vanroelen, Christ, & Eaton, 2013; Sipsma et al., 2013). As posited in SPM, low SES and other disadvantaged positions can threaten mental health by increasing one's exposure to stressors such as financial hardship and poor living conditions (Muntaner et al., 2013). Studies also find that, in general, people who are married or employed are less likely to be depressed than the unmarried or people who are not working (Dalgard et al., 2007; Halvorsen, 1998; *reviews:* Tausing, 2013; Umberson, Thomeer, & Williams, 2013). More importantly, the nature and quality of these social roles matter, such that excess role demands, lack of control, and job insecurity can undermine mental well-being (Burgard, Brand, & House, 2009; Dalgard et al., 2007; Sipsma et al., 2013; Stansfeld, Head, Fuhrer, Wardle, & Cattell, 2003).

The association between marital status and mental health also varies by gender. Remarriage (LaPierre, 2009; Williams, 2003) but not entry into first marriage (Simon, 2002; Strohschein, McDonough, Monette, & Shao, 2005) appears to be more beneficial for men than women. Additionally, women are more vulnerable than men to the deleterious effects of poor marital quality on mental health (*metaanalysis*–Proulx, Helms, & Buehler, 2007; Strazdins & Broom, 2004). Work is also stratified by gender and, in general, women commonly occupy occupations that are stressful and less rewarding; jobs that confer less power and influence and are characterized by low wages, less flexibility and autonomy, and poor career mobility (Mbugua, Kuria, & Ndetei, 2011; Tausing, 2013). As a result, employment may be more beneficial for men's than women's mental health. Men also have greater sense of mastery or control than women (Ross & Mirowsky, 2002; Slagsvold & Sorensen, 2008), and in SPM, mastery is conceptualized as a psychosocial resource that protects against the noxious effects of stress on mental health (Pearlin, 1999). The relationship between gender and MDE may therefore vary by mastery such that men with high levels of mastery experience lower risk of MDE than their female counterparts.

The Current Study

Guided by SPM, this study examines two hypotheses: (1) people who occupy low social and economic status positions (e.g., women, the less educated) face higher risk of MDE than people who occupy high status positions; and (2) the beneficial effect on mental health of occupying one advantaged position (e.g., being employed) depends on whether or not a person also occupies another advantaged position (e.g., being male). Disparities in MDE

between low versus high status individuals are expected to be smallest in Norway, followed by the UK, Ghana, and then Kenya because, relative to the other countries, Norway performs best on country-level attributes that protect against stress embedded in low status positions. Status differences in risk of MDE between the European and African countries are also expected to be smaller due to the collectivist cultures of Ghana and Kenya that foster social integration. SPM is a robust theoretical model that has been applied extensively to understand the social determinants of mental health disparities in the West, but less so in sub-Saharan Africa. This study extends the model's reach to this underserved region, even as it provides much needed empirical work on the prevalence and risk factors of MDE using nationally representative samples from sub-Saharan Africa (Kiima, Njenga, Okonji, & Kigamwa, 2004; Read & Doku, 2012).

METHODS

World Health Survey Design and Procedures

Cross-sectional person-level data for Norway, the UK, Ghana, and Kenya are from the World Health Surveys (WHS), which was administered between 2002 and 2004 in 70 countries by the World Health Organization (WHO) in collaboration with member states (Üstün, Chatterji, Mechbal, & Murray, 2003). Probability samples of persons ages 18 years and older were drawn from nationally representative sampling frames. The WHS was designed to generate data that are comparable across countries and are informative about health care delivery systems and the health status of the surveyed populations (Üstün et al., 2003). Although data generated using WHS survey instruments are unlikely to be perfectly comparable across countries given heterogeneity in the surveyed populations, great efforts were made to promote the validity of WHS data and enhance cross-country comparisons (Kessler & Üstün, 2004; Üstün et al., 2003). Survey instruments were developed with input from experts in the field and pilot tested in several languages and regions in the world (Üstün et al., 2003). Anchoring vignettes and techniques including test-retest and back translation were used to assess the validity and reliability of data. Consultations involving the WHS team, participating countries, and advisors established training and quality control procedures to ensure proper administration of the survey (Üstün et al., 2003).

Sample

The WHS was administered through computer assisted telephone interview (Norway), postal self-administered survey (UK), and household face-to-face survey (Ghana, Kenya). Multistage cluster sampling design was used for Norway, Ghana, and Kenya. UK respondents were selected through systematic sampling. The response rates for Norway (N = 972) and the UK (N = 1,200) were 48.9% and 40% respectively. Ghana's country report indicated that 3,873 individuals from the sampling frame completed the WHS. However, the merged individual data file had 3,932 cases (98.2% response rate), all of whom had sample weights. They represent the sample for Ghana. Kenya's country report stated that 4,343 individuals from the sampling frame completed the survey. The merged data files included 4,416 cases, of whom 70 were missing a sample weight and 1 was missing information about the sampling strata. These cases were excluded, yielding a sample of N = 4,345 (95.9% response rate) for Kenya. A few respondents (N = 29, 3%) with missing data across

study measures were excluded from the analysis for Norway. Multiple imputation was performed via Stata's "mi impute chained" command (StataCorp, 2013) to handle the sizeable proportions of cases with missing data for the UK (N = 147, 12.3%), Ghana (N = 594, 15.1%), and Kenya (N = 414, 9.5%). Missing data was not imputed for MDE, the dependent variable (von Hippel, 2007). The final analytic samples are: Norway (N = 943), the UK (N = 1,195), Ghana (N = 3,922), and Kenya (N = 4,331). Sample weights for Norway, Ghana, and Kenya adjust for differences in the probability of selection and non-response.

Measures

The outcome of interest is whether or not the respondent met criteria for *major depressive episode* (MDE 12 months: 1 = yes, 0 = no). MDE questions were based on the WHO's World Mental Health Survey version of the Composite International Diagnostic Interview (WMH-CIDI: Kessler & Üstün, 2004). MDE was generated using an algorithm based on the DSM-IV and The Diagnosis Item Properties Study (Tandon, Murray, & Shengelia, 2004), an auxiliary study of the WHS (Cifuentes et al., 2008). Respondents were asked whether they had experienced the following symptoms in the last 12 months: "...a period lasting several days when you: (1) felt sad, empty, or depressed? (2) lost interest in most things you usually enjoy such as hobbies, personal relationships or work? (3) have been feeling your energy decreased or that you are tired all the time?" They were also asked if, in the last 12 months, "you: (4) lost your appetite? (5) noticed any slowing down in your thinking?" Respondents were considered positive on MDE if they endorsed at least four of these five questions, and two additional questions: "was this period of sadness/loss of interest/low energy: (6) for more than two weeks? (7) most of the day, nearly every day?" Respondents who did not endorse two or more of the first five questions were not asked the last two questions, and they were considered negative on MDE. Cases whose status could not be determined due to missing values on the symptom questions were excluded from the analyses (Cifuentes et al., 2008).

Independent variables representing social and economic status positions include *gender* (1 = male, 0 = female); *age* in years (cross-country range: 18-107); *education* top coded at 17 years; *married* (1 = yes, 0 = no); and *employed* (1 = yes, 0 = no). Marital and employment status are used as dichotomies to allow for sufficient power to detect group differences given the poor distribution of cases across broader categories of these measures for some of the countries in this study. With no data on income, a *household assets index* was created from six items measuring the availability (1 = yes, 0 = no) of assets (e.g., bicycle, computer, washing machine) in the respondent's household using polychoric principal component analysis (Kolenikov & Angeles, 2009). The technique, which is appropriate for discrete items, generated a factor score that accounted for the most variation across all the items on the index (cross-country range: 47.6% to 69.2%; eigenvalue range: 2.858 to 4.152).

In the WHS, respondents also were asked: "how often have you felt that you were unable to control the important things in your life?" *Mastery* or sense of control is rated on a five-point scale that captures the frequency with which respondents felt not in control (reversed: "1 = very often" to "5 = never"). Doctor diagnosed *chronic conditions* (lifetime: 1 = at least

one condition, 0 = none) from among arthritis, heart disease, and asthma—also is included as a control variable given that poor health is linked to both MDE and status characteristics (Jenkins et a., 2012; Sipsma et al., 2013).

Analysis

Analyses are performed in Stata 13 on weighted data for Norway, Ghana, and Kenya; and on 20 multiply imputed data sets for the UK, Ghana, and Kenya. First, multiple logistic regression models are used to examine the relationship between each predictor and MDE controlling for the other variables in each model. The next set of analyses assess whether the impact of marital and employment status on MDE vary by gender; and whether the association between gender and MDE is moderated by mastery.

RESULTS

Sample Characteristics

Table 1 shows characteristics of the analytic sample for Norway, the UK, Ghana, and Kenya. The genders are relatively balanced except for the UK which has more women than men. Ghanaian and Kenyan respondents are younger, on average, compared to their European counterparts. Norwegian and UK respondents receive the equivalent of a high school education, whereas educational attainment is much lower in Ghana and Kenya. Across the countries, over half of the respondents are married or cohabiting and at least one-fifth have never been married. Separation or divorce and widowhood are highest for the UK. Also, employment is lowest for the UK due in part to the large proportion of retirees and homemakers (over two-fifths of the sample). Labor force participation is especially high for Ghana but returns may be low given high levels of poverty (UNDP, 2013). For Kenya, one in every six respondents is a homemaker, the highest across the countries. The household assets index has scores ranging from 0 to 2.43 across the countries. Norway and the UK have substantially higher scores on assets than Ghana and Kenya, which reflects socioeconomic disparities between developed and developing nations. Over one-fifth of the Norwegian and UK samples report at least one chronic condition. The Kenyan sample, which also is the youngest on average, is the least burdened by illness. Mastery is high among Norwegian and UK respondents, and moderate for Ghanaians and Kenyans. MDE, the dependent variable, is more prevalent in the European than the African samples.

Multiple Logistic Regression Models

Main Effects of Status Characteristics—For each of the four countries, Table 2 shows the main effects of status characteristics on MDE, adjusting for the other variables in the model. For Ghana and Kenya, men face lower risk of MDE than women. Specifically, the odds of experiencing MDE for men in Ghana is 28.8% (1 – 0.712 = 0.288) lower than the odds for women; and for Kenya, the odds for men is 46% lower than that of women. Surprisingly for Norway, the odds of MDE for men is 60.4% higher than the odds for women. Men and women do not differ in risk for the UK. There is a non-linear association between age and MDE only for Norway (not shown). Specifically, growing older is associated with higher risk of MDE till around age 45, after which being older is linked to lower risk. As shown in Table 2, growing older by one year (linear age) is associated with a

1.3% decrease and a 2.2% increase in the odds of MDE for the UK and Ghana respectively, a very weak impact; and age is not significantly related to MDE for Kenya.

In bivariate models (not shown), education measured as a continuous variable is not significantly associated with MDE for both Norway and the UK; but for Ghana ($p = .004$) and Kenya ($p = .01$), each additional year of education is associated with a small decrease (5%) in risk of MDE. However, as seen in Table 2, these significant effects disappear when sociodemographic and health characteristics are adjusted for, such that across the four countries education is not significantly linked to MDE. In other models (not shown), education is analyzed as a categorical variable with different values for the European and African nations given disparities in educational attainment between the two regions. For Norway and the UK, education is coded as: less than high school, high school, some college, college and above = reference group; and for Ghana and Kenya, it is coded as: little/no education (0-2 years) = reference group, some/complete primary education (3-8 years), some/complete high school education (9-12 years), some college or higher (13+ years).

For Norway and the UK, there are no significant differences between education groups in risk of MDE in both bivariate and multivariate models. In bivariate models for Ghana ($p = .003$) and Kenya ($p < .001$) respectively, having the equivalent of some/complete high school education is associated with 46.6% and 59.1% lower odds of MDE compared to having little or no education. Also for Kenya, having the equivalent of some/complete primary education is associated with 33.8% ($p = .046$) lower odds of MDE compared to having little or no education. There are no significant differences between education groups in risk of MDE for Ghana and Kenya in multivariate models. Household assets are not significantly related to MDE for all four countries. The skewed distribution of this measure across the countries likely reduced its predictive power.

For Norway and Ghana respectively, risk of MDE for married people is 0.52 and 0.72 times lower than for unmarried people. The same is observed for the UK ($p = .057$, marginally significant). There are no marital status differences in risk of MDE for Kenya; and no employment status differences in risk of MDE for Norway, Ghana, and Kenya. For the UK, ($p = .057$, marginally significant), the employed have lower odds of MDE than people who are not employed. Across all four countries, reporting at least one chronic condition versus none is associated with the greatest risk of MDE among all the factors examined. For example, risk of MDE for Norway and Kenya is, respectively, 2.19 and 2.13 times greater for individuals with one chronic condition than those without a condition.

Conditional Effects of Status Characteristics—Gender differences in the impact of marital and employment status on MDE are also examined, each in a separate model that adjusts for sociodemographic and health characteristics (not shown, available from the author upon request). Results indicate that across the countries, the association between marital and employment status and MDE does not vary significantly by gender. In Table 3, the relationship between gender and MDE varies by mastery for the UK but not for Ghana or Kenya. Specifically, for UK respondents with average scores on mastery (i.e., zero because mastery is centered at the mean), the odds of MDE for men is 0.567 times that of women. This value is calculated as: exponent($-0.568 + [0 * -0.428]$), where -0.568 is the

coefficient for gender (1 = male), 0 is average mastery centered at the mean, and −0.428 is the coefficient for the interaction term between gender (male = 1) and mastery centered at the mean. When mastery is one standard deviation (SD) below the mean, the odds of MDE for men is 0.891 times that of women; and when mastery is one SD above the mean, the odds of MDE for men is 0.360 times that of women. Gender differences in MDE by levels of mastery are not examined for Norway due to limited variation in scores for mastery: over 85% of the sample report high levels of mastery.

DISCUSSION

This study examined associations between socio-economic status positions and major depressive episode (MDE) in Norway, the UK, Ghana, and Kenya. In the Stress Process Model (SPM) and other theoretical frameworks, women's higher preponderance of depression is attributed, in part, to societal conceptions of masculinity and femininity that influence gender differences in: power, division of labor, exposure and vulnerability to stressors, coping strategies, and access to resources (Ofori-Atta et al., 2010; Rosenfield & Mouzon, 2013; Pearlin, 2010). Consistent with SPM, the more advantaged status of being male, compared to female, was associated with lower risk of MDE in Ghana and Kenya. Also as expected, the gender gap was larger for Kenya than Ghana, possibly due to more gender inequality in Kenya (UNDP, 2013). That men were more likely than women to experience MDE in Norway, net of sociodemographic factors, ran counter to SPM and findings from existing research, including studies using Norwegian samples (Kringlen et al., 2001, 2006; Norwegian Institute of Public Health, 2012). A study which found that major depression was more prevalent among Norwegian men than women ages 18-34 in 2001 (Sandanger, Nygård, Sørensen, & Dalgard, 2007) did not adjust for sociodemographic factors. Supplementary analysis conducted here of the same age groups (18-34, 35-49, 50-65, 66+) found no gender differences in MDE in bivariate and multivariate models (not shown). The discrepant results between the full sample and age-stratified analyses in the current study are likely due to insufficient power detect group differences in the age-stratified models.

Nonresponse bias may have contributed to the anomalous relationship between gender and MDE given the low response rate for Norway. However, evidence of an association between survey response rate and nonresponse bias is inconclusive (see Keeter, Kennedy, Dimock, Best, & Craighill, 2006). Also, the difference between the number of male and female nonrespondents for Norway was small: 0.4% more women (Ramm, Wedde, & Bævre, 2003), indicating that the results are not driven by an overconcentration of women among nonrespondents. More research is needed to understand the higher preponderance of depression among Norwegian men than women. Till then, this finding should be viewed with caution considering all the existing evidence in the opposite direction. A useful next step is to investigate whether men are more depressed than women in the other Scandinavian countries. All three (Norway, Sweden, and Denmark) have relatively similar political systems, welfare regimes, socioeconomic conditions, and cultural ideologies (The Nordic Council, 2013). If risk of MDE remains elevated among men across Scandinavia, social and economic forces at the individual and country level may be at work. For example, high rates of divorce for married and cohabiting couples on one hand, and generous welfare support for

families with children on the other, may shield against financial hardship following divorce, thereby lessening risk of MDE associated with financial strain and to which women are especially vulnerable (Umberson et al., 2013). At the same time, men may be more susceptible to the deleterious effects of divorce on mental health considering that they depend on their partners for support and companionship more so than women (Fuhrer & Stansfeld, 2002).

More education was associated with lower risk of MDE for Ghana and Kenya, which is consistent with SPM. However, the small effects were entirely accounted for by differences in the sociodemographic and health characteristics of respondents. In these African nations where many people have little or no education, being less educated does not appear to be a major influence on MDE possibly because it is a less stigmatized status. Even so, low education is often associated with poor earnings and other stressors that impinge on mental health; and both Sipsma et al. (2013) and Dzator (2013) linked low educational attainment to psychological distress among Ghanaians. The discrepancy between their results and those of the current study may be due to differences in the dependent variables (psychological distress versus MDE) and the sociodemographic and health controls considered.

Even though many studies report an inverse association between education and psychological distress or depressive symptoms (e.g., Dalgard et al., 2007; Stordal et al., 2003), few have focused on major depression in the general populations of Norway or the UK (e.g., Kringlen et al., 2001; Skapinakis, Weich, Lewis, Singleton, & Araya, 2006). Similar to this study's findings, the cited papers report no significant associations between education and major depression. Perhaps not education alone but SES (not available for this study) functions as a powerful influence on MDE. Research does show that occupational class (UK: Power, Stansfeld, Matthews, Manor, & Hope, 2002), income (UK: Der, Macintyre, Ford, Hunt, & West, 1999; Ghana: Dzator, 2013) and SES (Norway: Dalgard, 2008) matter for depression. It is also possible that low response rates for Norway and the UK are partly responsible for the insignificant results for education; but as previously noted, research evidence on the relationship between response rate and nonresponse bias is inconclusive. Even so, these results should be viewed with caution given the well established association between low educational attainment and poor mental health.

Under favorable conditions, marriage and employment encourage a sense of purpose and meaning in life, and provide financial resources and social attachment, integration, and support—which are important for mental well-being (Marks, 1996; Ross, 1995; Tausig, 2013; Umberson et al., 2013). Consistent with SPM, married people were less likely to experience MDE than the unmarried for Norway, the UK, and Ghana. Marital status differences in risk of MDE was largest for Norway, followed by the UK and then Ghana— the opposite pattern was expected considering that, relative to the UK and Ghana, Norway's welfare regime offers more resources that might reduce financial hardship, especially for unmarried family caregivers. Ghana had the smallest gap in marital status differences in MDE, likely due to its collectivist culture that encourages social integration and support, and encompasses both married and unmarried persons. There were no significant marital status differences in risk of MDE for Kenya, unlike Ghana; although these countries are similar with regard to their collectivist cultures and economic landscapes. Even so, differences

between Kenya and Ghana in factors such as attitudes towards family formation and its timing, intimate partner violence, and levels of control and empowerment that people experience within marriage may determine, in part, the costs and benefits for mental health associated with being married or not.

Depression is generally higher among the unemployed, homemakers, and people who are ill or disabled (Tausig, 2013). In the current study, these at-risk groups were under-represented in the samples for Norway (8.7%) and Ghana (7.2%). Inadequate power to detect significant group differences might explain the finding (for these two countries) that working and non-working persons do not differ in risk of MDE. For the UK and Kenya, the at-risk groups comprised a sizeable proportion of the sample (20.7% and 27.7% respectively); and as posited in SPM, working people had lower odds of MDE than non-working people for the UK. However for Kenya, these two groups did not differ in risk of MDE. The unemployed and homemakers are 9.2% and 17.6% of the Kenyan sample respectively; and in additional analyses (not shown), neither group differed from the employed (61%) in risk of MDE. Stress emanating from the less advantaged position of being unemployed or a homemaker is expected to be present across the four countries examined here. However, some settings might enable people to better cope with stressors. In Kenya, life is more communal and people are generally integrated in social networks that provide emotional and instrumental support. These resources are known to protect against the detrimental effects of stress on mental health, and may explain in part the non-significant employment status results for Kenya.

Job conditions offer another plausible explanation for the finding that working and non-working people in Kenya do not differ in risk of MDE. To the extent that poor job conditions are a problem for many workers, and given high unemployment in Kenya, workers may feel forced to stay in stressful jobs that dampen the mental health benefits of employment—thereby reducing differences in risk of MDE between people who are employed and those who are not. There is a dearth of research on the sociodemographic correlates of depression in the general population of Kenya and other African nations. Studies are needed to corroborate the findings reported here; and to identify the mechanisms underlying the observed associations. For example, are there significant differences in working conditions or in the number and quality of social ties that people have in Western and African countries? And do these characteristics mediate the association between employment status and risk of MDE?

In stratified systems of inequality where men are often more powerful and privileged than women, the social roles of being married or employed may confer more benefits for men's than women's mental health. In particular, the quality of social roles (Tausing, 2013; Umberson, Thomeer, & Williams, 2013) and remarriage as opposed to first marriage (Strohschein, McDonough, Monette, & Shao, 2005; LaPierre, 2009) may function as key influences on gender differences in depression. The relationship between marital/employment status and MDE did not vary by gender across the four countries considered here, calling for further analysis into the effects of role quality—analysis that could not be carried out because the WHS lacks the relevant data.

For the UK sample, men faced lower risk of MDE than women at low, average, and high levels of mastery. Additionally, the gender gap in MDE was larger at higher levels of mastery. Men are socialized more so than women to be in control (Ross & Mirowsky, 2013). Thus, mastery appears to be especially important for men's mental health, such that at high levels of mastery men are less likely than women to experience MDE. On the same vein, one would expect higher risk of MDE among men than women at low levels of mastery. However, this was not the case. Another explanation for the larger gender gap in MDE at high levels of mastery is the possibility that, even when women have similarly high levels of mastery as men, women's capacity for self-actualization and empowerment might still be undermined by individual and structural factors not immediately apparent, increasing their vulnerability to MDE compared to men.

This study has some limitations. The data are cross-sectional, therefore the observed associations are only suggestive—it is not possible to establish causality. Even so, these cross-sectional findings can inform future longitudinal studies. Second, cross-country comparisons of study results might be undermined if respondents from the different sociocultural contexts considered here lacked a uniform understanding of the content of WHS instruments. However, substantial efforts were made—in the design and implementation of the WHS (Üstün et al., 2003) and the WMH-CIDI depression instruments (Kessler & Üstün, 2004)—to generate data that are appropriate for comparative studies such as this one. Third, results for the UK may be biased if systematic sampling of respondents concealed a pattern that interfered with random selection of the sample. Lastly, respondents were poorly distributed across the categories of marital and employment status, thereby leading to a less nuanced assessment of the impact of these status positions on risk of MDE.

This is one of only a few studies that examines the sociodemographic correlates of depressive disorders, in particular MDE, in a nationally representative sample of Ghana and Kenya. In sub-Saharan Africa where mental health and illness are largely neglected, studies such as this one are needed to inform stakeholders of the burden of depression in the general population, and identify subgroups that might be facing elevated risk of illness and could benefit from additional research and targeted interventions.

The pattern of results across the four countries yielded mixed support for SPM. Overall, education and employment status, which are markers of social position, did not influence risk of MDE across the countries (with some exceptions), providing little support for SPM. Findings of higher risk of MDE among women than men, and among married than unmarried persons were mostly consistent with SPM. However, the preponderance of MDE among Norwegian men was unexpected and warrants further attention. This study has revealed heterogeneity in social status influences on MDE across Norway, the UK, Ghana, and Kenya. Not only the economic resources of a country, but also its social capital, might influence the occurrence of MDE. Here too, chronic illness emerged as the dominant risk factor for MDE, highlighting the need for greater investments across all levels of disease prevention (primary, secondary, and tertiary).

Acknowledgments

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Research Highlights

Examines cross-country (Western Europe, Africa) variation in risk of depression.

Extends the Stress Process Model for health disparities to sub-Saharan Africa.

Shows burden and risks for depression using national samples for Ghana and Kenya.

Per results, low status is not consistently linked to depression across countries.

Contrary to past research, men face higher risk of depression than women in Norway.

Table 1

Sample Characteristics of Adults Ages 18 and Older (2002-2004)

Characteristic	Norway[a] n=943 % or mean (SD)	UK[b,c] n=1,195 % or mean (SD)	Ghana[a,c] n=3,922 % or mean (SD)	Kenya[a,c] n=4,331 % or mean (SD)
Male (/female)	49.9	36.8	45.4	49.7
Age (years)	46.3 (17.6)	50.26 (19.38)	40.10 (16.79)	35.3 (16.05)
Education (years)	12.0 (3.9)	11.90 (2.61)	6.08 (5.20)	8.5 (4.54)
Married/cohabiting	67.1	53.5	60.4	63.2
Not married	32.9	46.6	39.6	36.8
Separated/divorced	6.6	12.2	7.8	3.0
Widowed	5.3	14.1	7.0	6.9
Never married	21.0	20.3	24.8	26.9
Employed	67.8	38.6	78.6	61.0
Not Employed	32.3	61.5	21.4	38.9
Unemployed	1.1	2.1	3.3	9.2
Retired	17.6	33.4	4.0	3.6
Homemaker	1.8	12.5	2.0	17.5
Student	3.3	5.5	7.9	5.1
Other	8.5	8.0	4.2	3.5
Household assets (factor score)	2.10 (.43)	1.75 (.44)	.18 (.27)	.08 (.25)
1 + chronic condition (/none)	24.9	38.1	15.7	9.7
Sense of control (1-5; *5=never* feel out of control)	4.5 (.91)	4.05 (1.06)	3.29 (1.10)	3.5 (1.20)
Major depressive episode	12.5	12.6	7.4	9.0

[a]Weighted

[b]Unweighted

[c]Estimates obtained from 20 multiplely imputed datasets; SD is the average across datasets.

Table 2

Logistic Regression of Major Depressive Episode on Sociodemographic and Health Characteristics

Characteristic	Norway[a] n=943 OR [95% CI]	UK[b,c] n=1,195 OR [95% CI]	Ghana[a,c] n=3,922 OR [95% CI]	Kenya[b,c] n=4,331 OR [95% CI]
Male (/female)	1.604* [1.070, 2.405]	.704 [.477, 1.041]	.712* [.524, .967]	.540*** [.375, .778]
Age (years)	1.002 [.990, 1.014]	.987* [.977, .998]	1.022*** [1.014, 1.031]	1.009 [.997, 1.022]
Education (years)	1.034 [.973, 1.100]	.990 [.916, 1.070]	.999 [.961, 1.038]	.986 [.934, 1.040]
Married (/all others)	.519** [.337, .800]	.686[†] [.470, 1.002]	.718* [.526, .980]	1.253 [.914, 1.718]
Employed (/all others)	1.031 [.606, 1.753]	.648[†] [.415, 1.013]	1.110 [.765, 1.609]	1.329 [.915, 1.931]
Household wealth (factor score)	1.121 [.677, 1.854]	.749 [.478, 1.173]	.551 [.187, 1.625]	.503 [.189, 1.336]
1+ chronic condition (/none)	2.187*** [1.425, 3.357]	2.687*** [1.842, 3.919]	2.001*** [1.394, 2.872]	2.128*** [1.525, 2.969]
Intercept	.062*** [.016, .247]	.486 [.126, 1.879]	.037*** [.021, .065]	.070*** [.032, .152]

[a]Weighted

[b]Unweighte

[c]Estimates obtained from 20 multiplely imputed datasets

*p < .05

**p < .01

***p < .001

[†]p < .07

Table 3

Logistic Regression of Major Depressive Episode on Gender by Sense of Mastery

Characteristic	UK[b] n=1,195 OR [95% CI]	Ghana[a] n=3,922 OR [95% CI]	Kenya[a] n=4,331 OR [95% CI]
Male (/female)	.567* [.350, .920]	.730 [.532, 1.001]	.638* [.439, .927]
Control	.584*** [.483, .706]	.699*** [.591, .828]	.588*** [.491, .705]
Male X Mastery	.651* [.454, .936]	1.098 [.840, 1.435]	1.241 [.995, 1.548]
Intercept	.218** [.068, .698]	.033*** [.019, .059]	.063*** [.028, .139]

Notes: Each model controls for the sociodemographic and health characteristics in Table 2. Estimates obtained from 20 multiply imputed datasets; Conditional effect not assessed for Norway due to a skewed distribution of mastery;

[a]Weighted;

[b]Unweighted

*
$p < .05$

**
$p < .01$

***
$p < .001$