

DIFFERENCES IN SELF-REPORTED SOMATIC ANXIETY SYMPTOMS IN RURAL  
AND URBAN OLDER ADULTS

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by  
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## **Abstract**

### **DIFFERENCES IN SELF-REPORTED SOMATIC ANXIETY SYMPTOMS IN RURAL AND URBAN OLDER ADULTS**

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The purpose of the study was to examine differences in self-reported anxiety symptoms between older adults living in rural and urban areas. Past research has suggested that stigma of mental illness and the higher prevalence of medical conditions in older adults may affect the presentation of their anxiety symptoms. Further, research suggests that urban populations should display more cognitive symptoms of anxiety, while rural populations should express more somatic symptoms. The reasoning is that due to stigma involving mental health and lower education in rural areas, individuals will be more prone to somaticize their symptoms. One hundred forty-seven older individuals were recruited from senior centers located in urban and rural areas, as classified objectively by Rural-Urban Codes. The subjects were asked to fill out two questionnaires that examine cognitive and somatic symptoms of anxiety, the Trimodal Anxiety Questionnaire (TAQ) and State-Trait Inventory for Cognitive and Somatic Anxiety (STICSA). The primary hypothesis that rural older individuals would

endorse more somatic symptoms on self-report measures of anxiety than urban older individuals was partially supported. Participants from rural areas scored significantly higher on the TAQ somatic subscale than did urban individuals, but no differences in STICSA somatic subscale scores emerged between the two groups. The secondary hypothesis which examined a difference in expression of cognitive symptoms as measured by TAQ and STICSA cognitive subscales was not supported. However, the results raise the possibility that anxiety may be expressed differently between older adults in rural and urban areas, and therefore health service providers may consider unexplained somatic symptoms as potential indicators of anxiety in rural older adults.

*Keywords:* anxiety symptoms, older adults, somatization, rural populations, urban populations

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I would like to thank my thesis chair, Dr. John Paul ('JP') Jameson, for his patience and advice throughout this thesis process. Additional thanks are warranted to my dedicated thesis committee, Dr. Broman-Fulks and Dr. Curtin.

## **Dedications**

I wish to dedicate this thesis to my parents, Barbara and Zdzislaw Urbaniak. Their timeless support has made my graduate school experience possible. I would also like to dedicate this thesis to my siblings, Malgorzata and Pawel Urbaniak. Their encouragements helped me push forward with my life, career, and research.

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## **Foreword**

This thesis is written in accordance with the style of the *Publication Manual of the American Psychological Association (6<sup>th</sup> Edition)* as required by the Department of Psychology at Appalachian State University.

Differences in Self-Reported Somatic Anxiety Symptoms in Rural and Urban Older Adults

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### Differences in Self-Reported Somatic Anxiety Symptoms in Rural and Urban Older Adults

Anxiety disorders are the most common type of mental health disorders in the United States, with a lifetime prevalence rate of 31.2% in the general population (National Comorbidity Survey; NCS, 2007). Numerous studies have illustrated that anxiety disorders are quite common in older adults, with lifetime prevalence estimates ranging from 3.2 % to 14.2% (Lenze et al., 2005; Wolitzky-Taylor, Castriotta, Lenze, Stanley, & Craske, 2010). The most common anxiety disorder among older adults is Generalized Anxiety Disorder (GAD; Fuentes & Cox, 1997; Lenze et al., 2005), with one-year prevalence estimates ranging from 3% to 7% (Beekman et al., 1998; Lindsay, Briggs, & Murphy, 1989; Manela, Katona, & Livingston, 1996; Uhlenhuth, Balter, Mellinger, Cisin, & Clinthorne, 1983). Anxiety disorders in the older population are highly comorbid with general medical conditions, a synergy which subsequently increases the severity of both co-occurring disorders. As a result, older individuals may seek more services from their primary care physicians (Beidel & Stipelman, 2007). Additionally, anxiety disorders not only impact older individuals, but also their families (Lenze et al., 2005). Perceiving oneself as a family burden might also raise the level of distress in anxious, older individuals. Furthermore, given increases in life expectancy and the aging of the Baby Boomer generation, the older adult population is steadily growing (Beck et al., 2003). Therefore, it is important to provide older adults with proper diagnosis and appropriate treatment for this expanding public health problem.

Somatic symptoms, such as insomnia and muscle tensions, are a core feature of anxiety disorders (American Psychiatric Association, 1994). Patients who complain about headaches, nausea or other gastrointestinal disturbances, and/or dizziness are more likely

than the general population to have anxiety disorders (Lenze et al., 2005). Flint (2005) argued that older adults, in comparison to younger adults, might experience and therefore describe symptoms of anxiety in more a somatic manner. Research suggests that older individuals might somaticize the presentation of their anxiety symptoms (Fuentes & Cox, 1997; Lenze et al., 2005). A study by Downton and Andrews (1990) illustrated that postural disturbance, dizziness, and problems with falling were associated with higher levels of anxiety in older persons. Fuentes and Cox (1997) pointed out mental illness in older adults often manifests itself as somatic complaints, although this has been more thoroughly explored in depressive disorders. However, studies on depression in older samples show that about 50% of individuals with depression meet criteria for anxiety disorders, indicating a high comorbidity of mood and anxiety disorders (Wolitzky-Taylor et al., 2010). There is a possibility that older individuals, who somaticize their depressive symptoms, might also somaticize their anxiety symptoms. Given this high comorbidity, physicians following the traditional medical treatment approach for older individuals tend to interpret anxiety symptoms as indicators of depression (Fuentes & Cox, 1997).

Additionally, the medical diseases in older individuals can cloud physicians' ability to diagnose anxiety (Fuentes & Cox, 1997; Lenze, Wetherell, & Andreescu, in press; Lenze & Wetherell, 2009). Behavioral assessment in older adults is further complicated because of multiple etiologies that may yield identical symptom patterns in older adults manifesting anxiety (Hersen & Van Hasselt, 1992). Due to the high rates of comorbidity, anxiety disorders are difficult to differentiate from medical illnesses, and older individuals attributing physical symptoms such as muscle tension, hypervigilance, and difficulty sleeping to medical issues complicates differentiation (Gurian & Miner, 1991). Physical

disorders associated with anxiety-like signs that might complicate the assessment include hypoglycemia, pheochromocytoma, hyperthyroidism, silent myocardial infarct, pulmonary embolism, small stroke or ischemic attack, excessive caffeine intake, sympathomimetic medication in over-the-counter drugs, and the withdrawal symptoms of sedatives, hypnotics, and alcohol (Hersen & Van Hasselt, 1992). Obscuring the distinction is the overlap between symptoms, such as reported restlessness, fatigue, and difficulty concentrating or making decisions (Wolitzky-Taylor et al., 2010).

Some older individuals experiencing anxiety might lack the ability to express the symptoms in a cognitive manner. Anxiety disorders in older adults are frequently comorbid with diminishing cognitive ability and dementia (Seignourel, Kunik, Snow, Wilson, & Stanley, 2008). Cognitive decline may affect the presentation and experience of anxiety symptoms, as well as the ability to communicate them. Longitudinal research has shown that anxiety in older adults is related to increased risk of cognitive decline in older adults (Sinoff & Werner, 2003). However, there is a debate over direction of causality regarding anxiety and cognitive decline. Nevertheless, the relationship between anxiety and cognitive decline might be bidirectional: chronic anxiety can cause cognitive impairment and due to awareness of cognitive impairment, anxiety may develop (Wolitzky-Taylor et al., 2010). Due to the bidirectional relationship between anxiety and cognition, it is challenging to determine if somatic symptoms presented by older individuals are caused by an inability to express anxiety in any other manner.

Older individuals tend to seek out treatment for both physical and mental illnesses from their primary care physicians (Hersen & Van Hasselt, 1992; Kroenke, Spitzer, Williams, Monahan, & Lowe, 2007; Marks, Wegelin, Bourgeois, & Perkins, 2010).

Unfortunately, PCPs often do not have adequate training or enough time during the visit to thoroughly assess anxiety in their patients (Hersen & Van Hasselt, 1992). Despite the substantial disability associated with each anxiety disorder and the availability of effective treatments, only a minority of patients (15% to 36%) with anxiety are recognized in primary care (Kroenke et al., 2007). That could be at least partially explained by the fact that PCPs seem to feel most competent and comfortable managing physical complaints and tend to overlook anxiety-provoking emotional problems (Parlour, Young, Jones, & Brady, 1985). Thus, it is more common in the older population to have medical professionals overdiagnose physical illness, and mental health professionals tend to overlook the possibility of medical etiology (Hersen & Van Hasselt, 1992). Misdiagnosis may potentially lead to the underestimation of anxiety prevalence rates in older individuals. Lenze et al. (in press) provided a list of other likely reasons for misdiagnoses of anxiety disorders in the older population, such as tendencies for older adults to (a) minimize their symptoms, particularly when assessed in a categorical format; (b) provide different terms to describe symptoms (e.g., concern vs. worry); (c) attribute their symptoms to physical illnesses and conditions which sometimes excludes them from being diagnosed; and (d) have difficulty remembering or identifying symptoms. Moreover, anxious older adults have worse perceived health, and the individuals with late-life GAD have increased complaints of fatigue, muscle tension, and worry about personal health compared to non-anxious older individuals (Lenze et al., 2005).

Increasing the difficulty of correct diagnosis is that older individuals tend to somaticize symptoms of anxiety, for instance, as insomnia, gastrointestinal problems, and fatigue (Fuentes & Cox, 1997; Shapiro, Roberts, & Beck, 1999). Because there are many

factors that could influence the reasons why older adults may manifest anxiety in somatic ways, it is interesting that the most commonly used criteria for assessment of mental disorders, the Diagnostic and Statistical Manual of Mental Disorders 4<sup>th</sup> edition (DSM-IV; American Psychiatric Association, 1994), does not incorporate a possibility for the older individuals to express their anxiety symptoms (e.g. GAD) largely in a somatic manner. Due to a possibility of an atypical manifestation of anxiety symptoms that do not match the current criteria of anxiety disorders in older adults, such individuals might go unattended and not treated (Fuentes & Cox, 1997). As the DSM criteria are not standardized adequately to incorporate how symptoms and expression of anxiety might differ for different age groups, the instruments that were created based on these criteria might be flawed as well. Hence, the scales to measure anxiety present limitations when they are used on older individuals. For instance, type of worry might differ depending on one's age. Wolitzky-Taylor and colleagues (2010) pointed out that the expression of anxiety and the content of worry seem to be parallel with the individual's stage of life. Older adults appear to worry primarily about health concerns, while younger adults tend to worry more about their work, family, and friends (Diefenbach, Stanley, and Beck, 2001; Hersen & Van Hasselt, 1992; Wolitzky-Taylor et al., 2010). Indeed, research has found that older adults with GAD reported more health-related worries and less work-related worries than younger adults with GAD. Thus, older individuals might not be able to relate to or know how to answer questions on issues that they currently do not deal with anymore (e.g. work-, spouse-, school-related questions). Therefore, the current measures that have not been validated for older adults might not provide an accurate assessment for this population.

Further, somatization of anxiety symptoms may be particularly problematic among older adults in rural areas. There is a higher proportion of older residents in rural communities than in metropolitan areas, and the older population in rural areas tends to report more medical conditions than their urban peers (Dobalian, Tsao, & Radcliff, 2003). This could be influenced by the stigma associated with mental illnesses in rural areas. In rural regions, as much as 50% of rural residents with mental disorders do not seek help, and of those that do seek help, 58% contact their general physicians and only 12% seek help from a mental health professional. In contrast, almost double the proportion of urban residents (20%) utilize specialty mental health care for help (Parlour et al., 1985). Researchers propose that the social structure of many rural communities is antithetical to the community mental health standards, which were designed by urban professionals for problems of urban populations. Furthermore, stigma surrounding mental health in rural populations relates to rural values and belief systems that tend to stress self-reliance, conservatism, a distrust of outsiders, religion, work-orientation, familism, individualism, and fatalism. For instance, a depressed and suicidal farmer might delay seeking help because of social norms related to self-reliance (Wagenfield, Murray, Mohatt, & DeBruyn, 1994). According to Parlour and colleagues (1985), those individuals who seek services at the mental health facilities are considered to be desperate or lacking in traditional social support. Thus, unless the symptoms are severe, members of rural communities prefer to seek health care from primary physicians (Parlour et al., 1985).

Older adults in rural areas are generally not aware of their options to seek mental health services. The attitude of society toward mental illness has changed, and so has access to mental health professionals (Fuentes & Cox, 1997). Nowadays, not only are there

more mental health providers but it is also much more acceptable to seek mental health services than it was 40 years ago. Additionally, according to the United States Department of Agriculture (USDA, 2007), the rural population has an overall lower education level compared to the urban population. In addition, Wagenfeld et al. (1994) note that lower education relates to presenting distress and anxiety in a more somatic way. The current older adult population was less likely to continue their education after receiving a high school diploma compared to the younger population (Wagenfeld et al., 1994). This can lead to older individuals somaticizing their anxiety more than younger individuals. Consequently, older individuals that exhibit the majority of their anxiety symptoms in a somatic fashion (i.e. ratio to the total anxiety symptoms presented) may not meet the diagnostic criteria for anxiety disorders as set by the DSM IV-TR. Given that a greater number of older individuals with lower overall education levels live in rural areas, it could be inferred that rural older adults, on average, would somaticize the symptoms of anxiety more than their urban counterparts.

In addition to education levels, stigma surrounding mental health, and availability of mental health services have been associated with somatization of anxiety symptoms in older individuals. Thus, I predicted that rural older adults would endorse higher levels of somatic symptoms on self-report scales than urban adults. I used the somatic subscale of the Trimodal Anxiety Questionnaire (TAQ; Lehrer & Woolfolk, 1982) and the somatic subscale of the State Trait Inventory for Cognitive and Somatic Anxiety (STICSA; Ree, French, MacLeod, & Locke, 2008) to quantify whether or not a rural sample would score higher on each of these measures. Additionally, I explored differences in cognitive

presentation of symptoms between older adults from rural and urban areas. The difference was assessed through the use of cognitive subscales on both TAQ and STICSA.

## **Method**

### **Participants**

One hundred and forty seven older adults (72 participants from NC and 75 participants from NJ) were recruited from two senior centers from two different counties in North Carolina and four senior centers from one county in New Jersey to complete self-report questionnaire packets. The inclusion criteria required participants be a minimum of 60 years old. Individuals were classified as living in rural or urban areas both subjectively and objectively. Table 1 and Table 2 present participants' demographic information. Objective classification of rural-urban groups used USDA rural/urban continuum codes of the counties where the data was collected (1 – urban and 9 – rural; United States Department of Agriculture [USDA] 2004). The New Jersey senior homes were all located in a county which is classified as very urban (1), while the North Carolina senior homes were located in two counties which were classified as rural (6 and 7). A subjective classification of rural-urban groups was based on a response participants provided on their demographic questionnaire (“Would you describe where you grew up as a rural or an urban area?”). Descriptive analyses were run to determine the proportion of agreement between the objective and subjective classifications. The results indicated that there was some but not total agreement between the objective and subjective definitions. The majority of participants (72%, N = 54) from senior centers located in New Jersey reported that they would describe the area where they grew up as “urban.” Similarly, (63.9%, N = 46) of participants from senior centers located in North Carolina reported that they would

describe the area where they grew up as “rural.”

### **Materials**

**Demographic Sheet.** The demographic sheet contained questions regarding basic information about the participants, such as their gender, age, level of education, and ethnicity. The participants provided the county they were raised in and whether they would consider the place to be an urban or a rural area. See Appendix A for the Demographic Sheet.

**State-Trait Inventory for Cognitive and Somatic Anxiety (STICSA).** The STICSA (Ree et al., 2008) is a self-report measure that assesses an individual’s state and trait expression of both cognitive and somatic symptoms of anxiety. The participants are asked to complete a 21-item questionnaire, rating their level of agreement with statements (e.g. “I picture some future misfortunes”) on a four-point Likert scale (1 – Not At All; 4 – Very Much So). The STICSA consists of two subscales: somatic (11 items) and cognitive (10 items).

The internal consistency of both the STICSA’s State Cognitive and Somatic subscales ( $\alpha = .88$ ) and trait Cognitive and Somatic subscales of the STICSA have been shown to be adequate in an adult clinical sample ( $\alpha = .87$ ; Grös, Antony, Simms, & McCabe, 2007). STICSA State and Trait evidenced moderate correlations with STAI State and Trait ( $r_s > .57$ ). This measure was not validated on an older sample. Additionally, there is no differentiation among items for state or trait anxiety as measured by this questionnaire; thus, the current study focused on the trait component as the data was collected at only one point in time without assessing for any external issues in participants’ lives that might have influenced their anxiety levels. See Appendix B for the STICSA.

**Trimodal Anxiety Questionnaire (TAQ).** The TAQ (Lehrer & Woolfolk, 1982) is a self-report measure that assesses an individual's cognitive, somatic, and behavioral domain of anxiety. The TAQ somatic subscale consists of 16 items (e.g. "I have difficulty in swallowing"), the TAQ behavioral subscale consists of 19 items (e.g. "I try to avoid starting conversations"), and the TAQ cognitive subscale consists of 11 items (e.g. "I picture some future misfortunes"). Participants indicate their responses on a nine-point Likert-type scale indicating how often he or she experiences each item (0 – Never; 8 – Extremely Often). The TAQ consists of three subscales: behavioral, somatic, and cognitive. Only the latter two were used and completed by participants in this study as this research focuses on somatic and cognitive symptoms of anxiety.

The split-half reliabilities of the TAQ for the subscales ranged from .83 to .85 in a college sample and from .91 to .93 in a mixed clinical/community sample (Lehrer & Woolfolk, 1982). TAQ's Cronbach's alpha ranges from .83 to .92 in samples of clinical and nonclinical adults and adolescents (Scholing & Emmelkamp, 1992). The validity of the TAQ is supported by findings of moderate correlations among the three scales ( $r$ s between .47 and .66), which suggests that the scales measure related but distinct constructs (Lehrer & Woolfolk, 1982). However, this measure has not been validated in an older adult sample specifically. See Appendix C for the TAQ.

### **Procedure**

The research protocol was approved by the Appalachian State University's Institutional Review Board (IRB). See Appendix D for the IRB letter of approval. The principal investigator first contacted the community senior centers to state the purpose and the procedure of the research. Once the activity directors approved of the proposed study,

they were asked to sign a letter of agreement. The participants were recruited from community senior centers located in North Carolina and New Jersey. As an incentive, the principal investigator provided each site with baked goods on the day when questionnaire packets were distributed. Before receiving questionnaires, the participants were provided with a brief description of the study and the consent form. All of the senior members of the community centers verbally agreed to participate in the study and they received a packet of questionnaires which included the TAQ, the STICSA, and a demographic sheet. The participants completed the measures in their cafeterias and did not require assistance in filling out the measures. The time for completing all the measures ranged from 15 to 30 minutes. At the end of the study, the participants were thanked for their participation.

### **Results**

Demographic characteristics of the samples based on objective classification are reported in Table 1, and demographic characteristics based on subjective classification are reported in Table 2. The sample included 147 older adults (74.1 % female, 24.5% male, and 1.4% no response) with a mean age of 76.2 ( $SD = 8.5$ ) years (range 60-93 years). Participants in this study scored below the normative benchmark for each of the measures. The normative benchmark means for TAQ are 23.5 for the Somatic Subscale and 22.4 for the Cognitive Subscale (Scholing & Emmelkamp, 1992). These normative scores are based on a non-clinical adult sample from the original scale development. The TAQ Somatic Subscale scores of rural participants ( $M = 22.19$ ) in this study were closer to the normative score than those of urban participants ( $M = 15.40$ ). Furthermore, the normative benchmark score for STICSA is 43 (Van Dam, Gros, Earleywine, & Antony, 2013). This score is a combined score of two subscales based on both clinical and non-clinical adult samples not

from the original scale development. Normative scores for each subscale were not published. STICSA total scale scores of participants from this study did not differ much from the normative score. Tables 3 and 4 provide means and standard deviations for both measures and classification groups in this study. Correlations between the TAQ and STICSA Somatic and Cognitive Subscales are reported in Table 4. A review of descriptive statistics revealed normal distributions for the STICSA Cognitive and Somatic Subscales, but the distributions of TAQ Somatic and Cognitive Subscale scores were positively skewed. Data from these scales were corrected using a square-root transformation for inferential statistical analysis, but means and standard deviations reported here reflect non-transformed data.

After running descriptive analyses evaluating education, it became evident that more levels of higher education were completed by rural participants than by urban participants. Because there were significant differences between the groups in education levels and research suggests that education is related to somatization (Wagenfield et al., 1994), 4 separate ANCOVAs were run to test the effect of rural/urban classification on TAQ and STICSA scores while controlling for education level as a covariate. Education served as a dummy variable and has been coded in a binary fashion (“some college” versus “no college”). The “some college” category (N = 85) included all participants who reported on the demographics page that they either had some college (but no degree) or that they held an Associate degree or higher. The “no college” category (N = 55) included all participants who did not continue their education past the high school degree (or an equivalency degree). The rationale for coding the education variable in a binary fashion is based on previous research (Wagenfield et al., 1994) where the participants who completed

less than a high school degree, or its equivalent degree, were found to somaticize their symptoms.

Results of the ANCOVA revealed that education did not significantly affect TAQ Somatic Subscale scores,  $F(1,137) = 0.32, p = 0.570, \eta = 0.002$ , for the objective classification. Based on objective rural-urban status through the use of RUC, results suggested that rural residents endorsed significantly higher levels of somatic symptoms on the TAQ Somatic Subscale than did the urban residents after controlling for the levels of education. Results of the ANCOVA revealed that education did not significantly affect STICSA Somatic Subscale scores,  $F(1,136) = 0.23, p = 0.630, \eta = 0.002$ , for the objective classification. However, no such difference was found between the groups on STICSA Somatic Subscale scores. Urban older individuals' average STICSA Somatic score ( $M = 14.85, SD = 5.55$ ) was not significantly different,  $F(1, 136) = 0.80, p = 0.371, \eta = 0.006$ , to rural older individuals' average STICSA Somatic score ( $M = 15.84, SD = 5.32$ ).

Based on self-reported rural-urban status, the hypothesis that rural older individuals would show higher levels of somatic symptoms than their urban counterparts was not supported. Results of the ANCOVA revealed that education did not significantly affect TAQ Somatic Subscale scores,  $F(1,127) = 0.02, p = 0.877, \eta = 0.000$ , for the subjective classification. The results of the ANCOVA analyses suggest that there was no significant difference of the expression of somatic symptoms between urban and rural older individuals. Urban older adults' TAQ Somatic Subscale scores ( $M = 17.24, SD = 16.31$ ) were not significantly different,  $F(1, 127) = 1.88, p = .173, \eta = 0.015$ , to rural older individuals' TAQ Somatic Subscale scores ( $M = 21.71, SD = 22.87$ ). Results of the ANCOVA revealed that education did not significantly affect STICSA Somatic Subscale

scores,  $F(1,127) = 0.11, p = 0.736, \eta = 0.001$ , for the subjective classification. Likewise, urban older adults' STICSA Somatic Subscale scores ( $M = 15.74, SD = 5.51$ ) were not significantly different,  $F(1,126) = 0.00, p = 0.998, \eta = 0.000$ , to rural older adults' STICSA Somatic Subscale scores ( $M = 15.64, SD = 5.37$ ).

Results from additional ANCOVAs failed to support the secondary hypothesis. There were no differences in cognitive expression of symptoms between urban and rural older adults, based on either subjective or objective definitions. Based on RUC-based definitions, urban older individuals' TAQ Cognitive Subscale scores ( $M = 15.00, SD = 16.81$ ) were not significantly different,  $F(1,137) = 9.26, p = 0.338, \eta = 0.007$ , to rural older individuals' TAQ Cognitive scores ( $M = 15.97, SD = 14.52$ ), and urban older individuals' STICSA Cognitive scores ( $M = 14.96, SD = 5.70$ ) were not significantly different,  $F(1,136) = 0.78, p = 0.378, \eta = 0.006$ , to rural older individuals' STICSA Cognitive scores ( $M = 16.12, SD = 5.67$ ).

Similarly, examination of groups based upon subjective reports of urban/rural status revealed no significant difference between the two groups on cognitive symptoms. Urban older individuals' TAQ Cognitive Subscale scores ( $M = 14.77, SD = 13.96$ ) were not significantly different,  $F(1,127) = 1.37, p = 0.244, \eta = 0.011$ , to rural older individuals' TAQ Cognitive Subscale scores ( $M = 16.98, SD = 15.98$ ). Urban older individuals' STICSA Cognitive Subscale scores ( $M = 15.89, SD = 5.53$ ) were not significantly different,  $F(1,126) = 0.00, p = 0.992, \eta = 0.000$ , to rural older individuals' STICSA Cognitive Subscale scores ( $M = 15.91, SD = 5.86$ ).

### **Discussion**

The current study is the first to examine differences in self-reported somatic and cognitive anxiety between urban and rural older individuals. The primary hypothesis that rural older individuals would endorse more somatic symptoms on self-report measures of anxiety than urban older individuals was partially supported. When based on a subjective classification, there were no differences in endorsement of somatic symptoms between rural and urban older adults. However, when based on RUC classification, rural individuals scored higher on the TAQ somatic subscale than did urban individuals, even when controlling for education levels. Differences were found even though this sample exhibited low levels of anxiety. No difference among the two groups was seen in STICSA somatic subscale scores. The secondary objective was to examine differences between rural and urban older adults on cognitive symptoms of anxiety, as measured by TAQ and STICSA cognitive subscales. The results did not indicate any significant difference on cognitive subscale scores between urban and rural older individuals. Further, no differences were observed in either subjective or objective rural/urban classifications. The findings do not seem to completely coincide with past research results, but this could be due to various factors such as participants' age. The majority of the research on anxiety did not focus on older adults but on younger adults and children. Past research has typically focused on differences in symptom presentation among younger and older adults, or among rural and urban areas (Fuentes & Cox, 1997; Judd, Jackson, Komiti, Murray, Hodgins, & Fraser, 2002).

Comparable findings of a high correlation between STICSA somatic and cognitive subscales were found in a past examination of state and trait anxiety (Ree et al., 2008). The

study authors speculated that the correlation between cognitive and somatic subscales could mean that these symptom clusters influence one another. For instance, if an individual is more likely to respond to physical exercise with an increased heart rate, he or she can perceive the heart rate as more threatening, which can further increase the heart rate. The example demonstrates how perception of physiological arousal can trigger catastrophizing cognitions which lead to higher levels of physiological arousal. This pattern is consistent with Clark's (1986) cognitive model of panic and illustrates a vicious cycle of somatic and cognitive symptoms. Moreover, the cognitive model of panic placed a strong emphasis on an individual's perception of the somatic symptom, that is, if it is seen as threatening or not. Further, the cognitive model holds that the perception of a somatic symptom as threatening can exacerbate somatic symptoms, which in turn intensifies catastrophic thinking.

The difficulty of providing a response to a question item might better explain the inconsistent results found in this study. The average reading level of older individuals is lower than 8<sup>th</sup> grade (Walmsley & Allington, 1982), while the anxiety questionnaires are written at or above the reading level of the general population (McHugh & Behar, 2009). A study by McHugh, Rasmussen, and Otto (2011) assessed subjects' comprehension of the instructions, items, and response sets for 92 self-report anxiety questionnaires. The findings showed that participants experienced difficulties with instructions of 87% of the questionnaires, with items of 92% of questionnaires, and with response sets of 86% measures. Furthermore, the validity for those self-report questionnaires was directly linked to how well the respondents understood the questions (McHugh et al., 2011). The scales have been examined by the level of education (i.e. some college versus no college) and

there are significantly more rural older adults who received college educations than individuals from the urban areas in the sample used in this study. A difference in levels of education between groups might have manifested as a difference in question comprehension between groups. It was expected that participants from rural areas would have lower levels of education compared to urban participants (based on the Census data); however, the current participants from rural areas reported higher levels of education than their urban counterparts. This result, however, could possibly reflect the type of older adults who seek services in both rural and urban areas. In rural areas, individuals who are more educated and have a higher income might find recreation at senior centers much more appealing than individuals who are more educated and have a higher income in urban areas.

The questionnaires used in this research study were included in McHugh's et al. comparison (2011). McHugh and colleague's results indicated that although STICSA's wording might not cause difficulties in understanding the questionnaire's instruction and item questions, it does create comprehension difficulties in responding to the items asked. The problem may lie in the format of the questionnaire, which requires an individual to align questions with their corresponding response sets. This kind of question-answer layout might be especially difficult for older adults who are experiencing decreasing motor and cognitive abilities, and declining visual acuity. It may be difficult for them to trace the item question to circle an accurate answer. In addition, the cognitive decline which is frequently exhibited in this age group likely exacerbated comprehension difficulties regarding the questionnaires' instruction, item questions, and responses (Sinoff & Werner, 2003). This may be especially true of older adults with significant anxiety symptoms. Meanwhile, the

TAQ does not appear to evoke comprehension difficulties in instruction, item question, and response to the item question. Therefore, TAQ subscale scores rather than STICSA subscale scores may provide a more accurate representation of symptomatology experienced among urban and rural older individuals.

Two types of classification of rural-urban groups were used in this study. First, a subjective classification involved asking participants to self-report if the area they were raised in would be considered rural or urban. Further, individuals provided how many years they resided in the area they were raised in. The majority of the sample indicated that they had spent all of their lives living in the area they indicated they were raised in. Second, an objective classification involved Rural-Urban Continuum Codes (USDA, 2004) which looked at the zip-codes of the location the senior centers were located in. The rationale for including two types of classification systems was to account for any potential bias provided by participants through their subjective report.

Findings of this study provided inconsistent results between the two classification systems. Rural older individuals endorsed significantly more somatic symptoms on one somatic subscale than their urban counterparts, but only in the objective rural-urban classification. Past research suggested that education may influence somatization (Wagenfield, et al., 1994). In this study, participants from rural areas (RUC classification) reported higher levels of education. Yet, older-rural adults (RUC classification) presented with more somatization, despite having more education. Furthermore, no difference in either somatic or cognitive symptomatology has been observed in subjective classifications of the two groups. The inconsistency of the findings could be indicative of the influence of individuals' perceptions of the area they were raised in, meaning that a participant might

consider the area where they were raised in as rural. Therefore, the results of objective classification may provide a clearer presentation of symptomatology exhibited between rural and urban individuals. The objective classification of the two regions includes variables that may affect presentation of symptomatology of mental health disorders (e.g. stigma towards mental health, availability of resources, education). Thus, the present findings raise a possibility that anxiety may be more somaticized by older adults in rural areas.

The findings of this study provide implications regarding assessment of anxiety disorders in older individuals. Due to higher rates of primary care physician visits exhibited by both older individuals (Beidel & Stipelman, 2007; Hersen & Van Hasselt, 1992; Kroenke, et al., 2007; Marks et al., 2010) and rural individuals (Parlour et al., 1985), physicians should consider how the geographic residence of their patients may affect the presentation of their anxiety symptoms. This way, the PCPs may abate their tendency to underdiagnose anxiety disorders. This could be especially significant in the rural regions, since a higher population of older adults reside there. Further, providing PCPs with psychoeducation regarding somatization of anxiety symptoms by rural older adults could lead to more individuals receiving appropriate treatment. Through psychoeducation, PCPs could learn about various risk factors that could lead older adults to somaticize symptoms of anxiety, such as cognitive decline and rurality (Seignourel et al., 2008; Sinoff & Werner, 2003; Wolitzky-Taylor et al., 2010).

Currently there are limited assessment measures that could be used by either PCPs or mental health professionals that are validated for older adult individuals. Including more somatic symptomatology questions on anxiety scales could aid in creating measures that

would be more specialized for older adults in rural areas. However, the widely used measures currently available for assessment of anxiety disorders should be validated for this population. Furthermore, creation of tests that could aid in distinguishing between medical or psychological origins of the symptoms would greatly benefit PCPs in their daily practice. These measures, then, will be able to provide a more accurate assessment of anxiety disorders for older adults.

It may also be beneficial to provide psychoeducation to older individuals and their families in rural senior centers. By offering information that the older adults may exhibit symptoms of anxiety in a more somatic way could increase self-awareness about their well-being. Further, rural older individuals could be provided information about various mental health services available in their area, as well as to be introduced to the local psychologists. Offering psychoeducation at various locations (i.e. churches, community halls), especially in rural regions, would be a beneficial way of spreading the information to older adults and their family members. Through the services being provided at the rural senior centers and other locations, older adults could receive more appropriate mental health care.

Such psychoeducation could also be provided to other individuals who work with older adults (e.g. nurses, living assistance personnel), especially in rural areas. Individuals who interact with older adults on a daily basis may have a greater insight regarding the life situations of the older adults. Therefore, offering information regarding possible somatization of symptoms of anxiety could benefit detection of the individual's declining well-being, even if they may not be able to do so themselves due to various reasons (i.e.

denial, cognitive decline). Lastly, having information regarding resources available in the local area may help the staff seek help for the older adults that they take care off.

There are some important limitations of this research study. First, stigma regarding mental health is an influential factor in rural help-seeking behavior (Parlour et al., 1985). However, stigma was not measured in this study. It may be possible that stigma about mental health had an influence on what kind of answers individuals from rural backgrounds provided on the questionnaires. Second, past research suggests that older individuals experience more somatic symptoms of anxiety than younger individuals (Fuentes & Cox, 1997; Wolitzky-Taylor et al., 2010). However, there is limited mixed research (Judd et al., 2002; Parlour et al., 1985; Wagenfield, et al., 1994) indicating that rural individuals present significantly higher amounts of somatic symptoms than their urban counterparts. Further, research has indicated that due to possible differences in education levels, rural areas might exhibit more somatization than urban areas (Judd et al., 2002; Wagenfield et al., 1994). However, in the present study, education levels had no significance on the results. Rural older individuals reported more education than did urban older individuals and the results continued to significantly indicate that rural adults report more somatization than their urban counterparts. This finding suggests that there has to be a different factor influencing levels of somatization among individuals in rural and urban areas.

The third limitation is that the usage of RUC measures might not accurately reflect the rurality of hometowns where the participants grew up. The RUC codes used in this study were from the year 2004; however, due to possible development and population growth since the participants' childhoods, the areas that were once classified as rural, could

be currently meeting criteria for classification as urban. For example, although the participants described the area where they grew up in as rural, there is no certainty that the area has remained rural. Future studies employing RUC for taxonomy should consider utilizing the RUC codes (if available) from the time of respondents' reference point.

Finally, the current study was conducted using a non-clinical sample. Though there was endorsement of anxiety in the sample studied, older adults with clinical levels of anxiety may show different patterns of somatization. Therefore, the results may not be readily generalizable to clinically anxious older adults. Additionally, the participants were selected only from senior centers located in urban and rural regions. The sample might not be representative of older individuals who are in higher need of medical attention or living assistance. Research has shown that anxiety is associated with poorer health in older adults (Beidel & Stipelman, 2007). The independence and self-reliance demonstrated by individuals at senior centers might help explain why most participants in this study did not endorse high levels of anxiety. Older individuals who perceive themselves as a burden to their family experience more distress (Lenze et al., 2005). Both factors have not been examined in this research study, but should be considered in the future. Furthermore, the results in part reflect what the general population of independent-living older individuals expresses about their experiences of anxiety symptoms. The results of this study present self-reported anxiety symptoms of older adults who do not require any living assistance and thus, might overall experience less anxiety. Their independent living indicates better health and quality of life. Therefore, these results could not be generalizable to clinical samples, which experience intensified symptoms in comparison to non-clinical samples. Furthermore, there might be a threshold after which individuals may begin to somaticize

their symptoms for various reasons (e.g. stigma, availability of services, or cognitive deficits). The threshold could be indicative of a relationship between the intensity of anxiety symptoms an individual is experiencing and the perception of mental health services. Only once the threshold is reached would the individual begin to somaticize the symptoms of anxiety. The possibility of a somatization threshold could be addressed in future studies examining expression of anxiety symptoms in older adults.

Furthermore, this study found some differences among rural and urban participants although a non-clinical sample was used. Despite the floor effect, the differences in a clinical sample may be greater. As mentioned earlier, the means of the participants' scores in this study were below the normative benchmark scores for both of the scales used. Thus, if participants would exhibit higher levels of anxiety, the differences among the groups may be more pronounced.

The difficulty of assessing anxiety in older adults is made further difficult by the fact that older adults experience an increased number of medical conditions (Fuentes & Cox, 1997; Lenze et al., in press; Lenze & Wetherell, 2009). High comorbidity of medical conditions and mental disorders in older individuals makes it difficult for professionals to differentiate whether symptoms such as insomnia, muscle tension, and hypervigilance are medical or psychological in origin (Gurian & Miner, 1991). Furthermore, current assessment measures of anxiety have limited evidence of empirical validity in this population. Additionally, these instruments primarily are based upon DSM-IV TR anxiety disorders' criteria. The criteria in a diagnostic manual (DSM-IV TR), currently used by mental health professionals, have not been adequately standardized for older adults. This leaves a possibility that many older individuals are left undiagnosed and untreated (Fuentes

& Cox, 1997). An alternate explanation is that because the measures are not validated for older-adult populations, it could be unreliable. With that in mind, future research on older adults should attempt to provide empirical validation for the current measures available or to consider using only measures validated for the older population. Additionally, researchers should aim to improve differentiation of symptoms that could be of either physical or mental origins.

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Table 1

*Distribution of Demographic Information – Objective Classification*

	Urban (n =75)	Rural (n=72)	Total(n=147)
Mean Age (Standard Deviation)	78.29 (8.7)	73.99 (7.8)	76.18 (8.5)
Mean Time Lived in Hometown (SD)	41.49 (23.3)	33.02 (24.8)	37.35 (24.3)
<b>Gender</b>			
Female	59	50	109
Male	14	22	36
No Response	2	0	2
<b>Education*</b>			
Less than 9 <sup>th</sup> grade	2	0	2
Some high school (no diploma)	6	1	7
High school graduate (includes equivalency degree)	30	16	46
Some college (no degree)	9	16	25
Associate degree	0	3	3
Bachelor's degree	9	15	24
Graduate or professional degree	16	17	33
No Response	3	3	6
<b>Ethnicity</b>			
Caucasian	65	67	123
Asian American	3	1	3
African American	2	1	3
Other	4	0	0
No Response	1	3	4
<b>Current Income</b>			
<\$15,000	17	11	28
\$15,000-\$24,999	15	14	29
\$25,000-\$34,999	6	11	17
\$35,000-\$49,999	11	11	22
\$50,000-\$74,999	3	9	12
\$75,000-\$99,999	2	0	2
\$100,000 >	0	2	2
No Response	21	13	34
<b>Income While Working</b>			
<\$15,000	6	3	9
\$15,000-\$24,999	5	8	13
\$25,000-\$34,999	9	13	22
\$35,000-\$49,999	4	16	20
\$50,000-\$74,999	11	10	21
\$75,000-\$99,999	7	1	8
\$100,000 >	0	4	4
No Response	33	16	49

\*Rural sample significantly more likely to have some college,  $\chi^2(1, N = 146) = 10.53, p < 0.001$

Table 2

*Distribution of Demographic Information – Subjective Classification*

	Urban (n = 73)	Rural (n = 62)	Total (n = 135)
Mean Age (SD)	76.73 (8.8)	74.70 (7.8)	75.79 (8.3)
Mean Time Lived in Hometown (SD)	35.84 (22.0)	37.49 (26.5)	36.59 (24.1)
<b>Gender</b>			
Female	53	47	100
Male	20	14	34
No Response	0	1	1
<b>Education*</b>			
Less than 9 <sup>th</sup> grade	0	1	1
Some high school (no diploma)	2	2	4
High school graduate (includes equivalency degree)	27	14	41
Some college (no degree)	10	14	24
Associate degree	3	0	3
Bachelor's degree	12	12	24
Graduate or professional degree	17	16	33
No Response	2	3	5
<b>Ethnicity</b>			
Caucasian	68	55	123
Asian American	1	2	3
African American	1	2	3
Other	2	2	4
No Response	1	1	2
<b>Current Income</b>			
<\$15,000	13	11	24
\$15,000-\$24,999	11	14	25
\$25,000-\$34,999	8	9	17
\$35,000-\$49,999	11	11	22
\$50,000-\$74,999	8	4	12
\$75,000-\$99,999	2	0	2
\$100,000 >	1	1	2
No Response	19	11	30
<b>Income While Working</b>			
<\$15,000	3	4	7
\$15,000-\$24,999	6	7	13
\$25,000-\$34,999	10	10	20
\$35,000-\$49,999	8	12	20
\$50,000-\$74,999	13	8	21
\$75,000-\$99,999	6	2	8
\$100,000 >	2	2	4
No Response	25	16	41

\*Rural sample significantly more likely to have some college,  $\chi^2 (1, N = 135) = 1.49, p = .0223$

Table 3

*Means and Standard Deviations of TAQ and STICSA Subscales Based on Objective Classification*

	M	SD
Urban		
TAQ Somatic Subscale	15.45	16.07
TAQ Cognitive Subscale	14.84	16.78
STICSA Somatic Subscale	14.90	5.01
STICSA Cognitive Subscale	15.00	5.68
Rural		
TAQ Somatic Subscale	22.79	22.61
TAQ Cognitive Subscale	16.15	14.49
STICSA Somatic Subscale	15.87	5.29
STICSA Cognitive Subscale	16.11	5.62

Table 4

*Means and Standard Deviations of TAQ and STICSA Subscales Based on Subjective Classification*

	M	SD
Urban		
TAQ Somatic Subscale	17.82	17.09
TAQ Cognitive Subscale	14.90	14.17
STICSA Somatic Subscale	15.74	5.51
STICSA Cognitive Subscale	15.92	5.50
Rural		
TAQ Somatic Subscale	21.95	22.71
TAQ Cognitive Subscale	17.06	15.89
STICSA Somatic Subscale	15.73	5.30
STICSA Cognitive Subscale	15.92	5.82

Table 5

*Correlations Among TAQ and STICSA Cognitive and Somatic Subscales*

		TAQ Somatic	TAQ Cognitive	STICSA Somatic	STICSA Cognitive
TAQ Somatic	Pearson Correlation Sig. (2- tailed) N	1 147	.762** 147	.626** 146	.552** 146
TAQ Cognitive	Pearson Correlation Sig. (2- tailed) N	.762** 147	1 147	.486** 146	.633** 146
STICSA Somatic	Pearson Correlation Sig. (2- tailed) N	.626** 146	.486** 146	1 146	.745** 146
STICSA Cognitive	Pearson Correlation Sig. (2- tailed) N	.552** 146	.633** 146	.745** 146	1 146

Note: \*\* Correlation is significant at < 0.01 level (2-tailed).

Appendix A  
Demographic Sheet

**Gender:**

Female\_\_\_\_\_

Male\_\_\_\_\_

**Age:** \_\_\_\_\_

**Education:**

Graduate or professional degree  
Bachelor’s degree  
Associate degree  
Some college (no degree)

High school graduate (includes equivalency degrees)  
Some high school (no diploma)  
Less than 9<sup>th</sup> grade

**Ethnicity:**

African American  
  
Asian American

Caucasian  
  
Other:\_\_\_\_\_

**What is your native language?**

\_\_\_\_\_

**What is your health care?**

\_\_\_\_\_

**Current income:**

< \$15,000  
\$15,000-\$24,999  
\$25,000-\$34,999  
\$35,000-\$49,999

\$50,000-\$74,999  
\$75,000-\$99,999  
\$100,000 >

**Income while working:**

< \$15,000  
\$15,000-\$24,999  
\$25,000-\$34,999  
\$35,000-\$49,999  
\$50,000-\$74,999

\$75,000-\$99,999  
\$100,000 >

**Would you describe where you grew up as a rural or an urban area?**

\_\_\_\_\_

**How long have you lived there?**

\_\_\_\_\_

**In which county were you raised in?**

\_\_\_\_\_

**On a scale of 1 (urban) to 9 (rural), how you would rate your hometown to be?**

1    2    3    4    5    6    7    8    9

## Appendix B

## STICSA: Your General Mood State

*Instructions*

Below is a list of statements which can be used to describe how people feel. Beside each statement are four numbers which indicate how often each statement is true for you (e.g., 1 = *not at all*, 4 = *very much so*). Please read each statement carefully and circle the number which best indicates how often, in general, the statement is true of you.

	Not at all	A little	Moderately	Very much so
1. My heart beats fast.	1	2	3	4
2. My muscles are tense.	1	2	3	4
3. I feel agonized over my problems.	1	2	3	4
4. I think others won't approve of me.	1	2	3	4
5. I feel like I'm missing out on things because I can't make up my mind soon enough.	1	2	3	4
6. I feel dizzy.	1	2	3	4
7. My muscles feel weak.	1	2	3	4
8. I feel trembly and shaky.	1	2	3	4
9. I picture some future misfortune.	1	2	3	4
10. I can't get some thoughts out of my head.	1	2	3	4
11. I have trouble remembering things.	1	2	3	4
12. My face feels hot.	1	2	3	4
13. I think that the worst will happen.	1	2	3	4
14. My arms and legs feel stiff.	1	2	3	4
15. My throat feels dry.	1	2	3	4
16. I keep busy to avoid uncomfortable thoughts.	1	2	3	4
17. I cannot concentrate without irrelevant thoughts intruding.	1	2	3	4
18. My breathing is fast and shallow.	1	2	3	4
19. I worry that I cannot control my thoughts as well as I would like to.	1	2	3	4
20. I have butterflies in my stomach.	1	2	3	4
21. My palms feel clammy.	1	2	3	4

Appendix C

**Trimodal Anxiety Questionnaire (TAQ)**

Please circle the number that indicates how you feel for each item. For example, if you feel happy often, but not all the time, put...

I feel happy

	0	1	2	3	4	5	6	7	8
	Never								Extremely Often
1. My throat gets dry.	0	1	2	3	4	5	6	7	8
	Never								Extremely Often
2. I have difficulty in swallowing.	0	1	2	3	4	5	6	7	8
	Never								Extremely Often
3. I try to avoid starting conversations.	0	1	2	3	4	5	6	7	8
	Never								Extremely Often
4. My heart pounds.	0	1	2	3	4	5	6	7	8
	Never								Extremely Often
5. I picture some future misfortune.	0	1	2	3	4	5	6	7	8
	Never								Extremely Often
6. I avoid talking to people in authority (my boss, policemen).	0	1	2	3	4	5	6	7	8
	Never								Extremely Often
7. My limbs tremble.	0	1	2	3	4	5	6	7	8
	Never								Extremely Often
8. I can't get some thoughts out of my mind.	0	1	2	3	4	5	6	7	8
	Never								Extremely Often
9. I avoid going into a room by myself where people are already gathered and talking.	0	1	2	3	4	5	6	7	8
	Never								Extremely Often

10. My stomach hurts.  
 0 1 2 3 4 5 6 7 8  
 Never Extremely Often
11. I dwell on mistakes that I have made.  
 0 1 2 3 4 5 6 7 8  
 Never Extremely Often
12. I avoid new or unfamiliar situations.  
 0 1 2 3 4 5 6 7 8  
 Never Extremely Often
13. My neck feels tight.  
 0 1 2 3 4 5 6 7 8  
 Never Extremely Often
14. I feel dizzy.  
 0 1 2 3 4 5 6 7 8  
 Never Extremely Often
15. I think about possible misfortunes to my loved ones.  
 0 1 2 3 4 5 6 7 8  
 Never Extremely Often
16. I cannot concentrate at a task or job without irrelevant thoughts intruding.  
 0 1 2 3 4 5 6 7 8  
 Never Extremely Often
17. I pass by school friends, or people I know but have not seen for a long time, unless they speak to me first.  
 0 1 2 3 4 5 6 7 8  
 Never Extremely Often
18. I breathe rapidly.  
 0 1 2 3 4 5 6 7 8  
 Never Extremely Often
19. I keep busy to avoid uncomfortable thoughts.  
 0 1 2 3 4 5 6 7 8  
 Never Extremely Often
20. I can't catch my breath.  
 0 1 2 3 4 5 6 7 8  
 Never Extremely Often
21. I can't get some pictures or images out of my mind.  
 0 1 2 3 4 5 6 7 8  
 Never Extremely Often

22. I try to avoid social gatherings.  
 0 1 2 3 4 5 6 7 8  
 Never Extremely Often
23. My arms or legs feel stiff.  
 0 1 2 3 4 5 6 7 8  
 Never Extremely Often
24. I imagine myself appearing foolish with a person whose opinion of me is important.  
 0 1 2 3 4 5 6 7 8  
 Never Extremely Often
25. I find myself staying home rather than involving myself in activities outside.  
 0 1 2 3 4 5 6 7 8  
 Never Extremely Often
26. I prefer to avoid making specific plans for self-improvement.  
 0 1 2 3 4 5 6 7 8  
 Never Extremely Often
27. I am concerned that others might not think well of me.  
 0 1 2 3 4 5 6 7 8  
 Never Extremely Often
28. I try to avoid challenging jobs.  
 0 1 2 3 4 5 6 7 8  
 Never Extremely Often
29. My muscles twitch or jump.  
 0 1 2 3 4 5 6 7 8  
 Never Extremely Often
30. I experience a tingling sensation somewhere in my body.  
 0 1 2 3 4 5 6 7 8  
 Never Extremely Often
31. My arms or legs feel weak.  
 0 1 2 3 4 5 6 7 8  
 Never Extremely Often
32. I have to be careful not to let my real feelings show.  
 0 1 2 3 4 5 6 7 8  
 Never Extremely Often
33. I experience muscular aches and pains.  
 0 1 2 3 4 5 6 7 8  
 Never Extremely Often



## Appendix D

IRB irb@appstate.edu

to me, jamesonjp

**To:** Anna Urbaniak

CAMPUS MAIL

**From:** Robin Tyndall, Institutional Review Board

**Date:** 6/04/2012

**RE:** Notice of IRB Exemption

**Study #:** 12-0301

**Study Title:** Are Anxiety Symptoms Expressed Differently in Rural and Urban Elderly?

**Exemption Category:** (2) Anonymous Educational Tests; Surveys, Interviews or Observations

This submission has been reviewed by the IRB Office and was determined to be exempt from further review according to the regulatory category cited above under 45 CFR 46.101(b). Should you change any aspect of the proposal, you must contact the IRB before implementing the changes to make sure the exempt status continues to apply. Otherwise, you do not need to request an annual renewal of IRB approval. Please notify the IRB Office when you have completed the study.

Best wishes with your research!

CC:

John Jameson, Psychology

### **Vita**

Anna Urbaniak was born in Stalowa Wola, Poland to Barbara and Zdzislaw Urbaniak. She graduated from Garfield High School in New Jersey in June 2006. The following autumn, she entered Rutgers State University to study Psychology, and in October 2009 she was awarded the Bachelor of Arts degree in Psychology with honors. In the fall of 2011, she accepted a research assistantship in Clinical Health Psychology at Appalachian State University and began study toward a Master of Arts degree. The M.A. will be awarded in August 2013.

Ms. Urbaniak is a member of the American Psychological Association, the Anxiety and Depression Association of America, and the Association of Psychological Science. She is currently doing her internship at Lawson Support Services.