Spring 5-4-2024

Home Based Primary Care Program Evaluation of Loneliness, Depression, and Multimorbid Conditions of Older Midwest Veterans

Renee R. Sullivan
University of Nebraska Medical Center

Recommended Citation

Home Based Primary Care Program Evaluation of Loneliness, Depression, and Multimorbid Conditions of Older Midwest Veterans

Introduction

Humans are inherently social. Aristotle, the Greek philosopher, stated "Man by nature, is a social animal." Our desire for social connection with others suggests that humans have a basic need to belong (Hughes et al., 2004; Kuwert et al., 2014; Young, 2008; Lieberman, 2013). The COVID-19 pandemic has brought the psychological and medical effects of social isolation and loneliness (SIL) to millions of people around the world, but particularly in the already socially isolated older adult. The recognition that SIL can adversely affect the physiologic, psychologic symptoms and increased mortality in individuals has been the subject of research sporadically throughout the 20th and 21st centuries. Prior to the COVID-19 pandemic, health care viewed a patient's level of social connection as a "personal" issue. The alarm bells started ringing about SIL before the pandemic began. United States Surgeon General Vicek Murthy warned that what has been called a loneliness epidemic had already begun (Holt-Lunstad & Perissinotto, 2023).

Social isolation and loneliness are distinctly different. Social isolation is objective, loneliness is subjective. Social isolation is the objective lack of/or limited social contact with others (Blazer, 2020). Loneliness is the individual's perception of social isolation, a discrepancy between an individual's desired and actual social relationships, or the individual's subjective feeling of being lonely (Taylor, 2019), or the distressed feelings that results between the individual's desired and actual social relationships (Luo et al., 2012). A hermit chooses to be socially isolated and may not feel lonely. Conversely, an individual may perceive being lonely in a crowd of people due to a lack of emotional and psychological connection with significant individuals (Blazer, 2020; Pearson, 2019). Other individuals may experience difficulties in forming meaningful social relationships leaving them lonely and socially isolated (Kuwert et al., 2014).

Older adult veterans of United States armed forces are at higher risk of SIL. Veterans are majority male, and "speak" a different language that civilian families and co-workers may not understand, which isolates the Veteran even further. These veterans may have Post Traumatic Stress Disorder (PTSD), Major Depressive Disorder (MDD) and anxiety. In the research investigating loneliness with depression outcomes and suicidal ideation among veterans in primary care, Teo et al, (2018), found that loneliness was associated with higher levels of depression and suicidal ideation. Alarmingly, loneliness was found to lower self-activation and help-seeking activity in these veterans.

Established in 1972, the U.S. Department of Veterans Affairs (VA) Home-Based Primary Care (HBPC) Program has expanded to serve 59,000 veterans across the U. S. (Havernhals et al., 2019). HBPC Program provides integrated, long term, comprehensive in-home primary care for frail, disabled, and/or chronically ill veterans with complex medical, social, and behavioral conditions. The HBPC program uses an Interdisciplinary team model with the goal of allowing the veterans to achieve and maintain their highest practicable function and minimizing institutionalization. This differs from Medicare home health which focuses on providing short-term, problem focused, or episodic post-hospitalization care to older adults with remediable conditions. Veterans who are enrolled in HBPC program are some of the frailest of the older adult population, with an average of eight comorbid conditions and take an average of fifteen medications (Beales & Edes, 2009). Those veterans enrolled in the HBPC Program are essentially deemed "house-bound" and unable to leave their residence except for medical appointments. The main team members who interact with these veterans are the Registered Nurses (RN) and the Advanced Practice Registered Nurse (APRN).

Problem Statement

Social isolation and loneliness has a significant impact on physical and psychological health and well-being in older adults. Older adult Veterans enrolled in the VA HBPC program are generally

the most vulnerable and are at increased risk for SIL due to their home-bound status. There

has been little to no research into the effect of SIL on rural older adults in the United States or

within the VA. The VA routinely performs the Patient Health Questionnaire-2 (PHQ-2) to screen

for depression in veterans; however, currently there is no screening for SIL.

Purpose Statement

It was hypothesized that the basis of the HBPC program for providing individual

contacts with specific nursing team members has provided a protected and medically necessary

social connection with the patients who are essentially homebound and living in rural and

distance urban areas with perhaps less social interaction.

This author's assumption was that the rural HBPC patients experience less SIL due to

two factors; patients have social connections through the "small town" model of support, and

farmers/ranchers have chosen a more independent and isolating lifestyle, compared to the

urban patients who may be "alone in a crowd."

The purpose of this study was to evaluate the differences of loneliness, depression, and

multimorbid conditions rural and urban older adult veterans enrolled in a Midwest VA HBPC

program. The older adult veterans were recruited from HBPC programs in rural and urban

counties within a sixty-mile radius from the HBPC Program based in the urban area where the

VA Facility is located.

Methodology

Research Design

The 11-Item Revised University of California Los Angeles (R-UCLA) Loneliness Scale

was utilized to measure the differences in SIL between older adult veterans who are enrolled in

an HBPC program in the Midwest United States compared to community dwelling older

veterans in the U. S.

Subjects

Those veterans enrolled in the HBPC Program from the Midwest VA were invited to

complete the 11-Item R-UCLA Loneliness Scale with HBPC staff making an introduction to

author. Additional recruitment criteria include being at least age 60 years and above. Exclusion

criteria include those not currently enrolled in the HPBC Program through the Midwest VA,

younger than 59 years of age, or have diagnosis of Alzheimer's, or dementia in the medical

record.

Setting

Home-Based Primary Care Programs are established in three cities in a Midwestern

state. The research site is a city of 53,131 (U. S Census Bureau, 2020) which is the location of

a VA Medical Facility. The HBPC interdisciplinary team consists of Medical Director, APRN,

RN's, Clinical Pharmacist, Social Work, Dietician, PT/OT, and Mental Health provider. The

APRN, RN and PT/OT provide most of the in-person contact and Social Work, Dietician and

Pharm D provide most of the telephone contact with the older adult veterans.

The research site HBPC program provides primary care services to veterans in a 60-

mile radius from the VA Medical Facility (Hall County) which covers 12 counties. While the

research site is an urban designation (US Census Bureau, 2020) the counties surrounding it are

designated rural by Health Resources and Services Administration (HRSA, 2018).

Tools and Measurements

Demographics

Demographic data was collected using VA Computerized Patient Records System

(CPRS) and interview using Demographic Data Sheet. This included age, gender, ethnicity,

race, marital status, housing, caregiver support including agency, and/or spouse/relative, or no caregiving support, number of co-morbid illnesses, number of active prescription medications, number individual interdisciplinary team visits in 3 months, current diagnosis of MDD, PTSD, Anxiety, and TBI and Zip Code of veteran's residence for HRSA designation.

Revised University of California Los Angeles Loneliness Scale

One of the most widely used measurement tool for assessing self-reported loneliness is the Revised University of California Los Angeles (R-UCLA) scale. The original scale consists of twenty items with a four-point Likert scale ranging from 1(never) to 4 (often).   The 11-item R-UCLA scale consists of eleven items but uses a 3-point Likert scale ranging from 1 (often) to 3 (hardly ever or never).   Among the 11 items, 4 questions are negatively worded and 7 are positively worded. The four questions that are reverse coded include "lack companionship," "left out." "Isolated from others" and "alone". Loneliness is measured by calculating the sum of scores across the 11 items. Higher scores indicate higher level of loneliness, however; there is no established clinical cut-point that indicates significant levels of loneliness (Lee & Cage, 2017). The Cronbach's alpha was 0.87.

VA Institutional Review Board (IRB) Determination

The VA Electronic Determination Aid (VAEDA) Portal was used to determine the level of research . This project was determined by the VAEDA as a "non-research study."

Data Collection

HBPC randomly selected 20 participants from enrolled veterans matching inclusion criteria although one of the participants was not able to participate. All participants were interviewed and the 11- Item R-UCLA Loneliness Scale survey via phone.   All data, including the 11- Item R-UCLA Loneliness Scale, and demographic data was de-identified and each completed 11-item R-UCLA Loneliness Scale scoring document was assigned a number, and

the Zip code of each participant was noted to aid in the determination of urban or rural. The

Demographic data was assigned the same number and code to match deidentified veterans

completed 11-Item R-UCLA Loneliness Scale. All data was stored in a secure HIPPA compliant

online data file.

Analysis

Demographics

Participants from the research VA Medical Facility HBPC enrolled veterans completed a

brief telephone survey including the 11-Item R-UCLA Loneliness Scale. The sample (N = 19)

consisted of veterans aged 65 years or older (mean age: 82.0; SD: 7.7667; range 71-99) who

are enrolled in the VA Grand Island, Nebraska HBPC program (Table 1). The majority of

participants lived in HRSA (HRSA, 2018) designated counties (68.42%) and 31.58% in urban

designated counties. The majority of the sample was male *N* =16 (84.21%), mean age 83.125

(SD: 7.779), white, non-Hispanic (100%) were married *N* = 7 (36.84%), widowed *N* = 8 (42.1%),

divorced *N* = 1 (5.26%), with non-family caregivers *N* = 6 (31.67%) and with family caregivers *N*

= 4 (21.1%). Of the female participants (mean age: 76.7; SD: 6.0277; range 71 – 83), white,

non-Hispanic (100%), married *N* = 1 (5.26%), divorced *N* = 2 (10.53%), and all had family

caregivers. Participants were from three war eras: World War II had one male participant

(5.26%), Korea Era males *N* = 4 (21.05%), and Vietnam Era (14: 73.68%). The three female

veterans served in the Vietnam Era.

Participants had a total of 391 comorbid diagnoses (mean: 20.578; SD: 7.43; range 9 –

34). Male participants had total of 298 comorbid conditions (mean: 18.625; SD: 5.3526; range 9

– 31); female participants totaled 93 (mean: 31; SD: 4.3589; range: 26-34). The top three of the

twenty-five diagnoses included Hypertension (HTN), Hyperlipidemia (HLD), and coronary artery

disease (CAD), Appendix A.   Prescription medications totaled 385 (mean: 20.263; SD: 7.43;

range: 9 – 34). Male participants had a total of 312 medications (mean: 19.5; SD: 7.5099; range: 9-32) and females had a total of 73 medications (mean: 24.333; SD: 6.6583; range: 20 – 32). Over the counter (OTC) medications totaled 50 (mean: 2.63; SD: 2.61, range 0 -11). Table 1.

Of the veteran participants who had MDD listed in comorbidities, all three females had diagnoses of MDD (mean: 0.1578; SD: 03746), and six males (mean: 0.3158; SD: 0.4776) diagnosed with MDD. Two participants had diagnosis of Anxiety; one male (SD: 0.2294) and one female (SD: 0.2294), one male was diagnosed with PTSD (SD: 0.294) and one male with Traumatic Brian Injury (0.2294).

Integral to the HBPC program is contact with the enrolled veterans and this was measured in the most recent 90 days in the participants EMR (10/01/2023 to 12/31/2023).   The HBPC APRN is required to make at least one visit to enrolled veterans every 90 days. The APRN made 26 visits (mean: 1.368; SD: 0.8307; range: 1 – 4), males received 23 visits (88.46%) and females 3 visits (11.54%). HBPC RNs made a total of 90 interactions/visits (mean: 4.736; SD: 3.724; range: 1-16), with males receiving 82 visits (91.11%). Female participants received 8 RN visits/interactions (3.33%). HBPC program requires Social Work to make at least 1 visit to enrolled veterans every 90 days which totaled 23 (mean:1.210; SD:1.436; range 0 – 4). Male participants received 18 (78.26%) of the total visits and female participants 5 visits (21.74%) of visits. HBPC Mental Health provided seven visits/interactions with female participants only (mean: 0.368; SD: 1.382; range: 0 – 6). Physical Therapy/Occupational Therapy made 17 visits/interactions (mean: 0.894; SD: 1.1002; range: 0 – 4) with males receiving 16 (94.11%) of the visits/interactions, and 1 (5.88%) female. HBPC Dietician had 13 visits/interactions (mean: 0.684; SD: 0.9459; range: 0 – 2) with males receiving all of the visits/interactions. HBPC Pharmacy had 30 visits/interactions with enrolled participants (mean: 1.578; SD: 2.6524; range: (0 – 11) with males receiving 29 (96.67%) of interactions and female visit/interaction 1 (3.33%). The number of visits/interactions with the

members of the HBPC team and the 19 participants in the 3-month period totaled 206 (mean: 1.549; SD: 2.372; range: 0-16).

11-Item R- UCLA Loneliness Scale Data

The 11-Item R-UCLA Loneliness Scale assesses components of loneliness. Each item is scored as "1" (hardly ever); "2" (some of the time); or "3" (often). Four questions of the eleven items are "reversed coded" which indicates higher loneliness.   The total score for all participants was 428 (mean: 22.53; SD: 3.776; range: 19 – 29). Male veterans total score 359 (mean: 22.438; SD: 3.915; range: 19 – 28), and female veterans total score 69 (mean: 23.0; SD: 3.606; range: 20 – 27). Within the individual questions (Table 2) with the highest score indicating loneliness among the participants was *"How much of the time do you feel a part of a group of friends?"* The total score 51 (mean: 2.684; SD: 0.582; range 1-3) with males scored 42 (mean: 2.6250; SD: 0.6191), and females total score 9 (mean: 3; SD: 0).

Results

There was no statistical difference between male or female rural veterans compared to urban male and female veterans (*p* - 0.222). There was no difference between gender and the war era (*p*- 0.376) or between gender and marital status *(p* - 0.6244). The category of caregiver was categorized to "yes" for caregiver or "no" for *p* value of 0.295. The number of contacts by HBPC staff for "In-Person" (HBPC APRN, RN, PT/OT and Social Worker), "By Phone" (HBPC Dietician, Pharm D) and the UCLA 11 scores for males, females or rural vs urban were not significant (Table 3). Married or not married, age, caregiver/no caregiver, HBPC contact in person or by phone and 11-Item R-UCLA Scale scores were not significant with the exception that age and contact by phone had p value of 0.077. Age was expected to be significant in comparison of WW II and Korea Era veterans in combined group compared to Vietnam Era veteran ages (p – 0.001).

Although the difference between gender and diagnosis of MDD is not significant (*p* - 0.087) it does appear that the MDD diagnosis is the driver of the combination of all mental health diagnosis as it has the same p- value. Individually, the diagnosis of PTSD (*p* - 0.842), anxiety (*p* - 0.298) and TBI (*p* - 0.842) were not significant. With MDD, PTSD, anxiety and TBI as a group of Mental Health diagnoses, in relationship with age, contact with HBPC staff, R-UCLA Loneliness Scale score there is no statistical difference. The diagnosis of MDD and the number of comorbidities has a large effect size (-1.139) which shows clinical significance and statistically significant *p* – 0.024 (Table 4). The number of prescriptions in the group of comorbidities with diagnosis of MDD showed a leaning towards statistical significance of *p* – 0.055.   For veterans who had a diagnosis of MDD, there was higher number of comorbidities, higher number of prescriptions (Table 5) and a correlation between an increase in the number of HBPC contacts with RN, Social Worker, Dietician and PharmD. The number of comorbidities with gender showed significance with female veterans having more comorbidities at *p* – 0.002. The older WWII and Korea Era veterans (Mean: 18.20) compared with Vietnam ERA (Mean: 21.43) had a lower number of comorbidities and the lower the UCLA 11 score with correlation at level 0.01 of *p* -.657.

There was significance found in Pearson Correlation of 0.05 (2 – tail level) of women veteran participants and contacts with HBPC SW *p* - .462; female veterans with MDD had higher rate of comorbidities *p* - .515; and veterans with diagnosis of PTSD used more contacts/interactions with HBPC staff (Table 5). Veteran diagnosed with Anxiety exhibited more contacts/interactions with HBPC MH staff *p* - .671.

Significance and Implications

The 11-Item R-UCLA Question 5, "How much of the time do you feel alone?" posed an unusual opportunity as several of the HBPC veteran participants requested that the interviewer elaborate on what "alone" meant in the survey. The meaning was described to participants

"being alone or lonely because there was a lack of social connections". Seven of the fourteen Vietnam Era veteran participants stated that they "preferred to be alone" as the choice to be alone was "easier", and "most people don't understand". This maybe unique to the Vietnam Era veterans as they did not have the same experience as WWII and Korea Era veterans of returning to U.S. as a "bonded group" but rather as independent returnees without a socially cohesive group. This is reflected in the 11-Item R-UCLA Loneliness mean scores for Vietnam males 23.4546 (SD: 4.2747; range: 15-29), Vietnam Era female mean score 23 (SD: 3.6055; range: 20 – 27) compared to Korea Era veteran mean scores of 20.5 (SD: 1.732; range 19 – 23) and WWII Era veteran mean score 19. The combined WWII and Korean Era veterans has a significantly lower 11- Item R-UCLA scores. This difference may possibly be related to Joan Erickson's 9th Stage of development (Brown & Lowis, 2003) that the older adult in their 80's and 90's are involved with the awareness of both physical and mental decline and may no longer have the comfort of retrospective despair. If the older adult can come to terms with their life experiences of decline in the ninth stage, they may be successful in achieving gero-transcendence on multiple dimensions including solitude, coherence, and well-being.

This study of HBPC veterans found that there was not a correlation between comorbidities and high 11-Item R-UCLA Loneliness Scale scores. However, there is a strong correlation between a diagnosis of MDD and the aggregate of MDD, PTSD, Anxiety and TBI into Mental Health grouping which had the same statistical *p* value as MDD alone. The diagnosis of MDD showed clinical significance with high number of comorbidities, higher prescription usage and higher contacts with HBPC programs.

Recommendations

The Veterans Health Administration is one of the largest healthcare providers for a population of older Americans. Although this study is limited to a small HBPC program in the Midwest, it does provide confirmation that HBPC veterans have a higher incidence of comorbid

illnesses than the general population. The older veterans' illnesses that are related to their

military experiences, and higher comorbid conditions in addition to their already homebound

isolated status than non-military older adults. The HBPC program veterans are the VA's most

vulnerable veteran population, and this study has provided evidence that the oldest of the older

veterans are not as lonely as may have been previously thought; however, there is higher

loneliness in the Vietnam veterans indicating we need to direct more attention to this population.

Appendix A

Top Diagnosis of Participants

Diagnosis	Number of Participants with Diagnosis
Hyperlipidemia (HLD)	17
Hypertension (HTN)	16
Coronary Artery Disease (CAD)	11
Arthritis	10
Diabetes Mellitus Type 2 (DM2)	10
Gastroesophageal Reflux Disease (GERD)	10
Hearing Loss	10
Major Depressive Disorder (MDD)	9
Low Back Pain (LBP)	9
Obesity	9
Chronic Kidney Disease (CKD)	7
Vitamin D Deficiency	7
Atrial Fibrillation (AF)	6
Male Incontinence	6
Obstructive Sleep Apnea (OSA)	6
Benign Prostate Hypertrophy (BPH)	6
Hypothyroidism	5
Congestive Heart Failure (CHF)	5
Congestive Obstructive Pulmonary Disease (COPD)	4
Cerebral Vascular Accident (CVA)	4
Essential Tremor	4
Insomnia	4
Mild Cognitive Impairment (MCI)	4
Venous Insufficiency	4

References

Beales, J. L., & Edes, T. (2009). Veteran's affairs home-based primary care. *Clinical Geriatric*

Medicine, 25,149-154. doi: 10.1016/j.cger.2008.11.002

Blazer, D. (2020). Social isolation and loneliness in older adults: A mental health/public health

challenge; Viewpoint. *JAMA Psychiatry,77*, 990- 991.

https://doi:10.1001/jamapsychiarty.2020.1054

Brown, C., & Lowis, M. J. (2003). Psychosocial development in the elderly: An investigation into

Erickson's ninth stage. *Journal of Aging Studies, 17*(4), 415 -426.

https://doi.org10.1016/50890-4065(03)00061-6

https://doi.org/10.1016/j.jagp.2020.08.005

Haverhals, L. M., Manheim, C., Gilman, C., Karuza, J., Olsan, T., Edwards, S.,

Levy C. R., & Gillespie, S. M. (2019). Dedicated to the mission: Strategies

U.S. Department of Veterans Affairs Home-Based Primary Care teams apply to

keep veterans at home. *Journal of American Geriatrics Society, 67*(12),

2511-2518. https://doi.org/10.1111/jgs.16171

Health Resources and Services Administration, (2018). *List of rural counties and designated*

Eligible census tracts in metropolitan counties updated census, 2010.

hrsa.gov/sites/default/files/hrsa/rural-health/resources/forhp-eligible-areas.pdf

Holt-Lunstad, J., & Perissinotto, C. (2023). Perspective: Social isolation and loneliness as

Medical issues. *New England Journal of Medicine,388*(3), January 19, 2023.

Hughes, M. E., Waite, L. J., Hawkley, L. C., & Cacioppo, J. T. (2004). A short scale for

measuring loneliness in large surveys: Results from two-population-based studies.

Research on Aging, 26, 655-672. doi: 10.1177/0164027504268574

Kuwert, P., Knaevelsrud, C., & Pietrzak, R. H. (2014). Loneliness among older veterans in

the United States: Results from the National Health and Resilience in Veterans Study.

America Association for Geriatric Psychiatry, 22, 564-569. http://dx.doi.org/

10.1016/j.jagp.2013.02.013

Lee, J., & Cagle, J. G. (2017). Validating the 11-Item Revised University of California

Los Angeles Scale to assess loneliness among older adults: An evaluation of factor

Structure and other measurement properties. *American Association for Geriatric*

Psychiatry, 25(11). https://doi.org/10.1016/j.jagp.2017.06.004

Lieberman, M. D. (2013). *Social: Why our brain are wired to connect.* Broadway Books.

ISBN: 978-0-307-88910-2.

Luo, Y., Hawkley, L. C., Waite, L. J., & Cacioppo, J. T. (2012). Loneliness, health, and

mortality in old age: A national longitudinal study. *Social Science & Medicine, 74*.

https://doi:10.1016/j.socscimed.2011.11.028

Pearson, T. (2019). Loneliness in adults: Evidence-based research and interventions for NP's.

The Nurse Practitioner, *44*, 26-34. doi: 10.1097/01NPR.0000577952.12101.78

Taylor, H. O. (2019). Social isolation's influence on loneliness among older adults.

Clinical Social Worker Journal, 48, 140-151.

https://doi.org/10.1007/s10615-019-00737-9

Teo, A. R., Marsh, H. E., Forsberg, C. W., Nicolaidis, C., Chen, J I., Newsom, J., Sah, S., &

Dobscha, S. K. (2018). Loneliness is closely associated with depression outcomes and

suicidal ideation among military veterans in primary care. *Journal of Affective*

Disorders, 230, 42-49. https://doi.org/10.1016/j.jad.2018.01.003

U. S. Census Bureau. (2020). QuickFacts: Grand Island city, Nebraska.

https://www.census.gov/quickfacts/fact/table/grandislandcitynebraska

Young, S. N. (2008). Editorial: The neurobiology of human social behavior: An important but

neglected topic. *Journal of Psychiatry Neuroscience, 33*(5), 391-2.

Table 1

Demographic Data

Characteristics	Total	Male	Female
Age	19 (M: 82; SD: 7.7667)	16 (M:83.125; SD;7.7792)	3 (M:76.67; SD: 6.0277)
Ethnicity: Caucasian	19 (100%)		
HRSA Rural County	13 (68.42%	11 (57.89%)	1 (5.26%)
HRSA Urban County	6 (31.58%)	3 (15.79%)	2 (10.53%)
War Era Designation			
WW II Era	1 (5.26%)	1 (5.26%)	
Korea Era	4 (21.05%)	4 (21.05%)	
Vietnam Era	14 (73.68%)	11 (57.89%)	3 (15.79%)
Maital Status			
Married	8 (M:0.421; SD:0.5073	7 (36.84%)	1 (5.26%)
Widowed	8 (M: 0.421; SD:0.5073	8(42.11%)	
Divorced	3 (M:0.157; SD:0.3746	1(5.26%)	2 (10.53%)
Residence			
Home/apartment	11 (M: 0.578; SD: 0.5073)	8 (42.11%)	3 (10.53%)
Apartment	6 (M:0.316; SD: 0.4776)	6 (31.57%)	
Other	2 (M:0.105; SD: 0.3153)	2 (10.53%)	
Caregiver Support: includes Spouse, Relative or Agency			
Family Caregiver	7 (M: 0.368; SD: 0.4956)	4 (21.05%)	3 (10.53%)
Outside Agency Caregiver	6 (M: 0.316; SD: 0.4776)	6 (31.57%)	
HBPC Visits	206 (M: 1.549; SD: 2.372)		
APRN visits per 3 months.	26 (M: 1.368; SD: 0.8307)	23 (88.46%)	3 (11.54%)
RN visits per 3 months.	90 (M: 4.736; SD: 3.7244)	82 (91.11%)	8 (3.33%)
Social Work visits per 3 months.	23(M:1.210; SD: 1.4368)	18 (78.26%)	5 (21.74%)
OT/PT visits per 3 months.	17 (M: 0.894; SD: 1.1002)	16 (94.11%)	1 (5.88%)
Dietitian visits per 3 months.	13 (M: 0.684; SD: 0.9459)	13 (100%)	
Mental Health visits per 3 months.	7 (M: 0.368; SD: 1.3829)	1 (14.29%)	6 (85.71%)
PharmD visits per 3 months.	30 (M: 1.578; SD: 2.6524)	29 (96.67%)	1 (3.33%)
Comorbid Diagnosis	391 (M: 20.263; SD: 7.429)	298 (M:18.625; SD: 5.3526)	93 (M: 31; SD: 4.3589)
Number of Active prescriptions	385 (M: 20.263; SD: 7.429)	312 (M: 19.5; SD: 7.509)	73 (M: 24.33; SD: 6.6583)
Number OTC prescriptions	50 (M: 2.631; SD:2.6079)	44 (M: 2.75; SD:2.768)	6 (M:2; SD: 1.732)
Diagnosed Major Depressive Disorder	9 (M: 0.474; SD: 0.5130)	6 (M: 3158; SD: 0.4776)	3 (M: 0.1578; SD: 0.3746)
Diagnosed Anxiety	2 (M: 0.105; SD: 0.3153)	1 (50%)	1 (50%)
Diagnosed Post Traumatic Stress Disorder (PTSD).	1 (M: 0.053; SD: 0.2294	1 (100%)	
Diagnosed Traumatic Brain Injury (TBI).	1 (M: 0.053; SD: 2294)	1 (100%)	

Table 2

11-Item R- UCLA Loneliness Scale Scores

11-Item R-UCLA Questions: *How much of the time do you feel…?*	Total Score	Males	Females	Frequency
Q 1. You lack companionship? *	**38** (Mean:2.0: SD:0577)	**32** (Mean: 2; SD: 0.63245)	**6** (Mean: 2; SD:0)	*1-Hardly: (3) 15.79% *2-Some: (13) 68.42% *3-Often: (3) 15.29%
Q 2. Left out? *	**36** (Mean:1.94; SD: 0.658)	**29** (Mean 1.875; SD: 0.543906)	**7** (Mean: 1.813: SD: 1.1547)	*1-Hardly: (5) 26.31% *2-Some: (11) 57.89% *3-Often: (3) 15.79%
Q 3. Isolated from others? *	**37** (Mean: 1.947; SD: 0.705)	**30** (Mean:1.875; SD: 0.7188)	**7** (Mean: 2.333: SD: 1.157)	*1-Hardly: (5) 26.31% *2-Some: (10) 52.63% *3-Often: (4) 21.05%
Q4. That you are "in-tune" with the people around you?	**38** (Mean: 2.0; SD: 0.745)	**32** (Mean: 2.0; SD: 0.7303)	**6** (Mean: 2.0; SD: 1.0)	1-Never: (5) 26.31% 2-Some: (9) 47.36% 3-Hardly (5) 26.31%
Q 5. Alone? *	**38** (Mean: 2.0; SD: 0.7303)	**32** (Mean: 2.0; SD; 0.7303)	**6** (Mean: 2.0; SD; 0)	*1-Hardly: (4) 21.05% *2-Some: (11) 57.89% *3-Often: (4) 21.05%
Q 6. That there are people you can talk to?	**36** (Mean: 2; SD: 0.658)	**33** (Mean: 2; SD: 0.5737)	**3** (Mean: 1; SD: 0)	1-Often: (5) 26.31% 2-Some: (11) 57.89% 3-Hardly: (3) 15.79%
Q 7. That there are people you can turn to?	**39** (Mean: .053; SD: 0.705)	**34** (Mean: 2.00; SD: 0.7188)	**5** (Mean: 1.667; SD: 0.5774)	1-Often: (4) 21.05% 2-Some: (10) 52.63% 3-Hardly: (5) 26.31%
Q 8. That there are people that really understand you?	**42** (Mean: 2.210; SD: 0.631)	**35** (Mean: 2.1875; SD:)	**7** (Mean: 2.333; SD: 0.5774)	1-Often: (2) 10.53% 2-Some: (11) 52.63% 3-Hardly: (6) 31.38%
Q 9. That there are people you feel close to?	**34** (Mean: 1.789; SD: 0.631)	**28** (Mean: 1.75; SD: 0.6831)	**6** (Mean: 2.; SD: 0)	1-Often: (6) 31.58% 2-Some: (11) 57.89% 3-Hardly: (2) 10.53%
Q 10. Part of a group of friends?	**51** (Mean: 2.684; SD: 0.582)	**42** (Mean: 2.625; SD: 0.6191)	**9** (Mean: 3; SD: 0)	1-Often:(1) 5.26% 2-Some (4) 21.05% 3-Hardly:(14) 73.68%
Q 11. That you have a lot in common with the people around you?	**40** (Mean: 1.789; SD: 0.459)	**34** (Mean: 2.150; SD: 0.50)	**6** (Mean: 2; SD; 0)	1-Often: (1) 5.26% 2-Some: (15) 78.95% 3-Hardly: (3) 15.79%

- Reversed coding (higher scores indicates greater loneliness.

Table 3

Gender- Rural and Urban

Crosstab		Rural	Not Rural	Total	
Gender	Male	12	4	16	
	Female	1	2	3	
Total		13	6	19	

Chi-Square Test Gender Rural Urban

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	2.030[b]	1	0.154		
Continuity Correction[b]	0.559	1	0.454		
Likelihood Ration	1.885	1	0.170		
Fischer's Exact Test				0.222	0.222
Linear-by-Linear Association	1.923	1	0.166		
Number of Valid Cases	19				

[b] computed only for 2 x 2 table

Gender and MDD

		No MDD	Yes MDD	Total	
Gender	Male	10	6	16	
	Female	0	3	3	
Total				19	

Chi-Square Tests Gender - MDD

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	3.958[b]	1	0.047		
Continuity Correction[b]	1.848	1	0.174		
Likelihood Ration	5.117	1	0.024		
Fischer's Exact Test				0.087	
Linear-by-Linear Association	3.750	1	0.053		
Number of Valid Cases	19				

[b] computed only for a 2x2 table

Table 4

Diagnosis of MDD, Comorbidities, Prescriptions, Over the Counter Medications

Group Statistics

Dx of MDD		N	Mean	Std. Deviation	Std. Error Mean
Comorbidities	No	10	17.30	6.308	1.995
	Yes	9	24.22	5.805	1.935
Prescription	No	10	17.20	5.846	1.849
	Yes	9	23.67	7.810	2.603
OTC	No	10	3.00	2.981	0.943
	Yes	9	2.22	2.224	0.741

Independent Samples Test MDD, Comorbidities, Prescriptions

		Levene's Test for Equality of Variances				Significance		t-test for Equality of Means	
		F	Sig.	t	df	1-Sided	2-Sided	Mean Difference	Std. Error Difference
Comorbidities	Equal Variance Assumed	0.012	0.914	-2.479	17	0.012	0.024	-6.922	2.792
	Equal Variance Not Assumed			-2.491	16.986	0.012	0.023	-6.922	2.779
Prescriptions	Equal Variance Assumed	1.475	0.241	-2.057	17	0.028	0.055	-6.467	3.143
	Equal Variance Not Assumed			-2.025	14.765	0.031	0.061	-6.457	3.193
OTC Prescriptions	Equal Variance Assumed	0.037	0.850	0.638	17	0.266	0.532	0.778	1.218
	Equal Variance Not Assumed			0.649	16.481	0.263	0.526	0.778	1.199

Table 5.

Pearson Correlation

Variable 1	Gender	HBPC APRN	HBPC RN	HBPC SW	HBPC MH	HBPC PT/POT	Total HBPC Contacts	Co-morbid	Pre-scrimption
HBPC Mental Health Female	.525*			.462*					
Diagnosis of MDD	.456*						.515*	.	
Diagnosis of PTSD		.476*	.732**			.683**			
Diagnosis of Anxiety					.671**				
Aggregate MH Diagnosis								.469*	.613**

*Correlation is significant at the 0.05 level (2 - tailed)

**Correlation is significant at the 0.01 level (2 - tailed)