

### ABSTRACT

This study focuses on older adults and how their decline in physical health is related to a decline in their mental health. This study looked at how three aspects of physical health, pain, chronic illness, and functional impairment, were linked to mental health in the form of depression. This study was based on a secondary dataset that was retrieved from the Medicare health Outcomes Survey (HOS) which used random sampling to recruit their participants of adults that were 55 years and older from Medicare Advantage Organizations (MAOs). The original study gathered data by telephone and mail surveys in English, Spanish, and Chinese. The original study was a longitudinal study that consisted of a baseline and follow-up survey two years later that was conducted over 15 cohorts. However, this study only utilized data from the baseline study in the 2012 cohort. The hypothesis that there would be a positive relationship between each aspect of physical health and depression was supported. When pain, chronic illness, and functional impairment increased, so did the reports of experiencing depression. This study is important to the field of social work because understanding the relationship between physical and mental health can help social workers to better treat their older adult clients. Social workers often must also work in interdisciplinary teams, and with the knowledge of how physical and mental health are connected, social workers can inform their teams and create more effective holistic care for their clients who are treated by multiple health professionals.

### INTRODUCTION

#### Significance of the Study

- Depression is the most common mental illness among older adults and is the leading cause of disability among the aging population (Polacek, Boardman, McCann, 2019).
- In 2016, there were about 49.2 million older adults aged 65 and over and more than half of that population was between the ages of 65 and 74 (Roberts, Ogunwole, Blakeslee, & Rabe, 2018).

#### Purpose of the Research

- This study focuses on how the decline in physical health, as defined by pain, chronic illness, and functional impairment, were related to a decline in older adults' mental health.

#### Research Question

- What is the relationship between pain, number of illness, and functional impairment on depression among older adults?

#### Hypothesis

- Among older adults, there will be a positive relationship between depression and pain, number of illnesses, and functional impairment.

### LITERATURE REVIEW

#### Depression

- Older adults who suffer from depression are more likely to be admitted to the hospital and twice as likely to die in the hospital than their nondepressed counterparts (Prina et al., 2012)

#### Pain

- Research has shown that regardless of the site or cause of pain, severe pain can cause emotional and physical distress, low self-rated health, and physical disability (Bruckenthal, Reid, Reisner, 2009).

#### Number of Illnesses

- Research shows that over 50% of older adults reported having three or more chronic illnesses which is associated with higher rates of death, disability, adverse effects, and poorer quality of life (Harpole et al., 2005)

#### Functional Impairment

- Studies have shown 20-40% of older adults need assistance with ADLs (bathing, dressing, eating, getting in and out of chairs, walking, and using the toilet) (Jahn & Cukrowicz, 2012).

#### Gaps and Limitations

- Little research on effects of all three factors: pain, functional impairment, and number of illnesses on depression in the same study.

### METHODOLOGY

#### Research Design and Data Collection Procedures

- This study is a secondary analysis of the data from the Medicare Health Outcomes Survey (HOS) in 2012.
  - The original study was a longitudinal study that used a baseline survey and a follow-up survey two years later. The study ran from 1998 to 2014 with a total of 15 cohorts. This study used the baseline survey from 2012, cohort 15.
  - Participants for the study were randomly selected from the Medicare Advantage Organizations (MAOs) and were recruited by mail and telephone.
  - Interviews were conducted in person and by mail in English, Spanish, or Chinese.
- #### Sample and Sampling Method
- Participants were aged 55 and over.
  - The current study used the entire baseline sample from 2012 (N=296,320) which was based on a randomly selected sample of individuals from participating MAOs.
  - Respondents from the previous year's baseline were excluded from ongoing cohorts.

#### Measures

##### Pain

- This study defines pain as pain that interferes with normal work.
- Pain was measured on a Likert Scale that was coded as (1)=Not at all, (2)=A little bit, (3)=Moderately, (4)=Quite a bit, (5)=Extremely in regard to pain interfering with work.

##### Number of Illnesses

- This study defines the number of chronic illnesses as a cumulative number of illnesses that they are currently living with.
- The number that the respondents score directly reflects the number of illnesses they have. Respondents could score from 0 (no illnesses) up to 13 (all the illnesses listed).
- The original data set showed a Yes/No response to each of the chronic illnesses as separate questions. This study combined all the illnesses into one measure and recoded the Yes as (1) and No as (0). This way, the number of illnesses in this study would be reflected by the number scored.

##### Functional Impairment

- This study defines functional impairment as difficulty with daily tasks in 6 areas: bathing, dressing, eating, getting in/out of chairs, walking, and toileting.
- Participants' responses were reverse-coded and summed to create a scale. The scale ranges from 0 (no difficulty with any of the activities) to 12 (unable to do all of the activities).

##### Depression

- This study defined depression as a participant experiencing depression in the last year.
- The survey asked respondents, "In the past year, have you felt depressed or sad much of the time?" This was a yes or no question where (1)=Yes and (2)=No. It is self-reporting as well. It has more items though.

### RESULTS

#### Chi-Square Test

- A chi-square test was calculated to compare the amount of pain that interfered with normal work by past year depression, as shown in Table 2.
- This test found a significant association ( $\chi^2(4) = 43778.88, p < .001$ ), and a Cramer's V test suggested the relationship was strong (0.41).
- Figure 1 and Table 2 show the degree and frequency of depression in the past year and the categories of pain interfering with normal work.

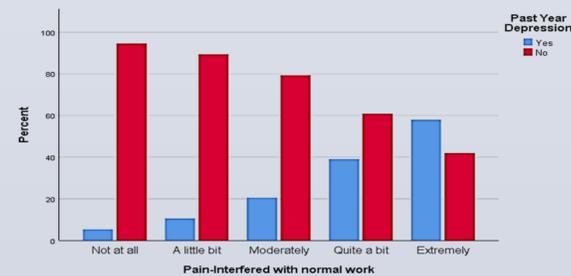


Figure (1). Pain-interfered with Normal Work by Past Year Depression

Table (2)

Amount of Pain-Interfered with Normal Work by Past Year Depression

Pain Interfered with Normal Work	Past Year Depression % (f)	
	Yes	No
Not at all	5.50 (4062)	94.50 (70122)
A little bit	10.60 (7170)	89.40 (60570)
Moderately	20.70 (9928)	79.30 (38088)
Quite a bit	39.10 (18799)	60.90 (30825)
Extremely	58.00 (12433)	42.00 (9020)

Table 1

Descriptive Analysis of Characteristics

Characteristic	f	%
Age groups		
Less than 65	44266	14.9
65 to 74	149961	50.6
75 and older	102093	34.5
Race groups		
White	205534	69.4
Black or African American	29591	10.0
Other	19996	6.7
Gender		
Male	121057	40.9
Female	164112	55.4
Education level		
Less than a high school education or GED	63303	24.1
High school education or GED	91232	30.8
Greater than a high school education or GED	108303	36.5
Marriage Status		
Married	135192	45.6
Non-married	129244	43.6
BMICAT		
Not obese (BMI < 30)	173375	58.5
Obese (BMI >= 30)	83911	28.3
General Health Question		
Excellent	17491	5.9
Very good	64323	21.7
Good	99681	33.6

#### Independent T-Test

An independent-samples *t* test was run to compare the mean score of participants' numbers of illnesses to the mean score of participants who reported they had or had not experienced depression in the past year.

A significant difference was found ( $t(74542.55) = 125.11, p < .001$ ). The mean number of illnesses for those who had experienced depression in the past year ( $M = 3.64, SD = 2.29$ ) was significant different from the mean number of illnesses for those who had not experienced depression ( $M = 2.31, SD = 1.99$ ).

Another independent-samples *t* test was run to compare the mean score of participants' functional impairment to the mean score of participants who reported they had or had not experienced depression in the past year.

A significant difference was found here as well ( $t(67148.22) = 149.28, p < .001$ ). The mean number of functional impairment for those who had experienced depression in the past year ( $M = 2.85, SD = 2.79$ ) was significant different from the mean number of functional impairment for those who had not experienced depression ( $M = 0.96, SD = 1.88$ ).

Table 3 shows the results of both the mean of total number of illnesses and mean of functional impairment for depressed and not depressed participants.

Table (3)

Results of T-Test Comparing the Mean of Total Number of Illness and Functional Impairment

Between Depressed and Not Depressed Participants

Depression	Yes		No		t	df	p
	M	SD	M	SD			
Total Number of Illness	3.64	2.292	2.31	1.895	125.109	74542.554	.001
Functional Impairment	2.85	2.788	.96	1.875	149.275	67148.218	.001

### DISCUSSION

#### Summary of Findings

This study's hypotheses that there would be a positive relationship between pain, number of illnesses, and functional impairment and depression was supported by the study's major findings. Those who reported pain interfering with normal work were more likely to have experienced depression in the last year. Participants who had more chronic illnesses were more likely to have experienced depression in the past year. Similarly, participants who scored higher for functional impairment were more likely to have experienced depression in the past year.

#### Implications for Research and Practice

- This study is valuable because of the link between mental and physical health that is studied. In order to effectively treat older adults, how their physical health and mental health are connected must be understood.
- This study is also relevant to the field of social work because many social workers are part of interdisciplinary teams. Social workers sharing the knowledge of the relationships between physical and mental health would better the clients'/patients' holistic care.

#### Strengths and Limitations

##### Strengths

- Data and sample are reliable as the participants were randomly selected and many languages were provided during interviews so that results could be generalizable to include participants with diverse backgrounds.
- This study's findings are aligned with similar research findings.

##### Limitations

- Data collected was self-reported.
- This study cannot prove causation as it used a cross-sectional piece of data.

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