Correlates of Depression and Anxiety among Older Public Housing Residents

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〈Abstract〉

Older adults represent the fastest growing segment of the worldwide population. Mental health disorders present a major challenge to older individuals. Depression and anxiety are two of the most common mental health problems experienced by the older population and give rise to high impact adverse consequences, such as decreased quality of life and increased mortality. Poverty level older adults suffer from higher rates of mental health disorders than do their more highly resourced counterparts. Given worldwide growth of the older population an increasing number of low-income elderly live in public housing. This study examined the prevalence of depression and anxiety in older public housing residents and explored factors related to these disorders within context of the Social Antecedents Model of Psychopathology (SAMP). The SAMP posits a multi-stage model of cumulative demographic, behavioral and social factors that represent mental health risk correlates, with more proximal factors representing greater risk (George, 1989). Study participants included 187 older adults residing in two public housing facilities located in a mid-size city in the southeast United States. Data was gathered concerning residents’ demographic characteristics, psychiatric symptomatology, substance usage, health conditions, and social support via face-to-face interviews. The

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majority of the residents were male and the average age was 66.2 years (SD = 7.6). Residents reported high levels of clinically significant depression (20.1%) and anxiety (10%). Generalized linear models (GZLM) were used to identify variables that significantly predicted depression and anxiety among the residents. Social support, self-rated health, pain, years smoking, and opioid misuse were significant predictors of depression scores (LR $\chi^2(11) = 90.4$, $p < .001$) while age, employment, pain, medical conditions, IADLs, and benzodiazepine misuse significantly predicted anxiety scores (LR $\chi^2(13) = 110.857$, $p < .001$). Study findings partially supported the SAMP model. Implications for research and practice are discussed.

**Key Words:** Older Adults, Elderly, Depression, Anxiety, Public Housing, Low-income

Older adults represent the fastest growing segment of the worldwide population. Currently, the elderly constitute 11% of the global population and this number is projected to more than double by 2050 (Kunkel, Whittington & Brown 2014). Mental health disorders present a major challenge to older individuals, with 20% of all adults aged 55 and over worldwide suffering from a mental disorder (Yasamy, Dua, Harper & Saxena 2013). Such disorders not only seriously impair quality of life for individual elders but, also, create a substantial societal burden. Depression and anxiety are two of the most common mental health problems experienced by the older population. Depression is the leading cause of disability worldwide, and is a major contributor to the global burden of disease (WHO, 2012). Rates of anxiety are as high as mood disorders among older adults, and like depression give rise to high impact adverse consequences, such as decreased quality of life and
increased mortality (Charney et al., 2003). Moreover, depression and anxiety are highly co-morbid conditions. This comorbidity has been associated with poor health outcomes such as increased disability, more severe psychiatric symptoms, greater use of medical services, and increased recovery time (Byers, 2010). In spite of this, these disorders are often under-recognized and under-treated in the older population (Vink, Aartsen & Schoevers 2008).

Poverty level older adults suffer from higher rates of mental health disorders than do their more highly resourced counterparts. One study, for example, found that 9% of low-income elderly have depression and other mental illnesses compared to 3.8% of higher income older adults (Areán & Alvidrez, 2001). In addition, low socioeconomic status is associated not only with higher levels but, also, greater persistence of mental health disorders over the life course (Gilman, Kawachi, Fitzmaurice, & Buka, 2003; Lorant, Deliege, Eaton, Robert, Philippot, & Ansseau, 2003).

Given worldwide growth of the older population an increasing number of low-income elderly live in public housing. In the U.S over 5% of older individuals live in subsidized housing. Public housing in Korea for low-income individuals represented 8.9% of the total housing stock in 2004 (Ha, 2008), while Hong Kong census data showed that about 40% of the elderly reside in public housing (Chou, Ho & Chi 2006). Research reveals that public housing residents have a heightened risk of developing psychiatric disorders (Robison, Schensul, Coman, Defenbach, Radda, Gaztambide, & Dischm, 2009; Simning, van Wijngaarden & Conwell, 2011). In
spite of these trends and their potential global implications, there exists a dearth of information concerning the mental health status of lower income elders residing in public housing residents. The present study addresses this gap by exploring the rates and predictors of depression and anxiety among older public housing tenants in one city in the southeast United States.

**Theoretical Model**

Although older adults may experience hardships and accrue deficits over their lifetime, most studies on later-life mental health do not use a theoretical framework that accounts for cumulative stressors arising over time. The current study was grounded in the Social Antecedents Model of Psychopathology, which posits a multi-stage model of cumulative demographic, behavioral and social factors that represent mental health risk correlates, with more proximal factors representing greater risk (George, 1989). The first stage consists of *demographic variables* that are associated with differential risks of mental health disorders such as age, race and sex. Although the casual mechanisms underlying the connection between demographic variables and psychiatric disorders are uncertain, consistent findings reveal that older women have higher levels of depression and anxiety than do men (Barry, Allore, Guo, Bruce, & Gill, 2008) and that rates of depression among older adults tend to decrease with age (Robison, et al., 2009). The second stage involves *early life events and achievements* such as education level and family stability. These variables need not occur only in childhood. Rather, any experiences prior to the current time may
be germane. Many studies of mental health correlates among older adults indicate that low educational achievement is associated with higher symptomatology (Fiske, Wetherell, & Gatz, 2009). Stage 3 is similar to stage 2 but is separated by time. Later events and achievements involve factors such as employment, income and martial status that take place at the present time. The importance of this stage is underscored by research linking low income and marital status with higher rates of depression and other mental health disorders (Liang, Xu, Quinones, Bennett, & Ye, 2011). Stage 4 consists of social integration risk factors. The social antecedents model of psychopathology proposes that individuals who experience social disorganization and lack of attachment to social structures have a heightened risk of developing psychiatric disorders. Indicators of social integration include environmental stability, community roles and religious affiliation. Indeed, shorter residential tenure and lower levels of church attendance have been associated with later-life depression (Robinson, et al., 2009). Stage 5 refers to vulnerability and risk factors such as chronic illness, social support and financial strain, while stage 6 contains provoking and coping strategies including stressful life events and health behaviors. In a review of studies examining risk factors for depression and anxiety in older adults Vink, Aartsen & Schoevers (2008) found that self-perception of poor health, insufficient social networks, and functional impairment were predictive of both disorders. At the same time, negative health behaviors such as smoking and alcohol misuse were associated with depression. Furthermore, older adult depression and anxiety have as been
linked with illegal drug use and prescription medication abuse (Wilsey, Fishman, Tsodikov, Ogden, Symreng, & Ernst, 2008; Wu & Blazer, 2010). In light of these observations, the Social Antecedent Model of Psychopathology (SAMP) was used to provide a framework to guide the rational selection of predictor variables in the current study.

In particular, the goals of this study were to: 1) describe the nature and prevalence of depression and anxiety in older public housing residents; and 2) explore factors related to depression and anxiety within context of the Social Antecedents Model of Psychopathology.

**Methodology**

Older adult public housing residents ages 50 and over were administered multidimensional health surveys. Two public housing apartment buildings were selected after being identified by the metropolitan housing authority as locations with a large number of older adult residents. Research assistants were trained to conduct door-to-door interviews, lasting 30 to 60 minutes, with eligible residents. Twenty dollar grocery store gift certificates were given to residents as incentives. The total response rate was 55.6% with 187 residents completing the survey. The study was approved by a university IRB process.
Measures

The multidimensional health survey administered to the residents included measures of demographics, psychiatric symptoms, substance abuse, health, and social support.

**Demographics.** Data were collected on age (in years), gender, race (Black—not Hispanic, White—not Hispanic, Other), education (total years), income (0–$300, $301–$600, $601–$900, $901–$1200, $1201 and over), employment (retired, unemployed, working, disability), and perception of funds sufficiency (yes or no).

**Psychological Distress.** The Brief Symptom Inventory–18 (BSI; Derogodis, 2001) screen was administered to identify symptoms of psychological distress. This brief psychiatric screen includes three subscales and a global severity index. It is often used to assess psychiatric symptoms in older adult populations (Cummings, Cooper, & Johnson, 2013). For the purposes of this study, the depression and anxiety subscales were used. Both subscales consist of 6 items and are scored on a 0–4 Likert scale with 0 indicating “not at all.” The range for each subscale is 0–24 with scores of 7 and above suggesting depression or anxiety respectively. For this sample, Chronbach’s alpha was .82 for the depression subscale and .72 for the anxiety subscale.

**Substance Abuse.** Residents were asked to indicate their alcohol use in the past 30 days (yes or no). Those who had used alcohol were then asked about total drinks weekly and in a single setting. Residents were also asked to report illegal drug use in the last 30 days and lifetime use of amphetamines, barbiturates,
cocaína, hallucinógenos, heroína, inhalantes, marijuana, metanfetaminas, metadona, and opiates/analgesicos. Prescription medication misuse was measured with the 17 item Current Opioid Misuse Measure (COMM) which was administered to residents that reported use of pain medications (Butler, Budman, Fernandez, Houle, Benoit, Katz, & Jamison., 2007). Cronbach’s alpha was .79 for the sample. Scores of 9 and above are indicative of risk for misuse. In addition, the five item Severity of Dependence Scale, used to screen for benzodiazepine dependence, was administered (Cuevas, Sanz, De La Fuente, Padilla, & Beruenger, 2000). Cronbach’s alpha for the sample was .65. Residents were asked to report the total number of years they had smoked cigarettes to measure tobacco use.

**Health.** Residents reported their experience of 22 medical conditions in the previous 12 months. The medical conditions were summed to achieve a total score. Self–reported health in the previous month was assessed using a 1–5 Likert scale with 1 indicating “very bad” and 5 indicating “very good.” Pain was assessed on a 0–10 scale with 0 indicating no pain. The total number of prescription medications was indicated by respondent self–report. Functional impairment was assessed by asking residents to indicate whether they experience difficulties with activities of daily living (ADL) (e.g. bathing, dressing, eating) and instrumental activities of daily living (IADL) (e.g. bill–paying, cooking, medication management). The items were summed with ADL scores ranging from 0–5 and IADL scores ranging from 0–7. For this sample, the Cronbach’s alphas for the ADL and IADL measures were .83 and .83 respectively.
Social Support. Residents’ perception of their current social support was assessed using the Social Provisions Scale (Cutrona, 1984). This scale measures attachment to others, reassurance of worth, and reliability of alliances. The Cronbach’s alpha for the sample was .87. In addition, residents reported the length of time living at their current residence.

Analysis

Dependent and independent variables were first summarized using descriptive statistics. The Social Antecedent Model of Psychopathology was used to organize the independent variables: (1) demographics—age, gender, and race; (2) early achievements—education; (3) later achievements—income, employment, and funds sufficiency; (4) social integration—years at current residence and social support; (5) vulnerability and protective factors—self-rated health, medical conditions, pain, ADLs and IADLs; and (6) provoking and coping variables—years smoking, drinking, lifetime illegal drug use and prescription medication misuse including opioids and benzodiazepines. Next bivariate statistics were used to assess significance of relationships between psychological distress as measured by the depression and anxiety subscales and the independent variables in the Social Antecedents Model. Because the scores for the depression and anxiety indicators were continuous and non-normally distributed, the generalized linear model (GZLM) with a gamma distribution and log link function was used to identify variables that significantly predicted depression and anxiety.
among the residents. This procedure requires non-zero positive values for dependent variables so a value of 1 was added to each score to shift the lowest value on each scale from 0 to 1 prior to analysis.

Findings

The older adults interviewed for this study were mostly male (54.5%) and African American (74.5%). The average age for the sample was 66.2 years ($SD = 7.6$). Most have at least a high school education (57.3%). The majority were not employed (95%) with about 50% indicating they were retired. Overall, income was low for the sample with only 20% reporting monthly income greater than $900. Most of the respondents felt their income was not sufficient.

Psychological Distress

Scores on the BSI depression subscale ranged from 0 to 19 for this sample before adjusting for data analysis ($M = 3.0, SD = 4.2$). As many as 20.9% of these older adults scored 7 or above indicating clinically significant depression symptoms. Scores on the BSI anxiety subscale ranged from 0–16 before adjusting for data analysis ($M = 2.3, SD = 3.2$). Just over 10 percent of the residents scored a 7 or above suggesting clinically significant anxiety. Depression and anxiety displayed a strong significant correlation ($\gamma = .63, p = .001$)
Health

Most of the residents rated their health as “fair” or “good” (74.9%) and reported an average of 4 medical conditions (\(M = 4.2, SD = 2.5\)). The number of medical conditions ranged from 0 to 13. Eye problems (44.4%), arthritis (40.6%), back strain (34.8%) and diabetes (27.8%) were most frequently identified. The majority (63.6%) reported taking about 4 prescription medications (\(M = 3.5, SD = 4.0\)) while one quarter reported taking 6 medications or more. The typical resident experienced moderate pain (\(M = 4.3, SD = 3.4\)) and one quarter of the residents reported pain above 7. The majority of respondents did not experience challenges with ADLs (93.6%). However, almost one-third reported needing assistance to perform IADLs with housekeeping and grocery shopping difficulties most frequently identified.

Social Support

Respondents reported living in their current residence for a mean of 54.8 months or about 5 and a half years (\(SD = 65.7\)). Length of time at current residence ranged from 0 to 312 months (0 to 26 years). Scores from the Social Provisions Scale indicated that the typical resident had moderate to strong perceived social support (\(M = 19.2, SD = 4.6\)).
Substance Abuse

Close to 45% (44.9) of the residents reported drinking in the last 30 days. This group of residents typically consumed 12 drinks per week ($M= 11.9$, $SD= 14.1$). However, the majority of these drinks were consumed in a single setting ($M= 6.7$, $SD= 7.8$). When asked about drug use, 43.3% reported using illegal substances in their lifetime. Just over 5% (5.3) of the sample scored positive for opioid misuse and about 2% (2.1) scored within the range suggestive of benzodiazepine dependence. Residents reported smoking for 0 to 70 years. The majority (53.3%) were current smokers and had been doing so for 19 years ($SD= 21.8$).

<Table 1> Descriptive Statistics and Frequencies for Social Antecedent Model of Psychopathology

| Variables                | N  | Total % or Mean (SD) |
|--------------------------|----|----------------------|
| Demographic variables    |    |                      |
| Age (50-89)              | 183| 66.2 (7.6)           |
| Gender                   | 187|                      |
| Male                     | 102| 54.5%                |
| Female                   | 85 | 45.5%                |
| Race                     | 183|                      |
| African American         | 140| 76.5%                |
| White                    | 43 | 23.5%                |
| Early achievements       |    |                      |
| Education                | 185|                      |
| < High school            | 79 | 42.7%                |
| Variables                      | N  | Total % or Mean (SD) |
|-------------------------------|----|----------------------|
| High school                   | 106| 57.3%                |
| Later achievements            |    |                      |
| Employment                    | 186|                      |
| Retired                       | 92 | 49.5%                |
| Unemployed                    | 27 | 14.5%                |
| Working                       | 9  | 4.8%                 |
| Disability                    | 58 | 31.2%                |
| Income                        | 186|                      |
| $0–300                        | 15 | 8.1%                 |
| $301–600                      | 28 | 15.1%                |
| $601–900                      | 105| 55.9%                |
| > $900                        | 39 | 21.0%                |
| Sufficient funds (no)         | 187| 58.3%                |
| Social integration factors    |    |                      |
| Months at current residence   | 185| 54.8 (65.8)          |
| Social support                | 187| 19.2 (4.6)           |
| Vulnerability and protective factors | |                      |
| Self-rated health             | 187| 3.5 (0.9)            |
| Medical conditions            | 187| 4.2 (2.5)            |
| Number of prescriptions       | 187| 3.5 (4.0)            |
| Pain                          | 184| 4.3 (3.4)            |
| ADLs                          | 187| 0.1 (0.6)            |
| IADLs                         | 187| 0.8 (1.5)            |
| Provoking and coping variables|    |                      |
| Years smoking                 | 187| 19.0 (21.8)          |
| Alcohol in last year (yes)    | 187| 55.6%                |
| Opioid misuse (yes)           | 187| 5.3%                 |
| Benzodiazepine misuse         | 187| 0.2 (0.8)            |
| Lifetime illegal drug use (no)| 187| 56.7%                |
Bivariate Analysis

Depression. The independent variables found to be significantly related to depression are reported and arranged by the Social Antecedent Model of Psychopathology stages. Stage 1 variables including age, race, and gender were not significantly correlated with depression. The stage 2 variable, education, also was not significantly related. However, perception of funds sufficiency (stage 3) was significantly correlated with depression. Those who reported not having enough money had significantly higher depression scores ($M= 4.7, SD= 4.6$) than did those who had enough ($M= 3.2, SD= 3.4$) ($p < .001$). Monthly income, employment status, and length of time in residence were not significantly related to depression. The stage 4 variable social support was inversely related indicating that increases in social support were associated with decreases in depression scores. Stage 5 vulnerability and protective variables including medical conditions, pain, number of prescription medications, and IADLs were all positively correlated with depression. Self-rated health was inversely related indicating that more positive self-rated health was associated with decreasing depression. Of the state 6 provoking and coping variables, number of years smoking was positively correlated. Lifetime drug use and current opioid misuse were also significantly associated with depression. Residents who reported lifetime use of illegal drugs scored an average of 1.4 points higher on the depression measure ($M= 4.9, SD= 4.8$) than those who had not used illegal drugs ($M= 3.6, SD=3.6$) ($p < .01$). In addition, the
mean score for residents who screened positive for opioid misuse was 4.2 points higher ($M = 8.0$, $SD = 5.5$) than for those who did not ($M = 3.9$, $SD = 4.0$) ($p < .01$). The drinking variables were not significantly associated with depression.

**Anxiety.** The independent variables related to anxiety and arranged by the Social Antecedent Model of Psychopathology stages were as follows. Stage 1 variables race and gender were not significantly correlated with anxiety. A significant and inverse relationship between anxiety and age was found indicating anxiety symptoms decreased with advancing age. The stage 2 variable education was not significantly related to anxiety. Employment status (stage 3) was significantly correlated with anxiety. Post hoc analysis revealed statistically significant differences in mean anxiety scores between those who were retired ($M = 2.4$, $SD = 2.8$) and those who received disability ($M = 4.2$, $SD = 3.3$) ($p < .05$) and between the retired group and those who were unemployed ($M = 4.5$, $SD = 3.5$) ($p < .01$). The difference between the group that received disability and the group that was unemployed was not significant. No significant difference was found for the working group. The stage 4 variable length of time in residence was not significantly correlated with anxiety thought social support was inversely correlated. Higher social support was associated with lower anxiety scores. Stage 5 vulnerability and protective variables that were positively correlated with anxiety included number of medical conditions, pain, number of prescription medications, and level of IADL impairment. Thus, as the number of medical conditions, levels of pain experienced, and the quantity of prescription
medications consumed by the resident increased, so too did anxiety symptoms. Self-rated health was inversely correlated with anxiety such that higher self-rated health was associated with lower anxiety scores. ADL impairment was not significantly associated with anxiety. The stage 6 provoking and coping variables including current opioid misuse and current benzodiazepine dependence were both significantly and positively associated with anxiety. Those residents who had positive scores for opioid misuse scored an average of 2.7 points higher on the anxiety measure ($M = 5.9$, $SD = 3.1$) than those who did not ($M = 3.2$, $SD = 3.2$) ($p < .01$). A significant relationship was found between lifetime drug use and anxiety such that residents who reported lifetime drug use scored an average of 1.0 point higher on the anxiety measure ($M = 3.9$, $SD = 3.5$) compared to those who did not have a history of illegal drug use ($M = 2.9$, $SD = 2.9$) ($p < .05$). Neither number of years smoking nor drinking were significantly associated with anxiety.

<Table 2> Significant Correlates and Bivariate Analysis

| Variable                        | Depression |        | Anxiety |        |
|---------------------------------|------------|--------|---------|--------|
|                                 | Correlation| t/F test| Correlation| t/F test|
| Demographic variables           |            |        |         |        |
| Age                             | –          |        | -.3***  |        |
| Later achievement               |            |        |         |        |
| Employment (retired)            | –          |        | 5.7***  |        |
| Sufficient funds (no)           | 2.5*       |        | –       |        |
| Social integration factors      |            |        |         |        |
| Social support                  | -.3***     |        | -.2*    |        |
| Vulnerability                   | and        |        |         |        |
## Generalized Linear Model

**Depression.** The variables found to significantly related to depression in the bivariate analysis (funds sufficiency, social support, self-rated health, medical conditions, pain, IADLs, number of prescription medications, number of years smoking, alcohol use in the last year, life-time illegal drug use, and opioid misuse) were entered into the model. Results of the Generalized Linear Model appear in Table 3. Social support, self-rated health, pain, years smoking, and opioid misuse were significant predictors of depression scores ($\chi^2(11) = 90.4$, $p < .001$) while fund sufficiency, prescription medications, functional impairment, alcohol and lifetime
drug use were not. Thus, lower social support, poorer self-reported health, increasing pain, greater number of years smoking, and the misuse of opioid medications were predictive of higher levels of resident depression.

**Anxiety.** The variables found to be significantly related to anxiety in the bivariate analysis (age, employment, social support, self-rated health, pain, number of medical conditions, number of prescription medications, IADLs, opioid misuse, benzodiazepine misuse, and lifetime drug use) were entered into the model. Results of the analysis appear in Table 4. Age, employment, pain, medical conditions, IADLs, and benzodiazepine misuse were significant predictors of anxiety scores for this sample (LR $\chi^2(13) = 110.9$, p < .001). Social support, self-rated health, prescription medications, opioid misuse and lifetime drug use did not predict anxiety. Consequently, younger residents and retired residents who had greater levels of pain, more medical conditions, greater IADL impairment, and those with greater benzodiazepine use experienced higher levels of anxiety.

| Variables                          | β  | SE  | Exp (B) | CI         |
|------------------------------------|----|-----|---------|------------|
| 3 Funds sufficiency (no)           | -.19| .12 | 1.21    | .96 - 1.53 |
| 4 Social support*                  | -.03| .01 | .97     | .95 - 1.00 |
| 5 Self-rated health**              | -.21| .07 | .81     | .71 - .93  |
| 5 Medical conditions               | .04 | .03 | 1.04    | .98 - 1.10 |
Correlates of Depression and Anxiety among Older Public Housing Residents

| Variables                                | β     | SE  | Exp (B) | CI     |
|------------------------------------------|-------|-----|---------|--------|
| 5 Pain**                                 | .06   | .02 | 1.06    | 1.02   | -1.10 |
| 5 Number of prescription medications    | -.02  | .02 | .98     | .95    | -1.01 |
| 5 IADLs                                  | .08   | .04 | 1.08    | .99    | -1.17 |
| 6 Years smoking**                        | .01   | .003| 1.01    | 1.002  | -1.01 |
| 6 Alcohol in Last Year (no)              | .17   | .12 | 1.18    | .93    | -1.50 |
| 6 Opioid misuse (no)*                    | .51   | .26 | .60     | .36    | -0.99 |
| 6 Life-time Drug Use (no)                | .20   | .11 | .82     | .66    | -1.03 |

*p = .05, **p = .01
3 Later achievements
4 Social integration factors
5 Vulnerability and protective factors
6 Provoking and coping factors

<Table 4> Generalized Linear Model Regression Analysis for Anxiety among Older Public Housing Residents using the Social Antecedents Model of Psychopathology

| Variables                                | β     | SE  | Exp (B) | CI     |
|------------------------------------------|-------|-----|---------|--------|
| 1 Age**                                  | -.02  | .01 | .98     | .96    | -1.00 |
| 3 Employment a                           |       |     |         |        |
| Unemployed***                            | .58   | .16 | 1.79    | 1.31   | -2.45 |
| Working                                  | .10   | .24 | 1.10    | .69    | -1.78 |
| Disability*                              | .33   | .13 | 1.39    | 1.07   | -1.80 |
| 4 Social support                         | -.02  | .01 | .98     | .96    | -1.01 |
| 5 Self-rated health                      | -.05  | .06 | .95     | .84    | -1.08 |
| 5 Medical conditions**                  | .07   | .02 | 1.07    | 1.02   | -1.12 |
| 5 Pain**                                 | .03   | .02 | 1.05    | 1.01   | -1.08 |
| 5 Number of Prescription medications    | -.02  | .02 | .98     | .95    | -1.01 |
| 5 IADLs***                               | .16   | .04 | 1.17    | 1.09   | -1.27 |
| 6 Opioid misuse (no)                     | .07   | .22 | .93     | .60    | -1.44 |
| 6 Benzo Misuse*                          | .18   | .08 | 1.20    | 1.02   | -1.40 |
| 6 Life-time Drug Use (no)                | .11   | .11 | .89     | .71    | -1.12 |

*p = .05, **p = .01, ***p = .001
a Retired= reference group
Discussion

Study findings reveal high levels of clinically significant depression and anxiety among older public housing residents. More than one in five residents experienced depression while one in ten suffered from anxiety. The high correlation between these two disorders (r=.63) also suggests that many of the older residents struggled with symptoms of both disorders. These results support previous research indicating that low-income elders are at heightened risk for the development of mental health conditions. Research indicates that depression and anxiety, even at subdromal levels, often have serious deleterious consequences in older adults such as increased morbidity and mortality. Unfortunately, depression and anxiety are under-diagnosed and undertreated among older adults (Djernes, 2006). As the number of older adults across the globe continues to expand increased attention to the recognition and treatment of their mental health needs is essential.

The Social Antecedent Model of Psychopathology suggests that cumulative factors across the lifespan present risk for the development of mental health disorders with more proximal factors exerting the greatest influence. Findings from this study partially support this model. Stage 5, vulnerability and risk, and stage 6,
provoking and coping, factors were predominate contributors to both depression and anxiety. Vulnerability and risk factors took the form of health-related conditions, while provoking and coping factors were expressed as health-related behaviors. Older residents with elevated levels of depressive symptoms reported poorer self-rated health and higher levels of pain. They also noted longer smoking histories and greater engagement in opioid misuse. Diminished social integration (stage 4,) as measured by perceived social support, also contributed to greater depressive symptomology. No demographic, early or later achievement factors were predictive of depression. Likewise, GLZM model results revealed that those with higher levels of anxiety also reported significantly more medical conditions, greater pain and increased functional disability. Additionally, they reported greater dependence on benzodiazepine medications. Highly anxious residents were more likely to be younger (stage 1) and either disabled or unemployed (stage 3) than were their less anxious counterparts. No stage two variables were predictive of anxiety. Thus, increased health-related conditions and negative health-related behaviors exerted the greatest influence on the presence of both depressive and anxiety symptoms. In addition, weaker social support, younger age and negative working status posed additional threats to resident well-being.

Previous studies have found that earlier stage SAMP factors, such as poor income and low education, are associated with mental health disorders (Liang, Xu, Quinones, Bennett, & Ye, 2011). However, neither was significant in this study. This may be related to the fact that public housing in the U.S. is restricted to those
with very limited financial resources. Therefore, restricted variability in income and education among this population may have precluded the inclusion of these factors in the predictive model. While income and education were not directly associated with either depression or anxiety, they may have exerted an indirect influence. Low-income individuals are often employed in more physically intensive work and experience higher levels of disability. Due to limited income such individuals also experience restricted access to needed health care across the lifespan, and, therefore are at heightened risk for the development of disability, chronic illness and pain in later years.

The connection between depression, anxiety and medical related problems found in this study highlights the importance of integrating medical and mental healthcare services. In the U.S. integrated healthcare is an emerging, and rapidly growing model of care, propelled by the Affordable Care Act (U.S. Department of Health & Human Services, 2010). The premise of integrated healthcare is that the coordination of primary and behavioral (mental health and substance abuse) healthcare produces more effective identification and treatment of multiple health conditions (U.S. Department of Veteran’s Affairs, 2014) than does treatment in medical or mental healthcare silos. In this model professionals from several disciplines such as medicine, nursing, social work and psychology work together to address all of the client’s healthcare needs. This approach may be particularly beneficial for older adults who tend not to seek out mental health services but, rather, rely on physicians for all of their health care. Primary care physicians,
however, do not receive specialized training to recognize and effectively treat mental health disorders. Therefore, depression, anxiety and other mental health conditions experienced by older adults often remain undiagnosed and untreated. The inclusion of social workers, and other behavioral health specialists on health care teams helps ensure that both medical and mental health conditions are effectively assessed and treated. In order for integrated health services to benefit public housing and other low-income elders, however, they must first be accessible. Bringing such services to older adults where they live would increase needed access and, thereby, enhance the assessment and treatment of mental health and medical conditions in this vulnerable population.

This study is one of a few to explore factors related to depression and anxiety in an older public housing population. However, important limitations must be identified. First, this study was conducted among older adults residing in two public housing facilities in a southern city in the United States. The characteristics of older public housing residents in other parts of the United States and, certainly, in other countries may vary considerably. Therefore, generalizations of study findings must be made with caution. Further research on the psychological functioning of older adults living in public housing is needed to extend these findings to broader populations. Another limitation of this study is the lack of data in areas that would allow for a more comprehensive investigation of the influence of cumulative lifespan factors on psychological disorders, as suggested by the SAMP. Future studies
that include larger sample populations and additional variables that span the life course are needed. Such studies would enable the use of more complex analytic modeling methods that may yield more nuanced explanations of the factors across the lifespan that contribute to presence of depression and anxiety among older individuals.
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