

Do we need a depression screening tool for men?

Abstract

Depression is the most commonly diagnosed mental illness worldwide and the leading cause of disability among developed nations. Suicide, the most severe outcome of depression, is the United States' 10th leading cause of death and 7th leading cause of death among males who outnumber female suicide deaths at an average 4 to 1 ratio. Since depression is implicated in almost all suicides, recommended to screen for in all individuals aged 12 and up, identified predominantly in primary care practices (PCP), underrecognized, often incorrectly diagnosed in PCPs, and manifests itself differently in males, this study presents the need for a depression screening assessment for men with a literature review and qualitative interviews of six professional healthcare providers affiliated with Men's Health Network. It is hypothesized that interview participants will support a gender specific screening assessment based on the extensive literature documenting differences in male and female depression. The participant sample referenced all six male specific depression symptoms: alcohol and substance abuse, occupational dysfunction, withdrawal, appetite or weight decrease, aggression, impulsivity, irritability, and lower scores on all depression assessments. Differences reported by participants and not by the literature review include erectile dysfunction and concealed-type depression. Overall participants referenced more male (22) than female (13) clinical presentations of depression, risk factors (15M, 14F), and showed overwhelming support for a gender specific depression screening tool; four of six participants referenced men specifically when answering this gender-neutral question. This study provides an academically and clinically compelling stance to continue articulating the need for a male specific screening assessment through larger, more diverse quantitative studies. It is recommended that alcohol and substance abuse, erectile dysfunction, social withdrawal, appetite or weight decrease, aggression, impulsivity, irritability, and concealed depression be evaluated for roles in a nationally recognized male screening assessment for depression.

Background

Depression is the most commonly diagnosed mental illness worldwide and the leading cause of disability among developed nations (“Depression” 2016, Kravitz 2011, Mathers and Loncar 2006). Globally, 300 million people are affected by depression and unfortunately depression is growing in magnitude making this a serious public health issue (Depression, 2016). Major depressive disorder (MDD) is characterized by the WHO’s International Classification of Diseases (ICD) and the Centers for Disease Control and Prevention (CDC) as reduced concentration, experiencing a loss of interest in previously enjoyable activities, being sad or anxious most of the time, a variety of somatic symptoms, feeling guilty or worthless, and experiencing suicidal thoughts (Pratt 2014, World Health Organization 2016). With respect to disability- adjusted life years (DALYs)- the sum of life years lost (YLL) and years lived with disability (YLD)- depression ranks fifth behind heart disease, COPD, low back pain, and lung cancer, and among mental and behavioral DALYs, depression ranks highest (Murray 2013). Between 2009 and 2012, 7.6% of Americans aged 12 years and older experienced moderate or severe depressive symptoms in the past two weeks (Siu 2016).

The Diagnostic and Statistical Manual of Mental Disorders (DSM) reports that depression causes social and occupational impairment, is independent of the psychological effects caused by substance abuse or other medical condition, is not related to the schizophrenia or psychotic disorder spectrum, and has never been accompanied by a manic or hypomanic episode (American Psychiatric Association 2013). Not limited to these psychological symptoms, depression is a highly comorbid disease with those afflicted exhibiting higher rates of chronic disease, increased utilization of health care, functional impairment, employment loss, a variety of marital dysfunctions, and a loss of education (Pratt, 2014, Kessler 2012). In 2011, lost productivity due to depression in the United States was associated with depression cost an estimated \$23 billion (Pratt). In 2000, Kessler attributed this total monetary cost to suicide mortality (31%), direct medical cost (7%), and workplace cost (62%) (Kessler 2003).

Most commonly, depression is diagnosed by primary healthcare providers or non-specialty physicians who perform routine checkups. In fact, more than 50% of clinical depression fails to be recognized in a primary care clinic, and only 40% of those with a depressive disorder are correctly diagnosed. This is an unfortunate finding given that depression leads to impaired social and occupational functioning and at its worst, can result in suicide (Kravitz 2011, Siu 2016, Williams 1995, Walinder 2001). Furthermore, those who have been diagnosed are characterized by delays in receiving treatment ranging from 1 to 14 years disposing an individual to increasingly poorer health outcomes as treatment is delayed (Jorm 2012). Depression screening during a clinical encounter also represents a key prevention opportunity to educate, diagnose, and possibly treat depression especially if physicians are aware of key epidemiological findings. Unfortunately, for the most severe outcome of depression, suicide, those with a recent attempt history have been shown to be more likely to utilize emergency departments rather than primary care clinics (Ballard 2014).

In the United States, females outnumber men in depression diagnoses, and the epidemiological evidence is not sparse (Berger, Vredenburg, Salokangas, Angst, Goodwin, Weissman). This finding has been consistent for decades and is also present in every country studied by Van de Velde's and Weissman's studies evaluating 23 and 10 countries respectively (Van de Velde, Weissman) However, the suicide trends are paradoxical; men die by suicide at about four times the rate of women in the United States (CDC 2015). On the other hand, the risk of suicidal ideation, attempting suicide with a plan, and attempting suicide without a plan is higher in females than males (Kessler 1999). Regardless, suicide is the second leading cause of death among those aged 18 to 24 years of age, and those who attempt or die by suicide, leave a heavy emotional burden for those in intimate contact with the suicidal individual and may dispose their loved ones towards mood disorders and suicidal behavior in turn (CDC).

Globally it is estimated that depression led to the suicide of roughly 800,000 people in 2015 (Switzerland 2016). Depression has been established as a major risk factor for suicide, especially since depressive symptoms often include guilt, failure, hopelessness, sadness, grief, anger, and other painful, distressing emotions (United States 2015). Suicide is a major public health problem that the Former Surgeon General Dr. Satcher has commented on frequently about its preventability given the proper resources and it being "everybody's business" (James 2012). Studies often employ post mortem psychological autopsies to study those who died by suicide. Dumais' found that among those who had committed suicide 60% had a history of depression (Dumais 2005). Rao and Weissman similarly found that in a sample of 427 adults assessed with mental disorders during childhood, all seven subsequent suicides came from the depressed subgroup (Rao 1993).

Using the CDC's 2014 Mortality Table, the state of suicide in the United States is characterized by Figures 2 through 6 found in Appendix A (LCWK1, 2016). Figures 2, 3 and 4 illustrate the gender disparity using suicide mortality, crude mortality rates (CMR), mortality gender ratios, and CMR ratios (CMRR) by gender. Figure 1 shows that most suicide deaths occur in the 50- 54 age group, while the fewest number of deaths occur in the 10 -14 age group. A sharp increase in suicide deaths is visible from the 10-14 to the 20-24 age group. A gradual decline in total suicide mortality is witnessed as age increases from 50-54 years. However, the proceeding graph provides a different picture of suicide through the crude mortality rates, where the age groups 80- 84 years and 85+ are at the highest risk for suicide with rates exceeding 35 deaths per 100,000 individuals. As shown in Figure 4, peaks in male to female CMRR occur at 20- 24 years (~4:1) and 85+ years (~11:1) with the highest ratios occurring at ages 70 upwards. The gender disparity is lowest in ages 45- 59 (~3:1). From this information, it is evident that some age groups are at a greatly increased risk in males compared to females. It is surprising and dismal to note that elderly men are at such a high risk for suicide compared to their female counterpart.

As reported by the CDC, Figure 5 displays the United States' top ten causes of death and their gender specific crude mortality rates during the year 2014. The highest mortality rates are attributed to diseases of the heart, while the lowest mortality rates are attributed to suicide; however, in the top ten causes of death for men, suicide ranks number 7. In Figure 6, the

overall male to female crude mortality rate ratios (CMRR) for each top ten cause of death are displayed showing the largest gender disparity in mortality: suicide, which is about twice as high as the next highest ratio, unintentional injuries or accidents. This observation is not random, but rather due to several factors, one of which this investigation aims to examine and provide a foundation for quality improvement.

The gender disparity in suicide mortality is unacceptable and should be a priority for the healthcare provider, researcher, and policy maker. Unfortunately, the suicide trend in males has gathered little attention or prevention effort and has been treated as “natural and inevitable” as described by Bilsker (2011). No other top ten cause of death is characterized by the massive gender disparity that is suicide. Several theories exist to explain the apparent suicide disparity. One theory posits that men are more likely to use firearms because of gender socialization making men more comfortable with violence and firearm use in general. Joiner discusses this further as the capability to commit suicide in his interpersonal theory of suicide (Van Orden 2010). Other sources have indicated that men underutilize healthcare resources compared to the rate of female utilization and are therefore less likely to receive the proper treatment and care in a timely fashion. Finally, several researchers have posited that males experience a syndrome of depression that is totally unlike that of females who experience a more emotional and inward type of depression that is characterized by emotional expression, rumination, and more overt indicators of a mood disorder (Mintz 1990, Vredenburg 1986). Males will distract from their adverse emotional symptoms because depression is incongruent with gender socialization of males as strong, independent, providing, and physically tough individuals (Rochon 2009). Furthermore, mental illness remains stigmatizing, especially for men. Hammen’s study of college students evaluating male and female characters exhibiting depressive symptomatology found that the male characters were overall rated more negatively than the female character, and the male character was also perceived as more disturbed, rejected, and impaired, though not significantly (Hammen 1977). The previous study sheds light on the way stigma may influence gender differently and in turn, impede a male from pursuing treatment and accepting the presence of a serious illness. Males have been historically socialized with gender norms such as “Be a man,” “Suck it up,” and “Boys don’t cry,” which reflect the lack of proactive healthcare utilization by males and the distracted, externalized depression, which many studies have postulated define the male depressive experience.

The sociological theory that men exhibit an externalized depression syndrome was inspired partly by Egeland’s study of mood disorders in the genetically homogenous Old Amish Order made up of roughly 12,000 people. In this population, researchers found that unipolar and bipolar depression were equally distributed among both genders, which is consistent for bipolar depression prevalence but contrary to the gender distribution of “unipolar” depression: the form of depression this study examines. Researchers attributed the equally distributed unipolar depression to the society’s lack of substance abuse and antisocial behavior (Egeland 1983). The thought that these constructs and others similar might be confounding the depression gender disparity in the general population due to their social acceptance as gender normative led to research investigating other externalizing behaviors like alcoholism and overt behaviors such as antisocial personality disorder, anger, and violence. If depression can be

extrapolated from these masking behaviors for what they are by healthcare professionals, those in intimate contact with the individual, and by the afflicted themselves, then the appropriate action to diagnose, encourage help seeking behavior, and healthcare proactivity can be realized, respectively.

Literature Review

The United States Preventive Services Task Force's (USPSTF) 2016 recommendation to screen all individuals aged 12 and up represents a unique opportunity to re-evaluate the manner which primary care providers screen for depression. It also represents a way to prevent future complications of this prevalent mood disorder (Siu 2016, Forman-Hoffman 2016). Currently, screening tools include self-report assessments like the PHQ- 9 (Patient Health Questionnaire- 9), BDI (Beck Depression Inventory), CESDS (Center for Epidemiologic Studies Depression Scale), and others that assess an individual's past and present mood to measure their average state of depression. Based on the epidemiological evidence, it is possible that the current screening tools used to diagnose depression inadequately assess depression in males, which, has been established as a syndrome of externalized behavior and male specific mood presentation. A number of behaviors and findings unique to the male depressive experience have been summarized below.

Studies have indicated that men are more commonly characterized by experiencing a substance abuse and alcohol abuse problem in conjunction with depression than women. In the Netherlands Study of Depression and Anxiety, results showed that twice as many males had significantly more alcohol dependence/ abuse than their female counterparts (Schuch 2014). Similarly, in a large study examining epidemiological indicators for depression, 19.1% of men used alcohol with their depression compared to 11% of women: almost twice as common (Angst 2002). Several other studies have illustrated male alcohol dependence in concert with depression (Korstein 1995, Simon 2002, Dumais 2005).

Research has also indicated that aggression, impulsivity, and irritability are characteristic of male depression. Dumais found an association between aggression and impulsivity among those depressed in conjunction with alcohol dependence (Dumais 2005). Other studies have found similar cases of male depression in which men have acted out in a pattern of aggression and visible anger (Fava 1993, Gould et al. 1996). Another study found that men who endorsed hegemonic masculine norms were more likely to score higher on assessments with externalizing scale factors such as "having a short fuse," yelling, and getting "sad not mad" (Magovcevic 2008). Warren asserts in his article on the male intolerance of depression that because masculine socialization contradicts the symptomology of depression, males are more likely to act out in a manner that is more congruent with traditional masculinity i.e. the aura of aggression, violence, and daring nature (Warren 1983).

Other features that define the males depression experience are occupational disturbance and income related difficulty including employment and low socioeconomic status. A study conducted by Glaesmer found that income significantly predicted depression among men in a sample aged 60 to 85 years (Glaesmer 2011). In a study examining the presentation of depressed outpatients, males reported significantly more disturbance in work related activities than did females (Carter 2000). Another study reported similar findings in a study of over 600 outpatients and found that depressed, male outpatients were significantly more likely to be

unemployed ($P < 0.01$). This study also showed an increased likelihood of retired males being depressed though this observation was not significant (Kornstein 2000). In the same study, the authors found that males were also significantly more likely to report functional impairment ($P < 0.05$) related to occupation which lends support to this being a true difference unrelated to sociocultural bias since men were also more likely to be unemployed. The European depression study also shed light on the relationship between unemployment and occupational difficulty with depression, which men attributed their depression significantly more so than females (Angst 2002). Other studies reported similar work impairment or conflict among depressed males, and Eaton proposed that a change in working conditions may mediate the relationship between occupational mobility and overall mental health outcomes (Vredenburg, 1986, Good 1990, Eaton 1978).

Males display more social withdrawal and isolation compared to females when they are depressed. Studies have shown that antisocial behavior is common among depressed males, and Simon found that men were more likely to present with antisocial personality disorder (APD) and other symptoms of withdrawal (Simon 2002, Fields 2010). Ramirez conducted an intense and in-depth interview regimen on nine male depressed patients to test sociological and psychological processes in these participants. Those case studies shared a termed, “healing alone,” coping process that was defined as managing their depression independently while limiting contact with family and peers (Ramirez 2014).

Interesting findings have risen related to appetite changes among men and women that could be used to help distinguish depression in males. Particularly, males are more likely to report a decrease in weight and loss in appetite (Weller 2006, Carter 2000, Warren 1983)

Finally, males almost always score lower and report less symptoms of depression inventories than do females because females are more likely to meet the criteria for depression, shown extensively on the Beck Depression Inventory (BDI) (Berger 2012, Marcus 2005, Piccinelli 2000, Angst 2002, Salokangas 2002). This brings up some interesting questions that researchers have attempted to disentangle. One of which, the problem of two screening tools producing two different gender rates of depression, was examined by Salokangas, who found that the BDI and Depression Scale (DEPS) behaved differently by gender. Men never obtained higher scores than women on the BDI, but they scored practically identical scores on the DEPS. Additionally, Rochlen designed a focus group study of 45 men who reported aspects of the male gender were incongruent with stereotypical symptom profiles for depression and diagnostic criteria (Rochlen 2009). Most depression assessment tools require the participant to self-report indicators of depression. Hunt and colleagues found that men were more likely to minimize their symptoms. When a depression assessment was administered in a “covert” fashion, men and women reported depression at a near 1:1 ratio (Hunt 2003). Allen-Burge interestingly reported that depending on the screening tool’s cutoff score, researchers missed 25 – 50% of males characterized with depression (Allen-Burge 1994). These findings suggest that current tools are inadequate in diagnosing depression in males due to inconsistency and a high occurrence of false negatives. The medical profession may also consider changing the diagnostic threshold for male depression.

Several characteristics of depression that males were more likely to exhibit were presented above; however, these characteristics are not unique to males. These traits represent mechanisms or phenomena that men would be more likely to exhibit compared to females and should be explored as additional topics used to assess male depression more accurately. These presentations of depression in males are suggested to be more common in males than they are in females and would be useful in conjunction with current depression assessment guidelines. Though these differences are well established in the literature, it is not known how these differences are perceived in a clinical setting. To gain a more individual, clinical, and focus-group like perspective, this study interviewed several healthcare providers for their knowledge of depression, their awareness of assessment tools, and their opinion on how clinical practice can better diagnose depression. Based on the epidemiological evidence, it is hypothesized that healthcare providers will support the pursuit of a gender specific screening assessment because of the well documented literature of depression differences between men and women.

Purpose

The purpose of this investigation is to 1) Understand how healthcare providers screen for depression, 2) Determine if there is a consensus on how the clinical manifestation and risk factor profile of depression differs by gender, 3) Gather a professional opinion on whether a gender specific depression screening tool is needed, and 4) Compare literature findings with professional opinion regarding the manifestation of male depression.

Hypothesis

Based on the well- established epidemiological differences in male and female depression, healthcare providers will be knowledgeable of these differences and show explicit support for the pursuit of a gender specific screening tool for depression

Significance

The compiled scientific evidence and professional opinion that this study provides is intended to describe the need for a male specific depression assessment and guide further discussion towards the development of this assessment.

Methods

This investigation on presenting the need for gender specific screening tools compares the background epidemiological evidence with telephone interviews conducted on healthcare providers about their knowledge and opinion of screening guidelines to gain a more clinical, individual, and professional understanding of how gender specific depression differs between the academic and clinical environment.

These interviews were conducted by phone and employed a standard questionnaire that was developed specifically for this study by the researcher. The healthcare providers were selected based on a primary care specialty, their availability, and willingness to participate. Participants were first emailed by the researcher to ask if they were willing to participate in the investigation. Next, a date and time was determined, and finally, the interview was conducted. Participants were selected based on previous or current affiliation with Men's Health Network. They were searched for in Men's Health Network's Microsoft Access database for their email address and phone number. Participants were excluded if they were no longer in practice and deemed eligible for interview if they were currently practicing. Please refer to the questionnaire used for these interviews in Appendix: Figure 1.

This study is exempt for IRB review per University of Florida regulations, because it is a quality improvement investigation that aims to improve the current methods of depression screening. This need has been established by the literature review and interview portion of this study.

Prior to the administration of the actual questionnaire, physicians were told and asked the following:

- *Statement 1: A study is being conducted on depression: an important and significant risk factor for suicide.*
- *Statement 2: A signed consent form has been waived as the consent document and the principal risk would be potential harm resulting from a breach of confidentiality.*
- *Statement 3: This research presents no more than minimal risk of harm and involves no procedures for which written consent is normally required outside of the research context*
- *Statement 4: Your responses will be used for this research study, and your name will not be associated with any of your answers.*
- *Statement 5: May I use your responses for research purposes?*
- *Statement 6: May I ask you several questions on how depression is clinically diagnosed?*

Participants were issued a number to be used in the presentation of results and reference archived interview information to preserve anonymity. Participant and interview details may be

found in *Results*: Table 1. Responses were recorded manually using Microsoft Word version 2016 throughout each interview.

Questions 1, 2, and 3 ask the interviewee about the screening guidelines for depression in three versions: **1)** *Are there nationally recognized depression screening guidelines for primary care? If so, what are they?* **2)** *Does your organization endorse or support any particular guideline for diagnosis of depression in primary care? If so, which one(s)?* **3)** *Do you personally endorse or support any particular guidelines for diagnosis of depression in primary care? If so, which one(s)?* This question was asked from three different perspectives to examine the difference between organizational practice and individual opinion with the national guidelines for depression. In the USPSTF's recommendation to screen all individuals 12 and up, a specific screening tool for depression is not recommended. Question 1 hoped to ascertain evidence for the presence or lack of a nationally recognized screening tool for depression.

Questions 4 and 5 read: **4)** *What are the current depression screening guidelines for women?* **5)** *What are the current depression screening guidelines for men?* These questions were asked specifically to see if gender specific screening guidelines exist for men and women. Though these two questions could be covered by Question 1, they were asked to eliminate any uncertainty about the participants' knowledge of gender specific screening methods.

The purpose of Questions 6 and 7 is to obtain the participant's perspective on how depression differs in terms of clinical presentation and risk factors. This is done to build a foundation for presenting the need for gender specific screening tools. The two questions read: **6)** *Is depression clinically differentiable in men and women? If so, how?* **7)** *What are risk factors for depression that are common among men? Women? Both?* Responses for these questions were categorized and recorded in Tables 2 (Question 6) and 3 (Question 7). Each participant's responses were counted once per category, therefore, the maximum number for each category in Table 6 and Table 7 is six. Five participants, (1, 3, 4, 5, 6) required clarification of Question 6. Clarification was provided by restating the question in the following manner, *"Does depression manifest itself differently in males and females?"* Participant 2 was not provided the alternative version of this question, because Participant 2 did not ask for clarification. Following the interview, further discussion was not recorded.

Question 8 was asked because the researcher wanted to see if gender specific screening tools would be referenced without specifically asking about them, which is done in Question 9. Question 8 asks, *"How can depression be more accurately diagnosed in primary care practices?"* All responses for Question 8 were recorded and were not categorized.

The interview's final question gained the participant's perspective on the purpose of this paper, which is to present the need for gender specific screening tools for depression. Question 9 asked, *"Do you think gender specific depression screening tools are needed to more accurately diagnose depression in primary care?"* All response following this question was recorded until the participant was finished speaking.

Results

Participant details are summarized below in Table 1. One interviewee, Participant 2, holds a Bachelor of Nursing, Doctor of Nursing, and specialized in family nursing in post graduate studies. The remaining physicians are board certified specialists in internal medicine, Participants 4 & 6, and family medicine, Participants 1, 3 & 5. Other than specialty, no other identifying personal identifying information will be used as reference for the Participants' responses.

Participant	Degree	Gender	Interview Date	Interview Duration (min)
1	MD	Male	2/21/17	12
2	BSN, PhD	Male	2/17/17	10
3	MD	Female	2/17/17	14
4	DO	Male	2/17/17	35
5	MD	Female	2/23/17	7
6	DO	Male	3/3/17	11

Symptom/ Characteristic	Gender	
	Males	Females
Alcohol/ Substance Abuse	2	0
Withdrawal/ Personality Disorder	3	1
Sexual Dysfunction	2	0
Sleep Disturbance/ Energy Change	2	2
Angry/ Irritable	3	0
Aggressive/ Violent	3	0
Somatization	1	1
Appetite Increase/ Weight Gain	0	1
Appetite Decrease/ Weight Loss	1	0
Depression Concealed/ Physician Initiated	2	0
Depression Expressed/ Patient Initiated	0	2
Dysthymic/ Distressed	0	3
Increased Recognition/ More Symptoms	0	2
Less Recognition/ Fewer Symptoms	1	0
Functional Complaint	1	0
Symptom Driven	1	0
Diversion	0	1
Total	22	13

Table 3, Question 7: Reported Gender Specific Risk Factors by Gender			
Risk Factor	Gender		
	Males	Females	Both
Loss of Interest	1	1	1
Appetite Increase/ Weight Gain	1	0	0
Appetite Decrease/ Weight Loss	0	1	0
Appetite Change	0	0	2
Substance Abuse	1	0	2
Finance Related/SES	3	0	2
Unemployment	1	1	0
Relationship	1	2	2
Life Stress (Success)	1	0	0
Life Stress (Provider)	1	0	0
Life Stress (Purpose)	0	1	0
Life Stress (Workplace)	0	0	1
Education	1	0	0
Trauma (General)	1	0	0
Trauma (Abuse)	0	1	1
Illness/ Disease (Chronic)	1	0	0
Lack of Father	1	0	0
Decreased Libido	0	0	1
Sleep Disturbance	0	0	1
Functional Impairment	0	0	1
Emotional Inexpressiveness (Crying)	1	0	0
Emotional Expressiveness (Crying)	0	1	0
Genetics	0	1	0
Gender (Female)	0	1	0
Total	15	10	13

Table 4, Question 8: Response summary by Participant Number	
Participant	Response
1	<ol style="list-style-type: none"> 1. Strong physician patient relationship 2. Engagement (by physician) 3. Detail oriented (physician characteristic)
2	<ol style="list-style-type: none"> 1. Require depression screening 2. Simplicity (depression screening tools)
3	<ol style="list-style-type: none"> 1. Screen with and without resources 2. Use patient centered medical homes 3. More time
4	<ol style="list-style-type: none"> 1. Screening tools improve diagnosis 2. Screening tools allow for a more well-rounded visit <ol style="list-style-type: none"> a. High deductibles, patient on mission during clinical interaction, assess before clinical interaction
5	<ol style="list-style-type: none"> 1. More time
6	<ol style="list-style-type: none"> 1. Leveraging patient portal via virtual relationship 2. Make available screening tools to patients for self-serve use

Table 5, Question 9: Response summary by participant number			
Participant	Response		
	Yes	No	Unsure
1	1. Male targeted key diagnostics with follow up questions 2. Erectile dysfunction, alcohol, work, good at concealment (men)	-	-
2	1. Men do not stay at home self-medicating 2. African American men with sexual orientation problems at increased risk	-	-
3	1. Life different for both genders 2. Gender specific stressors 3. Low level depression not caught by screening (need for clinical interaction) 4. Beauty in individual	-	-
4	1. Clinicians have various acumen 2. Intra-clinical acumen 3. More time spent on assessments than in clinical interaction 4. Standardize ethnic questions for a more personable screening tool 5. Regional specificity 6. Tools are not representative of population 7. Sports bar outreach program for depression and suicide in men	-	-
5	-	-	1. Unsure. 2. Males dominated clinical interactions 3. Anger, substance abuse, alcohol, PTSD, withdrawal, and emotional detachment in men 9. Pure depression is when men are detached
6	1. Current tools inaccurate because they are not gender specific 2. Depression manifests in a gender specific way		

Interview

Question 1: Are there nationally recognized depression screening guidelines for primary care? If so, what are they?

Among all six individuals, six referenced nationally recognized depression screening guidelines; however, there was no consensus. Participant 1 acknowledged the existence of nationally recognized guidelines, yet none were referenced. Participants 2, 3, and 5 specifically referenced the PHQ (Patient Health Questionnaire)-9 or “PHQ series” as the nationally recognized screening tool for depression in primary care. Finally, a holistic health questionnaire was cited by Participant 4 as the primary tool for diagnosing depression in their clinic, and the Beck Depression Inventory (BDI) was reported by Participant 6 as the nationally recognized depression screening guideline. Omitting Participant 1’s response due to it being non-specific, PHQ related guidelines were most commonly referenced (60%) with other specific guidelines equally reported (20%).

Question 2: Does your organization endorse or support any particular guideline for diagnosis of depression in primary care? If so, which one(s)?

Participants 2 and 5 cited the PHQ- 9 or “PHQ series” as the primary guideline for diagnosing depression in primary care. Participant 3, answered with specific support of any recommendation made by the United States Preventive Services Task Force (USPSTF), on the condition that the proper resources to treat depression are available. Participant 4 supported their organization’s use of a holistic questionnaire to diagnose depression and showed support of any “stepwise criteria” used in diagnosing depression. Finally, Participants 1 and 6 said their organization did not support or endorse any particular guidelines, but Participant 1 reported that several tools are available and that “simple tools are better.”

Question 3: Do you personally endorse or support any particular guidelines for diagnosis of depression in primary care? If so, which one(s)?

There was no consensus on personally supporting a particular guideline for diagnosing depression. Three participants (1, 4, 6) did not personally support a guideline, though Participant 1 reasserted that simple screening tools for depression are best. Participant 4 acknowledged the Diagnostic and Statistical Manual of Mental Disorders (DSM) as the “professional gold standard” for diagnosis, and Participant 6 was unwilling to answer. The “PHQ series” was also personally supported by Participant 5. Lastly, universal screening was personally supported by Participants 2 and 3, who said they supported “100% screening of all patients” and “screen(ing) everyone” respectively.

Question 4: What are the current depression screening guidelines for women?

Participant 3 reported screening for depression in post-partum women. Those who answered none included Participants 1, 2, 4, and 5. Participant 4 added that the “seven areas of

life” were inquired upon in both males and females during depression assessments. Participant 4 specified the seven areas of life briefly referencing social, mental, and spiritual areas. The remaining four areas were not stated. The remaining two participants (4 and 6) answered being unsure about guidelines specific to diagnosing female depression.

Question 5: What are the current depression screening guidelines for men?

Participant 3 reported screening men with a history of depression, and tentatively stated that men with a history of erectile dysfunction (ED) should be screened for depression. Participants 1, 2, 4, and 5 communicated an absence of male specific guidelines and Participant 6 was unsure if male specific guidelines existed.

Question 6: Is depression clinically differentiable in men and women? If so, how?

Table 2 in *Results* exhibits the number of participants who reported symptoms or characteristic of depression. Interview responses were categorized into the symptoms presented in Table 2. It should be noted that Participant 5 acknowledged their own bias in answering this question because this individual said that, as a physician employed by the Department of Veteran Affairs, their clinical practice consists primarily of male patients.

Question 7: What are risk factors for depression that are common among men? Women? Both?

A risk factor is defined as something that increases the probability a health outcome will occur. Table 3 in *Results* summarizes this question’s results and categorizes the responses as described by the participants. If risk factors were not stated in a gender specific manner, it was assumed that the risk factor was shared between both genders and entered in the category “Both.”

Question 8: How can depression be more accurately diagnosed in primary care practices?

All participants reported ways in which depression could be more accurately diagnosed in primary care that are compiled in Table 4. Three trends became evident. Participants 2 and 3 both suggested that screening for depression should be required for every patient. Participant 3 clarified further that screening should be required regardless of available resources to treat depression. A second trend that came to fruition was an expressed need for increased use of screening tools. Participant 4 directly stated, “Screening tools improve diagnosis,” with an explanation that they provide the physician information that may not typically be communicated during a traditional clinical visit. Participant 6 advised making screening tools readily available to patients for “self-serve use”. Both responses express the reliance and importance of assessment tools in diagnosing depression. Participants 3 and 5 reported that time is a major constraint for the diagnosis of depression. Participants 1 identified the need for a strong patient- doctor relationship and “engaged,” “detail oriented” physicians. Participant 6 stated that physicians who “leverage the patient portal via virtual relationship,” will more accurately diagnose depression.

Question 9: Do you think gender specific depression screening tools are needed to more accurately diagnose depression in primary care?

Of the six participants, 5 out of 6 answered “Yes,” and Participant 5 was unsure due to the male dominated patient population Participant 5’s clinic receives. The five participants who answered yes elaborated following their voiced support of gender specific depression screening tools.

Participant 1 suggested that having “male targeted key diagnostics with follow up questions” would aid diagnosing depression in males. Furthermore, male targeted key diagnostics may include topics such as erectile dysfunction, alcohol consumption, and work. Participant 1 added that males are particularly good at concealing their depression, though they did not specify whether the concealment was conscious or unconscious.

Participant 2 added, “Men do not stay at home “self- medicating,” and African American men who are at odds with their sexual orientation may be at particular risk for depression. How this could be applied to a gender specific screening tool was not specified, though it does add to a male specific syndrome and risk factors for depression.

Participant 3 was vague in their support for a gender specific screening tool in stating that life is different for both genders resulting in gender specific risk factors for depression. It was also acknowledged by Participant 3 that low-level depression is not always caught by screening, so there remains a need for clinical assessment.

Participant 4 began by admitting that clinicians of varying acumen exist in medical practice and every clinician has their “off” days where they would normally pick up on indicative signs of depression. It was suggested by Participant 4 that an addition of “standardized ethnic questions” with “regional specificity” would benefit a screening tool’s accuracy. Participant 6 added, “Current tools are inaccurate because they are not gender specific. Depression manifests in a gender specific way.”

Though Participant 5 receives primarily men in their VA based clinic, the depressed male patient population at the VA was described by this participant as being typically “angry”, “victims of post-traumatic stress disorder” (PTSD), afflicted with alcohol and substance behavior, and withdrawn or “emotionally detached”. This population of men who are typically praised for their masculine behavior could potentially offer insight into mechanisms that reflect male type depression and offer options for improved depression assessments in the general population.

Discussion

The purpose of this investigation was to gather both clinical and academic support for gender specific depression screening tools. Dr. Kay Jamison, Professor of Psychiatry, reports in her book *Night Falls Fast* that some form of depression is always implicated in those who die by suicide, and those who are afflicted with depression are at twenty times the risk of dying by suicide than the general population (Jamison 1999). Depression is a major culprit in suicidal behavior, so it is imperative that primary care specialties are not misdiagnosing and especially not failing to diagnose depression in men, whose suicide mortality exceeds that of women at an average 4 to 1 male to female ratio. Due to the stark contrast in suicide mortality, this investigation focused on improving depression diagnosis in males by illuminating clinical differences, coping strategies, and risk factors that define depression symptomatology in males. Using a general literature review, the most common manifestations of male type depression were alcohol and substance abuse, aggression, impulsivity, irritability, occupational disturbance, low socioeconomic status, social withdrawal, antisocial personality disorder, appetite and weight decrease, and the reporting of less symptoms overall.

A small group of physicians were individually interviewed on several items related to depression: guidelines, clinical presentation, and areas of improvement. Most physicians reported the PHQ-9 as the nationally recommended guideline for diagnosing depression and a greater majority referenced some standardized depression screening tool as the national guideline. Omitting the non-specific response of Participant 1, 60% of Participants referenced the PHQ-9, and 80% referenced a standard depression questionnaire. It is curious that not all physicians specifically referenced the PHQ series as the national guideline as it is referenced in the USPSTF's recommendation for depression screening, and the PHQ-2 series has also been shown to have excellent sensitivity (97%) (probability of correctly identifying someone with depression who is truly depressed) and fair specificity (67%) (probability of correctly identifying someone without depression when they do not have depression) (Arroll 2003). Though perhaps there is no inherent problem with a physician using their judgment to determine what depression screening to use on their patient, the lack of consensus on a nationally recognized depression assessment does suggest that insufficient research has been conducted on depression screening.

Furthermore, there is an apparent lack of gender specific screening guidelines for depression. Only Participant 3 stated that postpartum women and men experiencing erectile dysfunction were recognized as being at risk for depression, which is worrisome because there is ample literature evidence showing gender unique manifestations of depression. From a clinical standpoint, physicians in this sample described men at being particularly good at concealing depression, described other physicians at being variable in their ability to diagnose, and explicitly stated that depression manifests in a gender specific way, which is precisely what literature has described using a psychosocial explanation. The presence of gender differences in DEPS depression scores and absence of gender difference in BDI depression scores led researchers to acknowledge the unique socializing processes men and women experience (Salokangas). It is apparent that whatever tool or method used to diagnose depression, it does

not acknowledge the unique socialization that males face. For instance, the PHQ-9 asks the patient about nine items including “feeling down,” letting “yourself or your family down” (failure), and “feeling tired” - items that have been cited as inappropriate when describing the male sex role. The male sex role is more ideally described as performing work adequately, making decisions, traditionally physical health concerns that allow the display of overt weakness, and a lack of satisfaction and enjoyment as Vredenburg articulated (1986).

One interesting finding is that participants provided more male specific clinical characteristics and risk factors of depression than females. Not counting the double reporting of a clinical characteristic by a participant, participants regarding male specific characteristics 22 times and female specific characteristics 15 times (Table 1 Appendix A). Similarly, male, female, and risk factors for both were reported 15, 10, and 14 times respectively. Furthermore, 4 of 6 participants referenced males and no participant referenced females in their reasoning for gender specific depression screening tools in Question 8. Assuming the biases discussed in “Limitation” were not present, it is curious that participants had evidently more to comment about male depression. This may be explained by a participant who asserted several times that women are typically proactive about their health and will initiate a conversation regarding feelings of depression, whereas men, the participant distinguished, less frequently initiate conversations about their depression, will conceal it, and require the physician to inquire about potential depression. Participant 3 provided a similar phenomenon describing the spouses of men bringing them to the clinic personally to be evaluated, and Participant 5 described the process of diagnosing depression in men as a process of “peeling back” the apparent clinical presentation to discover the “pure” depression that is muddied by externalizing symptomology. This is confirmed by Gould’s study which found that male teenagers were more likely to hold maladaptive attitudes pertaining to antisocial behavior and substance abuse as ways to depression (Gould, 2003). Males were also conversely less likely to engage in a variety of health seeking behavior. These findings agree with the concealed depression participants referenced in this study in addition to the clinical presentation of depression that Gould shows might originate during or before teenage years. Participants had more to describe regarding male depression because perhaps they are required to, as a clinical adaptation adopted for the difficulty or inability for men to describe their depressive feelings.

Participants reported many items that they felt made depression a clinically differentiable disease. Symptoms with gender differences of two or more reports were deemed good predictors of depression. Using this logic, alcohol/ substance abuse (2M-0F), withdrawal/ personality disorder (3M-1F), sexual dysfunction (2M-0F), angry/irritable (2M-0F), aggressive/ violent (3M-0F), and concealed/ physician initiated discussion (2M-0F) would be male predictors of depression. These were constructs physicians attributed more to men than they did women when responding to a gender ambivalent question. With respect to females, expressed/ patient initiated discussion on depression (0M-2F), dysthymic/ distressed (0M-3F), and increased recognition/more symptoms (0M-2F) were ways in which physicians reported female depression could be clinically differentiated from male depression. One physician reported that men were more likely to lose appetite and experience decreased body weight, and reported that females were more likely to gain appetite and experience an increase in body

weight. Of the 6 traits thought to define male depression, alcohol and substance abuse, aggression, irritability, anger, withdrawal, and personality disorder agreed with physician reported differences in clinical depression. Other differences, not included in the initial discussion of this paper, were sexual dysfunction and male concealed depression. The fact that physicians report that males are expected to conceal their depression is telling because health outcomes related to depression become more severe as time passes without treatment, and this may reveal insight into why men predominantly use firearms when performing suicide (Jorm).

Question 8 established several risk factors that may be useful in identifying depression in males, however, given the small interview sample size, no meaningful conclusions can be drawn from this risk factor discussion. Still, the most reported risk factors with three or more references will be discussed. A loss of interest in something previously enjoyable, substance abuse, financial, socioeconomic status, and relationships were reported most frequently as items that would increase the probability of depression occurring in an individual. Financial related issues were unequivocally more common in males with 3 male specific references, 2 both male and female, and 0 female specific references. Intuitively, this makes sense given the theorized male role in society as valuing success and identifying as the provider. Given a financial reversal that causes family distress and transition to a non-provider role, this may indicate that males experience some form of depression brought about by a lack of identity, sense of guilt, or perceived failure. In addition to workplace related stress, acting as provider and feeling the pressure to be successful could compound a man's depression and lead to more severe manifestations, namely suicide. Sexual dysfunction was added as a potential indicator of male depression though it was not found to be a prevalent risk factor in literature; it may be a conduit by which women urge their male partners to visit the physician. One physician specifically stated that men will often visit their primary care provider after their spouse urges them to do so, and often the male's spouse will accompany them to the clinic.

Limitations

This study is characterized by several limitations. The first is the small sample size of participants that limits the investigation's ability to draw meaningful conclusions on the qualitative data. If the study was conducted with sufficient time and more resources, additional professionals and specialties would be sought for their potentially different perspectives on depression. Though interviews were conducted with the exact same standard for each one, there were ambiguities that arose from each interview that could have been prevented if there had been more time for beta testing. For example, the risk factor question was not asked in three different versions to distinguish men or women; it was asked in one single sentence which probably caused some participants to answer in a non-specific way, which forced the researcher to enter gender unspecified responses in the "Both" category as per interview protocol. Next, the established male differences in depression described in the background portion of this investigation used no systematic method in determining which factors to include. Factors were chosen based on empirical evidence and overall commonality among the literature search.

In addition to sample size, the participants' backgrounds are also a source of potential limitation through reporting and information bias. Participants with a medical degree were searched for in the Men's Health Network (MHN) contact database. Those entered in the database had provided their information to MHN. It is unknown as to whether their previous interactions with MHN were specifically related to the participant's personal advocacy for men's health issues. It was indeed noticed that participants referenced men more than women, indicated by the total number of male and female clinical representations and risk factors. Perhaps this observation is legitimate and not biased by the participants' previous interactions with MHN and personal advocacy for men's health issues, or it reflects a reporting bias through the participant's belief that men are at greater risk.

A more diverse and larger population of healthcare providers is sorely needed to provide this investigation with an impartial, random sample. During the interview's introduction, the researcher introduced himself and informed the participant about his affiliation with MHN. This affiliation with MHN could have primed the participant to consider characteristics pertaining to men's depression more strongly than women's depression. More reporting bias might be present as participants may have also felt the need to provide aid and provide certain male-tailored answers based on the researcher's affiliation with MHN and educational goals. It is uncertain as to how these proposed biases have impacted the results of this study; however, they are serious considerations that play a role in the data's validity.

A final limitation is that participants are a product of the same environments that create the sociocultural differences in gender. Healthcare providers are not immune to these influences. It is possible that several of the expressed qualities that define the clinical presentation and risk factor profile for men and women reflect stereotypical representations of gender: women being more blatantly emotional (dysthymia, weeping) and dependent (initiating depression conversation, proactive) and men being more negligent towards their

personal health (alcoholism, work disturbance) and independent in coping strategies (withdrawal, depression concealment). Though there may be truth to these stereotypes, the participants are ultimately not mutually exclusive from the socialization of gender in society.

In the future, more geographically diverse physicians would be interviewed in the United States. Currently, the study shows promising indication, but more physicians would add more validity and influence to the paper's position. Second, diverse and additional healthcare providers would be consulted in a future project including physician assistants, nurse practitioners, and registered nurses. It might be interesting to stratify physicians by their medical degree because it is indicated that perhaps doctors trained by osteopathic principles practice differently than doctors trained by allopathic principles. The goal would be to examine how different healthcare providers assess depression and if any specialty is particularly deficient or successful in depression assessment. This project was fortunate to interview accomplished physicians who practice for a diverse set of patients. However, other physicians, naturally, may not be as competent or particularly sensitive to mental disorders, and those are observations that would be documented in a future project. While a pilot, this study establishes a strong foundation for more well- designed studies. It brings attention to an important matter of public health awareness and prevention.

Implications

There are several clear implications for research on the clinical assessment of mood disorders and for those whose practice involves interacting with and diagnosing patients with mood disorders. Specifically, this study focused on the clinical setting experienced by general practice physicians such as family physicians, internal medicine physicians, or pediatricians because research has shown that these general-type physicians are involved in most diagnoses and treatment of mental disorders.

Three principal implications for have become apparent during this investigation. First, rather than becoming more invested in the established epidemiological differences between male and female depression, research should look to more qualitative data acquired from focus groups, individual interviews, and quantitative epidemiological studies. The patient is not a word bank of epidemiological risk factors and symptoms but rather a complex interaction of biological, psychological, and environmental influences that is impossible to explain through the practice of simply identifying what demographic is most likely to manifest a behavior or emotion. Second, as referenced above, gender is a dynamic variable and has unique meanings in different cultures. Examining depression and suicide trends in other geographic locations may provide insight into new protective factors, risk factors, and management techniques to prevent depression and suicide. As indicated by one cross national study on depression rates between genders, some nations have massive disparities in male and female depression such as Portugal, while other nations such as Ireland have an extremely similar gender distribution of depression (Van de Velde 2010). Third, there are a plethora of theories that exist to describe and rationalize a potential phenomenon of masked male depression. This is an important area of research in gender based depression, yet there is a lack of ability to quantify male type depression. Researchers have attempted manipulating assessment tools to represent a traditional masculine type psychology and designed more masculine type depression brochures, with the same goal of being male representative. The answer to this is unclear, yet there remains a need to identify male type or masked depression.

The following text will be limited alongside the researcher's knowledge of medical practice, health policy, and health finance. This research has important implications for general medical practice. Although, it was previously stated that more research should be conducted in qualitative type studies with focus groups and interviews for example, physicians should be acutely aware that there is extensive epidemiological research on the likelihoods of genders experiencing different presentations and mood forms of depression. This is especially important because not only is depression the most commonly diagnosed mood disorder, greatest source of disability worldwide, and highly associated with suicidal behavior, but it has also been recommended to assess in primary practice among all patients aged 12 and older. A physician aware of these risk factors, presentations, and gender distinctions of the latter will be more apt to positively diagnose a patient who has depression and prevent the long list of complications associated with untreated mood disorders. However, this charge is not without difficulty, for physicians have increasingly less time with patients indicated by almost all interviews in this study and generally, as probably one of the most common complaints related

to medical practice. Medical practice should consolidate depression screening with other forms of pre-clinical paperwork to expedite the clinical screening process. One organization, recognizably well- established, had a particularly good practice of administering a whole health questionnaire that was optional for patients to complete prior to their visit. This participant referenced the tool's exceptional ability to notify his fellow healthcare providers of other health problems to be assessed in addition to the patient's primary complaint. This form of screening adaptation may help other practices screen for highly prevalent health outcomes, such as depression, before the patient enters the examination room.

Conclusions

The unique and seemingly limitless combinations of risk factors and clinical manifestations of depression make it extremely difficult to give depression a universal definition by way of epidemiology. Participants have described the individual as “beautiful” and one physician even expressed a sense of loathing for the “epidemiological word bank” used to describe patients. The patient is a complex interaction of biological influence, sociological processes, psychological personality, environmental exposures, and spirituality that inevitably creates the individual. This is more aptly put by Goodwin and Blehar who noted, “Gender is but a proxy term for a complex of psychosocial and biological variables” (1993). Nonetheless, as it has been shown, humans, especially males, have devised strategies, purposeful or not, that indicate a certain coping mechanism or direct effect of their depression, which, for many proposed reasons, is being diagnosed at much lower rates than females. To mitigate the mild and severe effects of undiagnosed depression, it is recommended that alcohol and substance abuse, aggression or violence, anger or irritability, sexual dysfunction, withdrawal or personality disorder, weight decrease and appetite loss, work disturbance, and threshold for diagnosis be evaluated further as potential additions and revisions to a nationally recognized screening tool used to diagnose male depression.

Acknowledgements

The author would like to acknowledge the guidance by Dr. Linda Cottler of The University of Florida’s Department of Epidemiology and Mr. Jimmy Boyd from Men’s Health Network. Much appreciation is given to Men’s Health Network for their resources in performing this study.

References

- Allen-Burge, R., Storandt, M., Kinscherf, D. A., & Rubin, E. H. (1994). Sex differences in the sensitivity of two self-report depression scales in older depressed inpatients. *Psychology and Aging, 9*, 443–445.
- American Psychiatric Association: Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition. Arlington, VA, American Psychiatric Association, 2013.
- Angst, J., Gamma, A., Gastpar, M., Lépine, J. P., Mendlewicz, J., & Tylee, A. (2002). Gender differences in depression. *European archives of psychiatry and clinical neuroscience, 252*(5), 201-209.
- Arroll, B., Khin, N., & Kerse, N. (2003). Screening for depression in primary care with two verbally asked questions: cross sectional study. *Bmj, 327*(7424), 1144-1146.
- Ballard, E. D., Cwik, M., Storr, C. L., Goldstein, M., Eaton, W. W., & Wilcox, H. C. (2014). Recent medical service utilization and health conditions associated with a history of suicide attempts. *General hospital psychiatry, 36*(4), 437-441.
- Berger, J. L., Addis, M. E., Reilly, E. D., Syzdek, M. R., & Green, J. D. (2012). Effects of gender, diagnostic labels, and causal theories on willingness to report symptoms of depression. *Journal of Social and Clinical Psychology, 31*(5), 439-457.
- Bilsker, D., & White, J. (2011). The silent epidemic of male suicide. *BC Med J, 53*(10), 529-534.
- Carter, J. D., Joyce, P. R., Mulder, R. T., Luty, S. E., & McKenzie, J. (2000). Gender differences in the presentation of depressed outpatients: a comparison of descriptive variables. *Journal of Affective Disorders, 61*(1), 59-67.
- Depression. (2016, April). Retrieved February 21, 2017, from <http://www.who.int/mediacentre/factsheets/fs369/en/>
- Dumais, A., Lesage, A. D., Alda, M., Rouleau, G., Dumont, M., Chawky, N., ... & Turecki, G. (2005). Risk factors for suicide completion in major depression: a case-control study of impulsive and aggressive behaviors in men. *American Journal of Psychiatry, 162*(11), 2116-2124.
- Eaton, W. W., & Lasry, J. C. (1978). Mental health and occupational mobility in a group of immigrants. *Social Science & Medicine. Part A: Medical Psychology & Medical Sociology, 12*, 53-58.
- Egeland, J. A., Hostetter, A. M., & Eshleman, S. K. (1983). Amish Study: III. The impact of cultural factors on diagnosis of bipolar illness. *The American journal of psychiatry.*
- Fava M, Rosenbaum JF, Pava JA, Mc Carthy MK, Steingard RJ, Bouffiedes E (1993). Anger attacks in unipolar depression. Part I. Clinical correlates and response to fluoxetine treatment. *Am J Psychiatry 150:1158-1163.*
- Fields, A. J., & Cochran, S. V. (2010). Men and depression: Current perspectives for health care professionals. *American Journal of Lifestyle Medicine.*
- Forman-Hoffman, V., McClure, E., McKeeman, J., Wood, C. T., Middleton, J. C., Skinner, A. C., & Viswanathan, M. (2016). Screening for major depressive disorder in children and adolescents: a systematic review for the US Preventive Services Task Force. *Annals of internal medicine, 164*(5), 342-349.
- Glaesmer, H., Riedel-Heller, S., Braehler, E., Spangenberg, L., & Lippa, M. (2011). Age-and gender-specific prevalence and risk factors for depressive symptoms in the elderly: a population-based study. *International Psychogeriatrics, 23*(08), 1294-1300.
- Good, G. E., & Mintz, L. B. (1990). Gender role conflict and depression in college men: Evidence for compounded risk. *Journal of Counseling and Development: JCD, 69*(1), 17.
- Goodwin, F. K., & Blehar, M. C. (1993). Toward a new psychobiology of depression in women. *JOURNAL OF AFFECTIVE DISORDERS, 29*(2), 75-75.

- Gould RA, Ball S, Kaspi SP, Otto MW, Shekar A, Fava M (1996). Prevalence and correlates of anger attacks: a two site study. *J Affect Disord* 20:87-91.
- Gould, M. S., Velting, D., Kleinman, M., Lucas, C., Thomas, J. G., & Chung, M. (2004). Teenagers' Attitudes About Coping Strategies and Help-seeking Behavior for Suicidality. *Journal of the American Academy of Child & Adolescent Psychiatry*, 43(9), 1124-1133.
- Greenberg, P. E., Kessler, R. C., Birnbaum, H. G., Leong, S. A., Lowe, S. W., Berglund, P. A., & Corey-Lisle, P. K. (2003). The economic burden of depression in the United States: how did it change between 1990 and 2000?. *Journal of clinical psychiatry*, 64(12), 1465-1475.
- Hammen, C. L., & Peters, S. D. (1977). Differential responses to male and female depressive reactions. *Journal of Consulting and Clinical Psychology*, 45(6), 994-1001.
- Hunt, M., Auriemma, J., & Cashaw, A. C. (2003). Self-report bias and underreporting of depression on the BDI-II. *Journal of Personality Assessment*, 80(1), 26-30.
- James, M. S. (2012, May 2). Surgeon General Forms Anti-Suicide Plan. ABC News. Retrieved February 26, 2017, from <http://abcnews.go.com/Health/story?id=117477&page=1>
- Jamison, K. R. (1999). *Night falls fast: understanding suicide*. NY: Knopf.
- Jorm, A. F. (2012). Mental health literacy: empowering the community to take action for better mental health. *American Psychologist*, 67(3), 231.
- Kessler, R. C. (2012). The costs of depression. *The psychiatric Clinics of north America*, 35(1), 1.
- Kessler, R. C., Borges, G., & Walters, E. E. (1999). Prevalence of and risk factors for lifetime suicide attempts in the National Comorbidity Survey. *Archives of general psychiatry*, 56(7), 617-626.
- Kornstein, S. G., Schatzberg, A. F., Yonkers, K. A., Thase, M. E., Keitner, G. I., Ryan, C. E., & Schlager, D. (1995). Gender differences in presentation of chronic major depression. *Psychopharmacology bulletin*, 31(4), 711-718.
- Kornstein, S. G., Schatzberg, A. F., Thase, M. E., Yonkers, K. A., McCullough, J. P., Keitner, G. I., ... & Davis, S. M. (2000). Gender differences in chronic major and double depression. *Journal of Affective disorders*, 60(1), 1-11.
- Kravitz, R. L., Paterniti, D. A., Epstein, R. M., Rochlen, A. B., Bell, R. A., Cipri, C., ... & Duberstein, P. (2011). Relational barriers to depression help-seeking in primary care. *Patient education and counseling*, 82(2), 207-213.
- LCWK1. Deaths, percent of total deaths, and death rates for the 15 leading causes of death in 5-year age groups, by race and sex: United States, 2014. (2016, June 01). Retrieved March 21, 2017, from <https://www.cdc.gov/nchs/nvss/mortality/lcwk1.htm>
- Magovcevic, M. M., & Addis, M. E. (2008). The Masculine Depression Scale: Development and psychometric evaluation. *Psychology of Men & Masculinity*, 9, 117-132.
- Marcus, S. M., Young, E. A., Kerber, K. B., Kornstein, S., Farabaugh, A. H., Mitchell, J., ... & Rush, A. J. (2005). Gender differences in depression: findings from the STAR* D study. *Journal of affective disorders*, 87(2), 141-150.
- Mathers and Loncar, 2006, C. Mathers, D. Loncar Projections of global mortality and burden of disease from 2002 to 2030 *PLoS Medicine*, 3 (11) (Nov 2006), p. e442
- Murray, C. J., Abraham, J., Ali, M. K., Alvarado, M., Atkinson, C., Baddour, L. M., ... & Bolliger, I. (2013). The state of US health, 1990-2010: burden of diseases, injuries, and risk factors. *Jama*, 310(6), 591-606.
- Piccinelli, M., & Wilkinson, G. (2000). Gender differences in depression. *The British Journal of Psychiatry*, 177(6), 486-492.
- Pratt, L. A., & Brody, D. J. (2014, December). Depression in the U.S. Household Population, 2009–2012 (United States, Centers for Disease Control and Prevention, National Center for Health Statistics). Retrieved February 21, 2017, from <https://www.cdc.gov/nchs/data/databriefs/db172.pdf>

- Ramirez, J. L., & Badger, T. A. (2014). Men navigating inward and outward through depression. *Archives of psychiatric nursing*, 28(1), 21-28.
- Rao, U., Weissman, M. M., Martin, J. A., & Hammond, R. W. (1993). Childhood depression and risk of suicide: a preliminary report of a longitudinal study. *Journal of the American Academy of Child & Adolescent Psychiatry*, 32(1), 21-27.
- Rochlen, A. B., Paterniti, D. A., Epstein, R. M., Duberstein, P., Willeford, L., & Kravitz, R. L. (2009). Barriers in diagnosing and treating men with depression: a focus group report. *American journal of men's health*.
- Salokangas, R. K., Vaahtera, K., Pacriev, S., Sohlman, B., & Lehtinen, V. (2002). Gender differences in depressive symptoms: An artefact caused by measurement instruments?. *Journal of affective disorders*, 68(2), 215-220.
- Schuch, J. J., Roest, A. M., Nolen, W. A., Penninx, B. W., & de Jonge, P. (2014). Gender differences in major depressive disorder: results from the Netherlands study of depression and anxiety. *Journal of affective disorders*, 156, 156-163.
- Simon RW: Revisiting the relationship among gender, marital status, and mental health. *Am J Sociol* 2002,107:1065–1096.
- Siu, A. L., Bibbins-Domingo, K., Grossman, D. C., Baumann, L. C., Davidson, K. W., Ebell, M., ... & Krist, A. H. (2016). Screening for depression in adults: US Preventive Services Task Force recommendation statement. *Jama*, 315(4), 380-387.
- United States, Centers for Disease Control and Prevention, National Center for Injury Prevention and Control. (2015). Suicide Facts at a Glance 2015. Retrieved February 21, 2017, from <https://www.cdc.gov/violenceprevention/pdf/suicide-datasheet-a.pdf>
- Van de Velde, S., Bracke, P., & Levecque, K. (2010). Gender differences in depression in 23 European countries. Cross-national variation in the gender gap in depression. *Social science & medicine*, 71(2), 305-313.
- Van Orden, K. A., Witte, T. K., Cukrowicz, K. C., Braithwaite, S. R., Selby, E. A., & Joiner Jr, T. E. (2010). The interpersonal theory of suicide. *Psychological review*, 117(2), 575.
- Vredenburg, K., Krames, L., & Flett, G. L. (1986). Sex differences in the clinical expression of depression. *Sex Roles*, 14(1-2), 37-49.
- Wålinder, J., & Rutz, W. (2001). Male depression and suicide. *International Clinical Psychopharmacology*, 16, S21-S24.
- Warren, L. W. (1983). Male intolerance of depression: A review with implications for psychotherapy. *Clinical Psychology Review*, 3(2), 147-156.
- Weissman, M. M., Bland, R. C., Canino, G. J., Faravelli, C., Greenwald, S., Hwu, H. G., ... & Lépine, J. P. (1996). Cross-national epidemiology of major depression and bipolar disorder. *Jama*, 276(4), 293-299.
- Weller, E. B., Kloos, A., Kang, J., & Weller, R. A. (2006). Depression in children and adolescents: does gender make a difference?. *Current psychiatry reports*, 8(2), 108-114.
- World Health Organization. (2016). The ICD-10 classification of mental and behavioural disorders: Clinical descriptions and diagnostic guidelines. Geneva: World Health Organization.
- Williams, J. B., Spitzer, R. L., Linzer, M., Kroenke, K., Hahn, S. R., Verloin deGruy, F., & Lavev, A. (1995). Gender differences in depression in primary care. *American journal of obstetrics and gynecology*, 173(2), 654-659.

Appendix

Depression Screening Guidelines Questionnaire for Qualitative Interviews
Please elaborate upon the following questions.]

1. Are there nationally recognized depression screening guidelines for primary care? If so, what are they?
2. Does your organization endorse or support any particular guideline for diagnosis of depression in primary care? If so, which one(s)?
3. Do you personally endorse or support any particular guidelines for diagnosis of depression in primary care? If so, which one(s)?
4. What are the current depression screening guidelines for women?
5. What are the current depression screening guidelines for men?
6. Is depression clinically differentiable in men and women? If so, how?
7. What are risk factors for depression that are common among men? Women? Both?
8. How can depression be more accurately diagnosed in primary care practices?
9. Do you think gender specific depression screening tools are needed to more accurately diagnose depression in primary care?

Figure 1: Qualitative interview administered to participants.

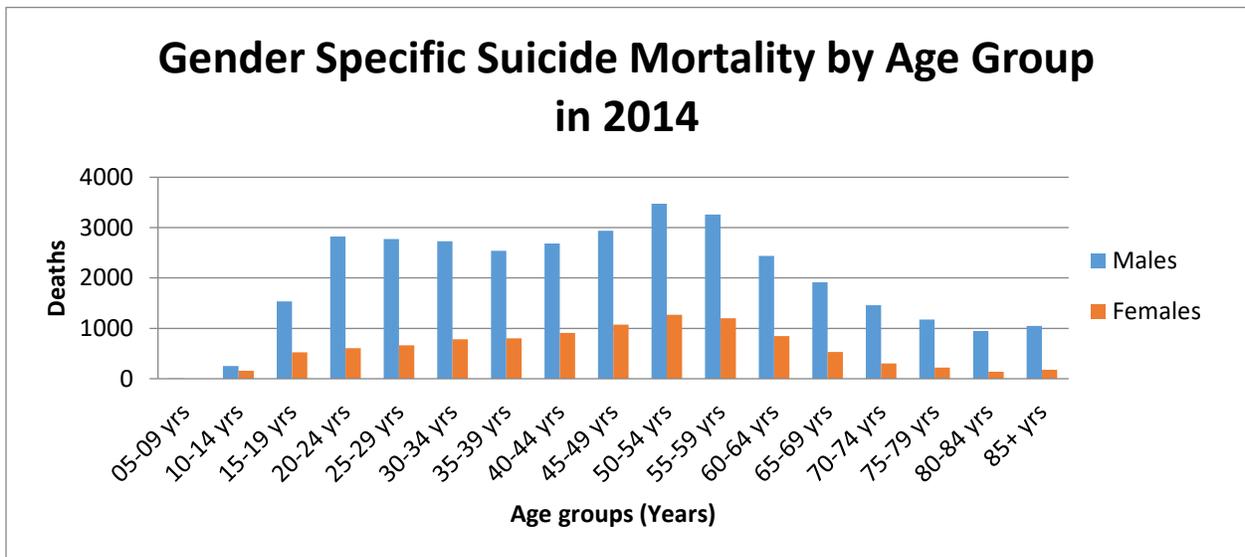


Figure 2: A graph of suicide mortality by age group. Male deaths are represented by the blue bars (left side) and females are represented by the orange bars (right side).

Figure 3- Crude Mortality Rates by Age Group in 2014

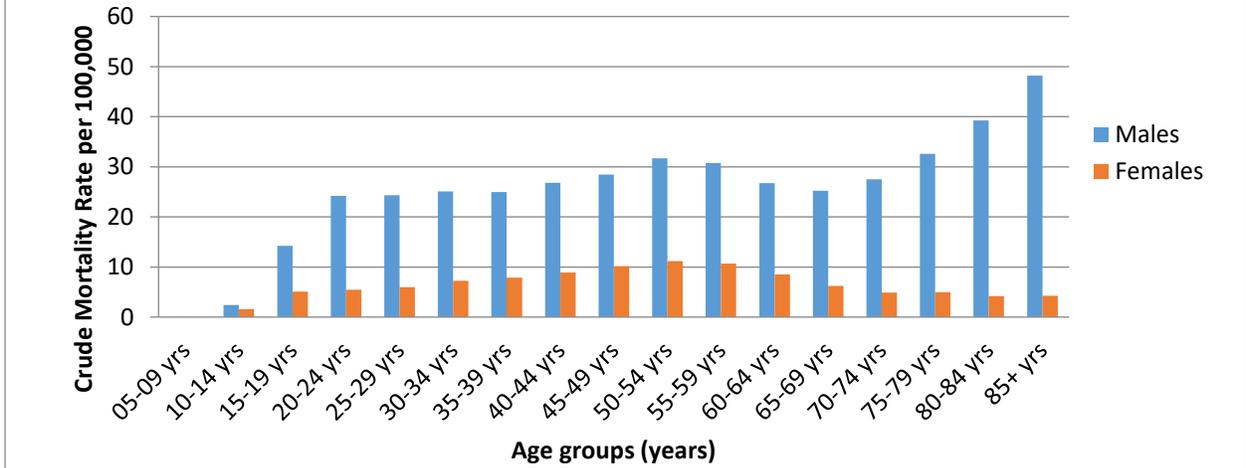


Figure 3: A graph exhibiting gender specific crude suicide mortality rates by age group. Male CMRs are represented by the blue bars (left side) and female CMRs are represented by the orange bars (right side).

Figure 4- Male to Female Suicide Death and Crude Mortality Rate Ratios (CMRR) in 2014

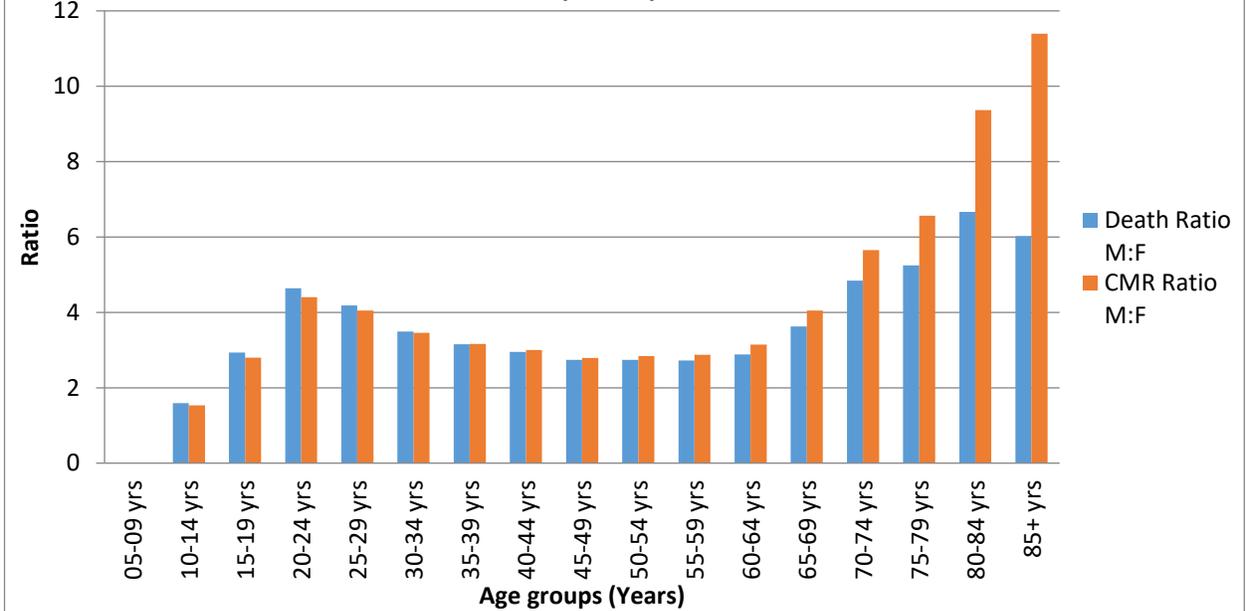


Figure 4: The figure above presents male to female ratios for overall suicide mortality and crude mortality rates by age group. Mortality ratios are represented by the blue bars (left side) and female CMR ratios are represented by the orange bars (right side).

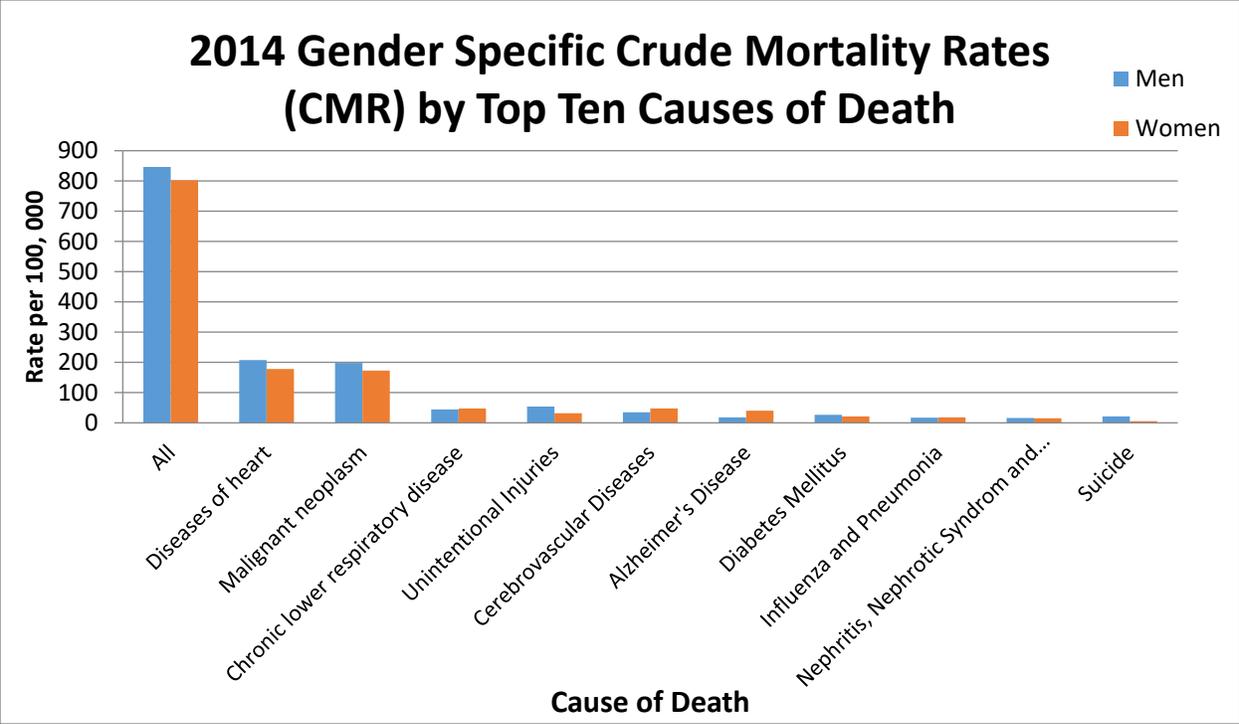


Figure 5: The figure above displays gender specific crude mortality rates per 100, 000 for the United States' top ten causes of death.

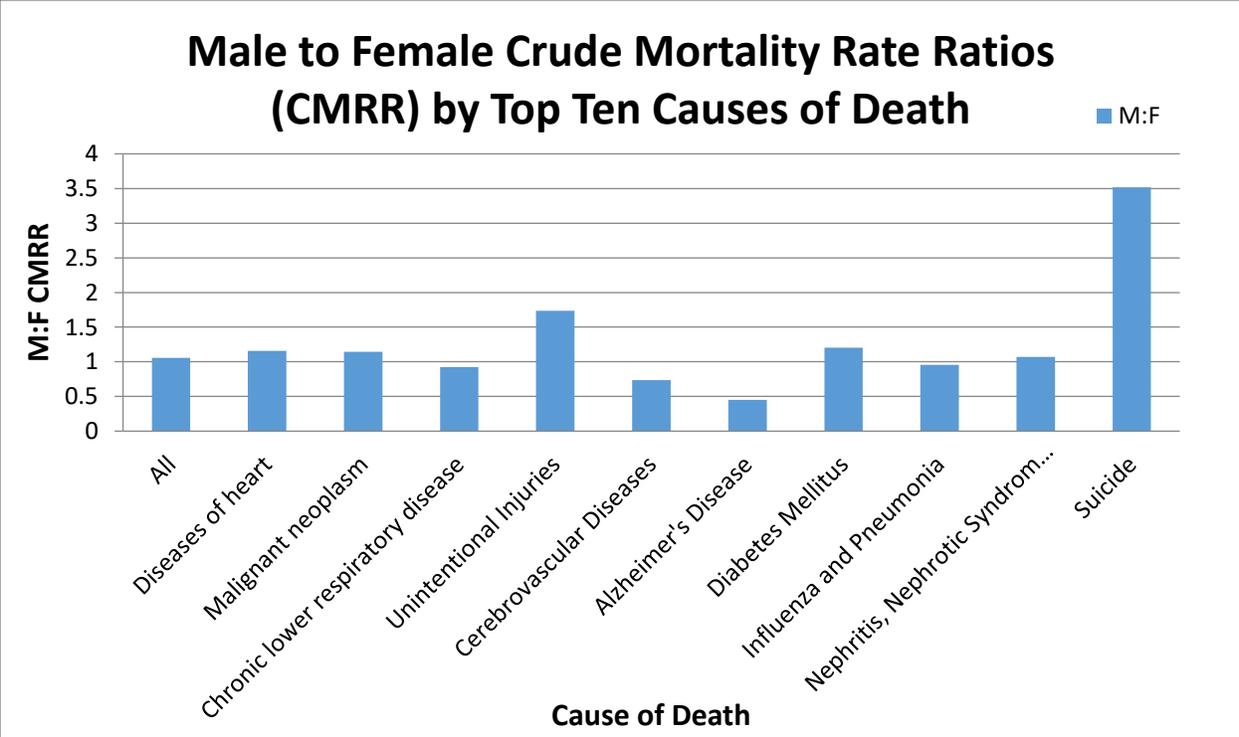


Figure 6: The figure above displays Male to Female CMRRs for the top ten causes of death in the United States.