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# Anxiety, a Growing Social Problem: A Systematic Review of the Literature

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## ABSTRACT

Anxiety disorders as a stand-alone diagnosis are not recognized as a treatable mental health issue within the social services mental health realm. There are mixed results regarding if anxiety disorders are linked to suicide ideation and suicide attempts. The aim of this systematic review was to discover if there is a link between anxiety disorders and suicide ideation and suicide attempts within the current literature. All anxiety disorders were looked at, except for selective mutism and separation anxiety disorder due to these both typically only affecting those in very young childhood. The rest of the anxiety disorders affect those from childhood to adulthood and therefore were included in this meta-analysis.

Meta-analysis was used to analyze empirical research showing the correlation or lack of correlation between anxiety disorders and suicide ideation/suicide attempts. All age groups were included, and those articles used for evaluation were all within the past 10 years. Effect sizes were represented with Odds Ratios and Confidence Intervals were represented using  $p$  value  $\geq 0.05$  to show statistical significance.

Of the beginning 81 research articles, only four met criteria for inclusion for the meta-analysis. All anxiety disorders were found to be statistically significant in Odds Ratios and  $p$  values with most having  $p$  valued of 0.001. The only anxiety disorders that did not have statistical significance were agoraphobia without panic disorder, social phobia (from the *DSM-4*) and anxiety disorder versus no anxiety disorder.

Anxiety, a Growing Social Problem:  
A Systematic Review of the Literature

A Thesis

Presented to

The Faculty of the School of Social Work

Abilene Christian University

In Partial Fulfillment

Of the Requirements for the Degree

Master of Science

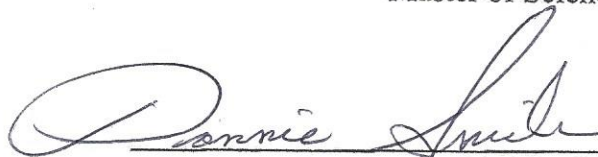
By

Adela Robinson

December 2018

This thesis, directed and approved by the committee for the thesis candidate, Adela Robinson, has been accepted by the Office of Graduate Programs of Abilene Christian University in partial fulfillment of the requirements for the degree

Master of Science in Social Work

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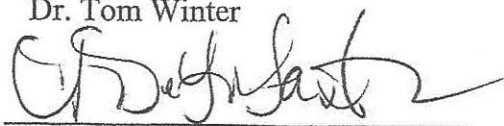
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Dedicated to Sam Stratton, for being the driving force behind this research.

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## CHAPTER I

### INTRODUCTION

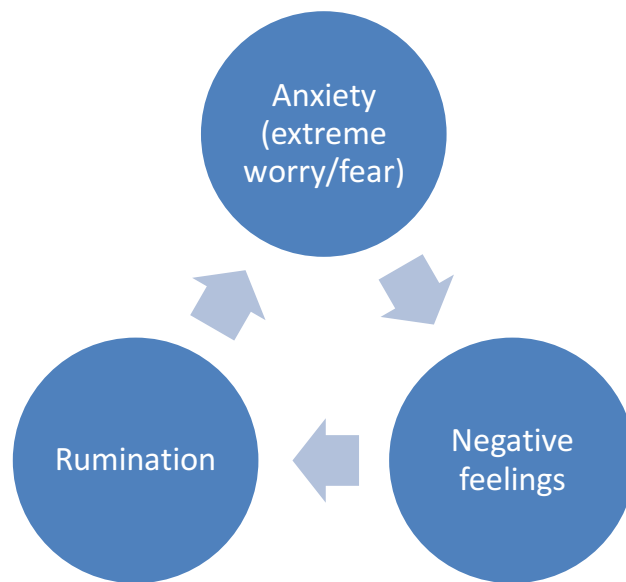
#### **Anxiety In Social Services Mental Health**

Entities that contract with states to supply mental health services have limited resources and must make choices regarding what mental health services to offer. Most choose which mental health diagnoses to treat through doing research and finding the most prominent in their communities and those that have the highest probability of harm. This process is typically a very good one but needs to be revamped to look at other mental health issues as being just as serious as the ones they typically choose to treat.

Due to limited funds, the mental health issues chosen for treatment are known as the “Big 3.” The “Big 3” consists of bipolar disorder, major depressive disorder, and schizophrenia. The “Big 3” is the lingo that is used to describe these types of mental health disorders within some social services mental health departments. Each of these pose a threat to the well-being of the sufferer and may also pose a threat to the greater society. However, this review proposes that anxiety disorders are as serious a threat for self-harm, suicide, homicide, and other social problems as the “Big 3.” If that proposition is true, anxiety disorders should be added to the list of mental disorders that are treated within county mental health authorities.

## Anxiety Defined for Purposes of This Research

The anxiety that has been researched in this thesis is not the normal anxiety that everyone experiences at one point or another in their lives. Instead, the anxiety that has been written about is that of clinical anxiety. According to *The Diagnostic and Statistical Manual of Mental Disorders* (5<sup>th</sup> ed.; *DSM-5*; American Psychiatric Association, 2013), all clinical anxieties share two things in common: excessive fear and extreme worry that causes major disturbances within a person's life. Those with anxiety disorders also suffer from rumination. Rumination is where a person deals with some an ambiguous situation or statement (Banks, Scott and Weems, 2018), they will constantly keep thinking about it. This will cause negative feelings, which in turn, causes more anxiety.



*Figure 1. Ambiguous Stimuli Cycle for Those with Anxiety Disorders \*Adapted from Banks, Scott, & Weems, 2018*

Although PTSD is not classified as a *DSM-5* anxiety disorder, the main feature of this disorder is one of hypervigilance, which is constant worry about a possible future event that may trigger someone's past traumatic experience(s) (American Psychiatric

Association, 2013). This research project will look at certain types of clinical anxiety as defined by the *DSM-5*. These types of clinical anxiety, as described by the *DSM-5* include: 1) specific phobia, 2) social anxiety disorder, 3) panic disorder, 4) agoraphobia, 5) generalized anxiety disorder, and 6) PTSD (American Psychiatric Association, 2013). The majority of those that suffer from PTSD go to great lengths to avoid any situation that may trigger such an episode, which is also a similar symptom to an anxiety disorder. Each of these anxiety types has a major impact on the sufferer's life or activities of daily living (ADLs). In addition, this study will be utilizing data from studies that have been conducted not only in the U.S., but in countries with similar economic status, such as Canada, China, Switzerland, etc. Although these other countries may have social medicine, the pressures are similar to those that the population of the U.S. face because these countries are financially similar to the U.S.

There are varying degrees to which person may suffer from an anxiety disorder. Mild cases can typically be treated by a primary care physician (PCP) and typically pose no risk of unemployment, suicide, homicide, or other long-term social problems. Persons with moderate to severe symptoms likely find normal living to be extremely difficult. This population needs treatment the most. Those that have private insurance will typically go to their PCP for assistance, will receive medications, and will rarely be referred to a mental healthcare professional (Olfson, 2016). However, many chronically impaired persons are from low-income and indigent populations and are likely to utilize public social and mental health services (Talavera et al., 2018).

## **Anxiety and Health**

This systematic review will look at the effects of anxiety disorders in terms of several health-related and social outcomes. The literature shows that anxiety disorders are the most common mental health issue in the United States today (Anxiety and Depression Association of America, 2018). Research also shows that those who have anxiety disorders in conjunction with heart disease are more likely to have a catastrophic heart attack than those who do not suffer from an anxiety disorder (Therivel, 2018). Other research shows that some anxiety disorders develop by the age of 13 years old (Kessler, Petukhova, Sampson, Zaslavsky, & Wittchen, 2012; Norton & Abbott, 2017) and yet others between the ages of six and nine years old (Meyer, Hajcak, Torpey-Newman, Kujawa, & Klein, 2015).

## **Anxiety and Aggression**

Available research shows that anxiety disorders result from chronic activation of the “fight or flight” mechanism of the autonomic nervous system (Hanby, Fales, Nangle, Serwik, & Hedrich, 2012) and will suffer from extreme rumination over believing that any ambiguous situation must be viewed through a negative lens (Banks et al., 2018). Research further shows that many people become aggressive, choosing to “fight” instead of fleeing (Banks et al., 2018; Korn, Plutchik, & Van Praag, 1997; Korn et al., 1992). Therefore, much aggression is likely attributable to anxiety. This research suggests that those suffering from anxiety disorders need treatment to help keep society safe.

The idea of an “honor code” is one in which a person believes that they must use aggression against another whom wrongs them in some fashion. For instance, a man or woman is verbally accosted by another, they will typically respond with aggression

because they are afraid of losing their honor in the eyes of others. This wrongdoing may also include stealing of one's property, calling names or calling into question a female's virtuosity, speaking ill of someone's family, or an insult directed at a person calling their honesty or integrity into question. Further, the literature shows that those that reside in the southern states that believe in a "honor code" are more prone to aggression toward others when an anxiety disorder exists (Grosjean, 2014a). This built-in honor code increases the likelihood of aggression when southerners perceive the presence of a real or imagined threat (Al Gharaibeh, 2016; Doucet, D'Antonio-Del Rio, & Chauvin, 2014; Saucier et al., 2016). Such threats can include any perceived threat to a person's honor (e.g., insults, challenges to a person's masculinity, etc.). This literature shows that those in the southern states are at a higher risk of aggressing on others and are in greater need of treatment for anxiety disorders than their counterparts in other parts of the country are.

### **Anxiety, Self-Harm and Suicide**

Many research projects have found that there is a great number of those that are suffering from anxiety disorders that are self-harming and/or attempting or committing suicide (Boden, Fergusson, & John Horwood, 2007; Raposo, El-Gabalawy, Erickson, Mackenzie, & Sareen, 2014; Sareen, 2011; Thibodeau, Welch, Sareen, & Asmundson, 2013). The literature shows that not all people lash out at others when they feel that they have been slighted but may turn that frustration and anger inward toward themselves. Some researchers have correlated panic disorders to suicide attempts (Goodwin & Roy-Byrne, 2006; Korn et al., 1997). Understanding that a person may be driven to hurt themselves either with self-harm or suicide due to an anxiety disorder is another reason that anxiety disorders need to be considered one of the "Big 3" diagnoses.

## CHAPTER II

### LITERATURE REVIEW

The research databases used to compile research articles were Abilene Christian University's OneSearch, PsycArticles, EBSCO Social Work Reference Center and Soc INDEX. Terms that were used to conduct research were the following anxiety statistics in the United States: anxiety statistics; anxiety and aggression; anxiety and anger, anxiety and suicide and/or self-harm, anxiety and alcohol use, anxiety and alcohol abuse, anxiety and alcohol abuse disorder, anxiety and illegal drug use, anxiety and illegal drug abuse, anxiety and drug abuse disorder, anxiety and prescription pill abuse, anxiety and substance abuse, anxiety and honor code, anxiety and its effects on the homeless, anxiety information, anxiety drugs and their effects, anxiety's effects on society, anxiety's physiological effects, and anxiety case studies.

#### **Review of the Literature**

There are several types of anxieties listed in the *DSM-5*. This research project did not look at selective mutism and separation anxiety because they are typically associated with only early childhood. Instead, the researcher intended to look at all other anxieties that affect from childhood to adulthood, such as social anxiety disorder, panic disorder, specific phobia, generalized anxiety disorder, and agoraphobia with and without panic disorder. Each of these types of anxiety can cause the sufferer severe physical and mental



discomfort. This discomfort may affect several areas of a person's life, causing them to miss out on a fulfilling life or effectively performing activities of daily living (ADLs).

### **Anxiety Information**

Anxiety is one of the most common mental health disorders in the United States and other developed countries and is more common in females than males (Facts & Statistics, Anxiety and Depression Association of America, ADAA, 2018; Meyer et al., 2015). Each type of anxiety has its own prevalence base in each population type and has similar and dissimilar attributes. The constant attributes are an extreme fear or constant rumination and worry about a future possible event or situation.

The *DSM-5* explains that fear is the physiological response to a real or perceived threat (American Psychiatric Association, 2013). The expectation of the future threat is what causes the fear in those that suffer from anxiety disorders. Anxiety results when a person anticipates a threat regardless of whether the threat is real or imagined. Anxiety becomes a clinical issue when there is a disruption in normal functioning due to this worry in work, social and daily life.

### **Anxiety Disorders**

#### **Social Anxiety Disorder**

Social anxiety disorder (SAD) is recognizable by an intense fear or anxiety of being seen in a bad light by others (Crome et al., 2015; Modini & Abbott, 2016). A person is diagnosed with SAD only when there is a significant interference in functioning of their social, occupational, or daily lives (American Psychiatric Association, 2013). This typically means that the person will go to great lengths to avoid these situations or will only endure them with great physical and mental suffering. There

is no current consensus regarding whether men or women have different levels of suffering from SAD. The Anxiety and Depression Association of America (2018) said that men and women suffer equally from SAD, but Crome et al. (2015) stated that women and younger cohorts suffer at a higher rate than men. The lifetime prevalence of SAD in the United States was 13% of the population (Kessler et al., 2012), 10.6% in Australia, and 3.5% in Iceland (Lindal & Stefánsson, 2007). That translates into 65 million people suffering from SAD in the U.S. alone (“Facts & Statistics, ADAA,” 2018). In Australia 672,630 suffer from SAD in any one year (Crome et al., 2015). The Icelandic article did not give generalizable numbers (Lindal & Stefánsson, 2007)

Studies typically show an early onset of SAD but do not fully agree on exact age. Most show that SAD is developed in adolescents at the age of 13 (Facts & Statistics, ADAA, 2018) or 14 years old (Crome et al., 2015). Most research articles agree that the lifetime prevalence is basically steady but tapers off after 55 years of age (Crome et al., 2015; “Facts & Statistics, ADAA,” 2018; Meyer et al., 2015; Michael, Zetsche, & Margraf, 2007). One report said that many people suffered for over 10 years before they sought help for their SAD symptoms (Facts & Statistics, ADAA, 2018). Children who suffer from anxiety and comorbid depression have greater functioning difficulty in school, difficulty with family, higher rates of suicidality, and greater social anxiety symptomology (Cummings, Caporino, & Kendal, 2014).

## **Generalized Anxiety Disorder**

The *DSM-5* describes those that suffer from generalized anxiety disorder (GAD) as having out-of-proportion worry about everyday occurrences, such as work, school, bills, health of themselves and family members, etc. (American Psychiatric Association, 2013). This worry causes problems in everyday functioning and is disproportionate to the issues at hand. The types of situations that GAD sufferers worry about are typically avoidable. People must go to work, pay bills, go to school, etc., to be able to survive. Those that find that their GAD is too great for them to be able to function at all may find that they have high social disability that is comorbid with somatic ailments (Ma et al., 2009). Therivel (2016) found that drinking may either increase the risk of developing anxiety disorders or may be a coping mechanism when dealing with anxiety disorders.

Researchers reported that 6.8% of adults in the U.S. population suffered from GAD and that women are twice as likely to be sufferers from this type of anxiety disorder than men (“Facts & Statistics, ADAA,” 2018.; Kessler et al., 2012). Kessler et al. (2012) showed that GAD was one of the least commonly occurring anxiety disorders with only 4.3% of the U.S. population suffering from this disorder, whereas, Iceland shows GAD to have the highest lifetime prevalence at 32% for woman and 12% for men (Lindal & Stefánsson, 2007). GAD and depression are the largest psychiatric disorders in Australia (Ma et al., 2009). China has limited studies that have been conducted on their population for types of anxiety, but Ma et al. (2009) showed a lifetime prevalence of 1.2% of the population, 1.2% 12-month prevalence for GAD, and that women had suffered at higher rates than men. These statistics agree with studies conducted in the U.S. and other developed countries. China may have a lower rate of GAD due to the collectivist

ideology that exists putting the good of the group over the good of the individual. Age of onset was much higher for GAD in all countries than other anxiety disorders and was shown to be around the age of 30 years old (Kessler et al., 2012).

### **Specific Phobias**

Specific phobias (SP) are triggered by a thing or circumstance. According to the *DSM-5*, the person must experience extreme or intense fear or anxiety from the thing or circumstance (American Psychiatric Association, 2013). Unlike other anxiety disorders, sufferers had experienced at least one panic attack in the month leading up to the study (Lindal & Stefánsson, 2007) and was the most prevalent in the month prevalence study (Kessler et al., 2012). Specific phobias have a wide range of stimuli. In Iceland, the most prominent SP is the fear of heights (Lindal & Stefánsson, 2007).

SPs affect 8.7 % of the U.S. population, which is approximately 19 million U.S. residents (“Facts & Statistics, ADAA,” 2018). Another study found that 15.6% of the population suffers from SP in the United States (Kessler et al., 2012). There are conflicting reports regarding whether men or women experience SP equally or if women experience SP more often than men. Kessler et al. (2012) showed a much higher rate of women reporting SP than men in adulthood but only slightly higher for women in childhood (ages 13-17) in the U.S. The Anxiety and Depression Association of America (2018) reported that women are two times more likely to suffer from SP than men in the U.S., and Lindal and Stefánsson (2007) reported that women were only 1% more likely than men to suffer from SP in Iceland but that women were twice as likely to have suffered from SP than men in the U.S. All of these studies agreed that SP was more prominent in childhood with typical age of onset around ages 7 to 9 years old (Facts &

Statistics, ADAA, 2018), and some, but not all, sufferers tended to outgrow SP by adulthood. Fear of the dark was one of the most prominent, and it was typically outgrown (Crome et al., 2015; Csupak, Sommer, Jacobsohn, & El-Gabalawy, 2018; Facts & Statistics, ADAA, 2018; Modini & Abbott, 2016). Therefore, lifetime prevalence is much lower for SP than other anxiety disorders.

### **Panic Disorder**

Panic Disorder (PD) or other anxiety disorders with the panic attack modifier refers to instances where a person experiences four or more non-triggered symptoms of the 13 different mental and/or physical specifications. The experiences are followed by at least one month of worry about a reoccurrence of the panic attack. PD also refers to instances where behavior changes are designed to attempt to avoid a reoccurrence of a panic attack in the future (American Psychiatric Association, 2013). Of the 13 symptoms listed in the *DSM-5* that may occur, the most noteworthy are 1) racing heart; 2) shaking or trembling 3) feeling of extreme pressure on chest causing difficulty to breathe; 4) fear of “going crazy”; and 5) fear of dying (American Psychiatric Association, 2013).

Panic disorder or another anxiety disorder with the panic attack specifier are calculated separately in most studies. Kessler et al. (2012) showed a slightly higher lifetime prevalence for female adolescents and a higher lifetime prevalence for female adults with adolescent females at 2.5% and males at 2.1% with overall prevalence in adolescents of 2.3% between 13-17 years of age, and adult females at 7.0% and males 3.3% and overall lifetime prevalence of 5.2% between 18-64 years of age. This study additionally reports that agoraphobia with or without panic disorder is at a 2.5% lifetime prevalence overall (Kessler et al., 2012). The *DSM-5* reports that 2-3% of both

adolescents and adults in the U.S. and developed European countries suffer from PD (American Psychiatric Association, 2013). Although this number sounds very small, this translates into approximately 6 million people within the U.S. suffering from PD (“Facts & Statistics, ADAA,” 2018).

### **Anxiety, Self-Harm and Suicide**

A study that focused primarily on self-injuring college students defined self-harm or nonsuicidal self-injury as an act to harm oneself without the intent of committing suicide, such as cutting, hitting or slamming oneself, burning, and scratching (Subica, Allen, Frueh, Elhai, & Fowler, 2016). One of the main symptoms of PTSD is hypervigilance, which can be translated as anxiety. PTSD has as the main feature of anxiety, so although it is not classified as an anxiety disorder, it is believed to be relevant to this study. Evren, Dalbudak, Evren, Cetin, and Durkaya (2011) conducted a study on men with PTSD and alcohol use disorder with self-mutilation (SM). In this study, of 156 men with the afore mentioned disorders partook in: self-cutting ( $n = 26$ , 16.7%), cigarette and other burns ( $n = 5$ , 3.2%), hitting hard places with fist or head ( $n = 4$ , 2.5%) of both intoxicated and non-intoxicated men at the time of SM. This study showed that there was a link between SM and hostility, history of suicide attempts, early onset of alcohol usage, anxiety and depression among men with alcohol dependency.

There is controversy regarding an association between anxiety disorders and non-suicidal self-harm. Chartrand, Sareen, Towes, and Bolton (2012), using the standards of the *DSM-4*, discovered an association between anxiety disorders and deliberate self-harm (DSH) without the intent of suicide or nonsuicidal self-injury (NSSI). Specifically, this study discovered that individuals who suffered from more than one anxiety disorder is

more likely to engage in DSH or NSSI. In addition, they discovered that those that have an anxiety disorder comorbid with a mood disorder are more likely to engage in NSSI. There was an association between having an anxiety disorder and multiple Deliberate Self-Harms (DSHs), and specific anxiety (SA), agoraphobia, social phobia, or GAD had higher risks of multiple DHSs too.

Anxiety has been found to be linked to shame (Gilbert & Miles, 2000), which can be understood as anger turned inward. Those that suffered from anxiety and felt shame tended to ruminate on situations that they have deemed negative and believe that they are in some way at fault for the negative situation. These feelings can also be linked to social exclusion due to put-downs (Gilbert & Miles, 2000) or other relational aggression (Banks et al., 2018; Boden et al., 2007; Chartrand et al., 2012; Keyes, McLaughlin, Vo, Galbraith, & Heimberg, 2016). Typically, anxiety disorders can be classified as an internalized mental health issue, which in turn can be broken down into two more parts of distress and fear (Subica et al., 2016). This internalized distress and fear may result in an individual either lashing out at others or committing DSH or NSSI. Although there are not many studies that show that there is a link between anxiety disorders and self-harm, a few that have been mentioned do show this correlation. Subica et al. (2015) found a high rate of NSSI in their sample of 879 participants. Nearly 14.5% ( $n = 125$ ) of the sample engaged in NSSI in the past two months, and 31.7% ( $n = 279$ ) in their lifetimes.

Core symptoms of NSSI were noted as being a mix of anxiety and depression, including that are having negative emotional lability, unstable relationships, and poor or distorted sense of identity (Subica et al., 2016). Those that were self-mutilators reported that their motivations for SM were affect regulation, self-punishment, reduction of

current tension levels, attempting to improve one's mood, stopping dissociative experiences, and distraction from unbearable distresses (Evren et al., 2011). This study also pointed out that those that do engage in SM or NSSI may also suffer from personality disorders, PTSD, impulse control disorder, dissociative disorder, substance abuse disorders, anxiety, depression and schizophrenia.

The World Health Organization (WHO, 2014) has suicide ranked as the second highest cause of death in the world for ages 15 through 19 years old. Globally, ingestion of pesticides, hanging, and injury by firearms are the top three causes of death. The Center for Disease Control (CDC, 2017) shows that suicide is ranked as the tenth highest cause of death in the U.S. for all ages and races. White, not Hispanic or Latino males have the highest numbers for suicide in the U.S. at 31,032 deaths in 2016 as reported on the CDC webpage (National Vital Statistics System, 2016). The same reports showed that in 1980, white males had suicide as the seventh cause of death in the U.S., but the numbers were smaller at 18,901 deaths. Although the cause of death rank is lower the actual deaths are almost double in 2016 of that in 1980. The reason for this difference is beyond the scope of this study but may have to do with higher population overall.

Reaching back into the 1990s, a link was found between anxiety disorders and higher suicide ideation and suicide attempts (Allgulander & Lavori, 1991; Chartrand et al., 2012; Korn et al., 1992). As time went on, many studies were conducted, and findings varied among these regarding the link between anxiety and suicidality. Some discovered that there was absolutely no link or only a very small link existed (Abreu et al., 2018; Subica et al., 2016), whereas several others over the years have found a positive correlation between anxiety disorders and suicide (Cassello-Robbins et al., 2015;



Chartrand et al., 2012; Kanwar et al., 2013; Gonda, Fountoulakis, Kaprinis & Rihmer, 2007; Kaprinis, Rihmer, Fountoulakis, & Gonda, 2008; Nam, Kim, & Roh, 2016; Thibodeau et al., 2013). The topic is very controversial, and an article was even written about the controversy and how to wade through it (Sareen, 2011). However, this last article pointed to there being a correlation between anxiety disorders and higher suicide rates.

Abreu et al. (2017), during a two-year follow-up study of 480 people, did not show a difference in suicide attempts between those with and without comorbid anxiety disorders did not have any difference between them in suicide attempts. This study also showed that anxiety symptoms of agitation, somatic anxiety and physical anxiety did not correlate with higher suicide rates. Other studies showed that those that suffered from anxiety symptoms did have higher rates of suicide. Specifically, Chartrand et al. (2012) showed the strongest correlation between GAD and SAD sufferers and suicide attempts. Patients that have anxiety and suffer from comorbid anger issues are found to have higher rates of suicide risk than those that do not have a comorbid anger disorder (Matthew et al., 2014; Painuly, Sharan, & Mattoo, 2007). Thibodeau et al. (2013) discovered that all types of anxiety were associated with higher risk of suicide, except for agoraphobia without panic disorder that had a very low sample of only five. According to this research study, suicide may be a means of escape from a life that is rife with worry, anxiety and fear. Further, those that suffer from anxiety typically have maladaptive belief systems. These belief systems may skew the way that a person with anxiety views the value of their own lives, such as believing that everyone would be better off without them around (Thibodeau et al., 2013).

Although anxiety disorders were not found to be as big a factor in suicide risk, Gonda, Fountoulakis, Kaprinis and Rihmer (2008) also found that anxiety disorders add to risk factors for suicide attempts. Those that suffer from any anxiety disorder are more likely to have completed suicide, more suicide attempts, and more suicidal behavior than those that do not suffer from anxiety (Kanwar et al., 2013). Those that suffer from comorbid disorders with anxiety puts those that suffered from them at much higher risk for suicide attempts (Nam et al., 2016; Raposo et al., 2014).

### **Culture of Honor**

There are many cultures that use honor codes as the guidelines for their existence and protection. There is research that shows that the southern U.S. would be classified as a culture that utilizes an honor code system for determining how one reacts to insults, slights, and reputation of self and family (Grosjean, 2014b, 2014a; Howell, Buckner, & Weeks, 2015; Nisbett & Cohen, 1996; Osterman & Brown, 2011; Somech & Elizur, 2009). According to Nisbett & Cohen's (1996) research the southern states typically subscribe to an honor code that dictates that violence is an acceptable response to being insulted, having one's family insulted, or incurring property damage or theft. Much of the research states that the southern states were highest in homicide rates at the time of their research (Grosjean, 2014; Nisbett & Cohen, 1996; Osterman & Brown, 2011; Saucier et al., 2016). Looking at homicide rates by state for the year 2016, the most current year available, from the Centers for Disease Control (CDC, 2017), southern states still have higher homicide rates than the rest of the country.

Honor cultures believe that the use of violence is not only an agreed-upon and appropriate reaction but is believed to be a necessary response to being provoked or in

the protection of another or one's property (Doucet et al., 2014; Nisbett & Cohen, 1996; Saucier et al., 2016). To put it another way, a boy or man that is being insulted or bullied by another is expected to respond with violence toward the antagonist. If that person fails to stick up for themselves, their reputation as a "man" comes into question. Nisbett and Cohen (1996) reported that at one point in the history of the south, if a man was insulted and verbally demanded a retraction of this insult, he would not be found guilty of murder by a court or jury. Nisbett (1993) and Nisbett & Cohen (1996) reported that argument-related homicides were the most prominent reason for killing someone in the south. Most of the reports showed that women were not as affected by this culture of honor as men (Brown, Baughman, & Carvallo, 2018; Grosjean, 2014; Howell et al., 2015; Nisbett, 1993; Nisbett & Cohen, 1996; Osterman & Brown, 2011).

Doucet et al. (2014) studied women in the south to see if they were being influenced by this culture of honor or culture of violence, and the answer was yes, women are also committing murder due to this honor culture. Women are committing homicides in smaller numbers, but women or girls raised in the south tend to have higher numbers than girls raised in other parts of the country (Doucet et al., 2014). It is difficult to get accurate numbers on homicides due to the fact that individual law enforcement offices are not required to report this information to any single database (U.S. Department of Justice, Federal Bureau of Investigation, 2010). However, Grosjean (2014) pointed out that a person was three times more likely to get killed in the deep south than in the north United States.

Research shows that one of the reasons the south developed into a culture of honor is because of the Irish-Scottish settlers that founded the area from Europe (Brown

et al., 2018; Doucet et al., 2014; Grosjean, 2014; Howell et al., 2015; Nisbett & Cohen, 1996; Osterman & Brown, 2011). These Irish-Scottish settlers lived in mountainous areas in Europe where law officers and courts did not exist. Due to not having law officers and courts these areas self-regulated and this was done with extreme violence to maintain some semblance of society (Nisbett & Cohen, 1996). In the south, these honor culture killings are attributed to white males, due to the heritage from extremely violent and lawless European areas (Grosjean, 2014). Another reason that has been given for the violence in the south in the U.S. is that of religious beliefs, specifically larger populations of evangelical Protestantism who were reported to support stringent corporal and punitive punishments for offenders (Doucet et al., 2014).

This culture of honor is hypothesized to be the reason that those with anxiety in the south do not flee from confrontation, but instead attempt to apply violence against those that threaten their honor or to protect others. One hypothesis for self-harm in a culture of honor is because one turning their anger inward because they were not able to protect themselves or another from harm or insult, such as being bullied and not sticking up for oneself (Crowder & Kemmelmeier, 2017). Those that suffer from anxiety disorders in the southern United States are hypothesized to be at greater risk of self-medication due to the culture of honor that looks down on those that seek help as a weakness. This view of asking for help as a weakness in turn causes those that suffer from anxiety disorders to wait to seek treatment, if in fact they ever do.

### **Honor, Anxiety and Aggression**

The southern honor culture that exists endorses the use of violence to prove that one can protect themselves, their families, and their property. The honor code insists that

one aggresses against others to protect one's reputation—meaning that they are being called a liar or not having integrity—protect property, and protect others' reputations, especially women. As mentioned in the last section, those in the southern states are more likely to be more violent than those in the northern states when it comes to insults. Howell et al. (2015) showed that people suffering from SAD in honor culture belief systems are more likely to participate in reactive aggression toward a social threat. This same study also pointed out that SAD sufferers are already socially anxious and that an added threat will push them to react with aggression toward others rather than leave or avoid the confrontation like those that live in non-honor culture societies (Howell et al., 2015). Cohen & Nisbett (1996) also showed that southerners that harbor the culture of honor beliefs have higher cortisol levels when encountering insults due to being psychologically and physiologically ready for a fight when insults occur. Not only do they have higher cortisol levels, but those that have anxiety disorders typically have higher heart rates and more emotionally driven responses to threatening or ambiguous situations (Banks et al., 2018). Those who feel that their efforts to be accepted into a group have been thwarted by others when reading ambiguous situations as negative, and these SAD sufferers may lash out with anger and aggression toward the offending party (Kashdan & McKnight, 2010).

Another area where SAD sufferers may be more aggressive is in dating. Hanby et al. (2012) conducted a study to discover if those with SAD are more likely to commit dating aggression toward a partner, and they found that male SAD sufferers typically show more dating aggression. This may be since those that have SAD are already afraid of being evaluated negatively by others, and this may increase when one is emotionally

invested and may react when imagined slights occur (Hanby et al., 2012; Howell et al., 2015). Somech and Elizur (2012) tested adolescent boys with anxiety and depression for “hostility/suspiciousness,” callousness, and attachment insecurity in an honor culture in Israel and found that these adolescent boys are more suspicious of others and tend to use anger and aggression as a self-protecting measure. This may also help to explain why those that suffer from SAD and have honor culture beliefs may be more aggressive in dating than others due to a self-protecting measure. Marsee, Weems and Taylor (2001) believed that socially anxious youths may have pre-existing socially cognitive beliefs or hostile attributional bias (HAB; Banks et al., 2018) that lead the adolescents to read vague social situations as threatening and to react with either relational aggression or physical aggression. Banks et al. (2018) found that those youths with higher HAB had much higher heart rates (HR) and less heart rate down time adjusting to vignettes that were socially ambiguous and/or hostile than those youths that had a lower HAB.

Relational aggression is when someone damages the standing, friendships, or other social relationships within a peer group (Marsee et al., 2008), which is very similar to the dating aggression described by Hanby et al. (2012). These biases may follow the adolescent youths into adulthood and cause more aggressive behavior both overt and covert when coupled with anxiety disorders.

Dixon, Tull, Lee, Kimbrel, and Gratz (2017) found an additional factor that affects SAD sufferers and pushes them to aggression, which is emotion-driven impulse control issues. Those that suffer from SAD and other anxieties may find that they have impulse control issues and will be more aggressive toward those that insult them. Not necessarily will they be more physically aggressive but they will use more relational

aggression more readily (Dixon et al., 2017) which is one way to keep themselves from being retaliated against by others (Marsee et al., 2008). Others do use overt forms of aggression as a protective action in order to reject others before they are rejected (Kashdan & McKnight, 2010).

Those that suffer from anxiety and anger dysregulation will have a more difficult time being treated due to anger being linked to maintaining anxiety disorders (Cassiollo-Robbins et al., 2015). This means that those that suffer from anxiety and have anger issues will not have as good a prognosis as those that only suffer from anxiety disorders alone. If anger is shown to maintain anxiety, then those that react with anger toward social slights may have a much longer road to recovery than those that do not react with anger toward social slights.

As can be seen by the literature, those that suffer from anxiety disorders are at much higher risk factors in many categories, namely in the categories of aggression toward others, self-harm, and suicide completion and attempts. Therefore, this information shows that it is very important to treat those with anxiety disorders in the social service's mental health division, instead of turning them away and having them seek help elsewhere. Those that live in honor culture areas, such as the southern United States, find it very difficult to reach out for help because this this can be seen as a sign a weakness. So, those that do reach out for help are at greater risk of not seeking help again if they are turned away in the lower U.S. states.

## CHAPTER III

### METHODOLOGY

This study is a systematic review of the literature examining the contribution anxiety makes toward public mental health outcomes. More specifically, the guiding question for the systematic review is: How does anxiety compare with major depressive disorder and schizophrenia and related disorders in terms of its effect on suicidal behavior, homicidal behavior, aggression, or unemployment? This study does not involve use of human or animal subjects. Therefore, no Institutional Research Board oversight is required for this research project. Appendix A is a letter from the Abilene Christian University Institutional Review Board affirming the above.

#### **Types of Participants**

Only quantitative studies that examined outcomes pertaining to effects of anxiety, depression, or schizophrenia spectrum disorders on public health (e.g., suicidality, homicidality, mental illnesses, etc.) have been included in the study selection process. To be included in this systematic review, the study needed to have participants of any age, but will be grouped as follows: 1) 0-9-year-olds; 2) 10-17-year-olds; 3) 18-64 year-olds; and 4) 65+ year-olds. Included studies will be of participants that have an anxiety disorder as either a primary or secondary diagnosis. Included studies will be experimental (i.e., using an equivalent control condition), quasi-experimental (using a non-equivalent comparison group), or longitudinal prospective (correlational). Studies may have been



conducted in other countries if the country's economic standing was similar to that of the United States of America. Additionally, studies must either report effect sizes or report sufficient statistical data to allow calculation of effect sizes.

### **Exclusion Criteria**

Case studies, newspaper articles, narratives, and review papers will be excluded from the review. However, studies that were referenced within their text may have been utilized. Studies that had not utilized anxiety as a mental health component within the study will be excluded. Studies that were duplicates studies, studies that were not peer reviewed, and non-full-text studies will be automatically excluded from this review. The first way in which articles will be excluded from the study is through the use of a Relevancy of Study Questionnaire (Appendix B). A secondary process will be utilized for study relevancy with a Survey Rating Form (SRF) (Appendix C).

### **Data Extraction**

The Relevancy of Study Questionnaire consisted of four questions that tested the initial relevancy to include in this study (Appendix B). The SRF was used to extract the data from the studies. The SRF was developed to help provide a measurable means of comparing quality and effectiveness of studies that utilized surveys. The SRF has three main parts that look at background information, quality of surveys used, and effect sizes. Appendix C has a copy of the SRF. The SRF uses the points for yes answers that are added together from questions 1 through 18, then divided by 18 and multiplied by 100 to get a percentage rating of 0-100% strength of study.

## **Screening**

During the prescreening process of the initial 81 articles, two articles were removed because they were duplicate studies, two book reviews were removed, and six informational articles (i.e., model descriptions, opinion articles, etc.) that did not have statistical data to utilize were removed. Upon reviewing titles and abstracts of the remaining 71 articles, 58 of these were not relevant to the current study parameters.

Due to the low number of studies that met inclusion criteria, a new search was conducted to attempt to find more applicable articles for inclusion. The titles of the most related studies were used along with a review of their reference pages. Through this review and smaller search, no more articles were found to fit within the scope of this study. In addition, utilizing key terms from within the most pertinent articles was conducted. The key terms utilized were: anxiety, depression, bipolar disorder, major depression disorder, schizophrenia, schizotypal, schizoid, aggression, suicide attempts, suicide ideation, and self-harm. This secondary search was limited to utilizing the Abilene Christian University OneSearch, PsycArticles, PsycINFO, and Social Work Abstracts. No further articles were found to meet inclusion criteria due to the lack of articles comparing anxiety to major depressive disorder (MDD), bipolar disorder, or schizophrenia with aggression, suicide, or self-harm features. Articles were limited from 2000-2018 and scholarly (peer-reviewed) journals only. The remaining studies were screened using the SRF as is seen in Table 1.

## **Calculation of Odds Ratios**

Odds ratios (OR) and standard error (SE) were calculated utilizing the Comprehensive Meta-Analysis Version 2.2. Standard errors were calculated and

evaluated for different outcome variables along with the odds ratios. For example, the first meta-analysis computed the presence of suicide attempts within the context of any of the various anxiety disorders being present versus the occurrences of suicide attempts without any disorders being present in the study population. The standard error shows the variation in the effects. The larger the error the more variation and the smaller the error is less variation. Large standard errors could mean heterogeneity of variance—which could indicate the presence of confounding variables.

### **Calculation of Effect Size**

Effect sizes and confidence intervals (CI) were also calculated using the Comprehensive Meta-Analysis Version 2.2. Different effect sizes were calculated for different outcome variables. For example, the second meta-analysis focused the total effect sizes for suicide attempts for each type of anxiety disorder from agoraphobia to specific phobia.

This study chose to focus on suicide ideation and suicide attempts only as it pertains to anxiety disorders. This study did not calculate aggression levels or self-harm associated with the different anxiety disorders that were spoken of as reasons for needing to focus treatment for anxiety due to lack of studies that fit the inclusion criteria.

## CHAPTER IV

### FINDINGS

Using the Study Screening Criteria, four of the remaining 13 studies qualified for further review. Any “no” answers for the Study Screening Criteria automatically disqualified that study. Table 1 shows the ratings results for each of the studies. The four studies that met the criteria for further review were rated using the SRF. Table 2 shows the results of this review. The SRF gives one point for every yes answer; this is divided by 18 and then multiplied by 100 to get the percentage strength for each study.

Table 1

*Study Screening Criteria and Results*

Study	Anxiety, MDD, Bipolar, or Schizophrenia	Country Comparable to the U.S.	Suicide	Quantitative Outcomes
Abreu, et al. (2018)	Yes	Yes	Yes	Yes
Cassiello-Robbins, et al. (2015)	Yes	Yes	No	Yes
Crowder & Kemmelmeier (2017)	Yes	Yes	No	Yes
Cummings, et al. (2013)	Yes	Yes	No	No
Gonda, et al. (2007)	Yes	Yes	No	No
Kerr & Muehlenkamp (2010)	Yes	Yes	No	Yes
Kessler, et al. (2012)	Yes	Yes	No	Yes
Nam, Kim, & Roh (2016)	Yes	Yes	No	Yes
Nepon, et al. (2010)	Yes	Yes	Yes	Yes
Somech & Elizur (2011)	Yes	Yes	No	Yes
Subica, et al. (2015)	Yes	Yes	No	Yes
Thibodeau, et al. (2013)	Yes	Yes	Yes	Yes

Table 2

*Survey Rating Form Results*

Study	Quality Score
Abreu, et al. (2017)	72.2%
Thibodeau, et al. (2013)	72.2%
Nam, et al. (2016)	72.2%
Nepon, et al. (2010)	66.7%

Table 2 shows the results of the SRF. The first three studies scored 72.2%, which is 13 “yes” marks out of 18. These studies failed to state that they conducted a pretest, state their hypothesis before the study began, have a non-interested party do their analysis, or complete any fact checking. The last one scored a 66.7%, which is 12 out 18 yes answers. This study failed to do a pre-test, state their hypothesis before the study began, did not use random sampling, did not have 80% inclusion, did not use outsider for data analysis, did not do any data checking, and did not statistically determine sample size needed for study.

The following study looked at four study articles that focused on anxiety disorders and the effect they have on suicide attempts and suicide ideation. According to the calculations for effect sizes anxiety disorders and suicide ideation/suicide attempts do have a correlation. Tables 3 and 4 show that anxiety has a significant effect on both suicide attempts and suicide ideation. Only agoraphobia and social phobia (*DSM-4*), also known as social anxiety disorder in the *DSM-5*, did not have statistical significance for suicide attempts. Table 4 is a depiction of the effect or correlation found in the four participants from two nationally representative household surveys conducted in 2001 and 2002 then 2004 and 2005 by Thibodeau et al., 2013.

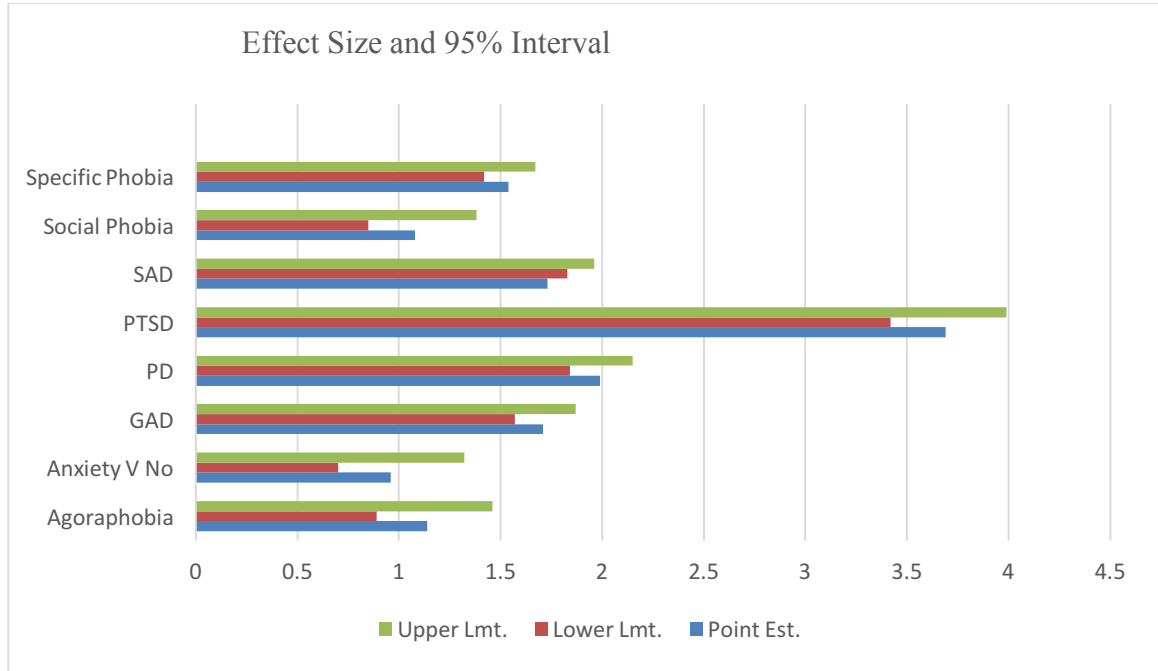


Figure 2. Anxiety Disorders on Suicidal Attempts: Fixed Effect

Table 3

Anxiety Disorders on Suicide Attempts: Fixed Effect Analysis

Group	Effect size and 95% interval				Test of null (2-Tail)	
	Number Studies	Point estimate	LL	UL	z	p
Agoraphobia	3	1.14	0.89	1.46	1.06	0.29
Anxiety Versus No Anxiety Disorder	1	0.96	0.70	1.32	-0.24	0.81
Generalized Anxiety Disorder	2	1.71	1.57	1.87	12.22	0.00
Panic Disorder	4	1.99	1.84	2.15	17.25	0.00
Posttraumatic Stress Disorder	3	3.69	3.42	3.99	33.37	0.00
Social Anxiety Disorder	2	1.73	1.53	1.96	8.76	0.00
Social Phobia	1	1.08	0.85	1.38	0.62	0.53
Specific Phobia	3	1.54	1.42	1.67	10.39	0.00

Table 4

*Anxiety Disorders on Suicidal Ideation Fixed Effect Analysis*

Group	Effect size and 95% interval			Test of null (2-Tail)		
	Number Studies	OR	LL	UL	<i>z</i>	<i>p</i>
Agoraphobia	2	1.82	1.53	2.18	6.66	0.00
Generalized Anxiety Disorder	2	1.62	1.52	1.74	14.01	0.00
Panic Disorder	2	1.79	1.67	1.92	16.14	0.00
Posttraumatic Stress Disorder	2	2.27	2.14	2.40	28.20	0.00
Social Anxiety Disorder	2	1.76	1.63	1.91	14.15	0.00
Specific Phobia	2	1.59	1.49	1.70	13.72	0.00

Table 5 shows the statistical significance for each study by itself compared to the other studies for anxiety disorders on suicide attempts. Studies conducted by Thibodeau et al. (2013) and Nam et al. (2016) both showed that anxiety is correlated with and statistically significant with suicidal attempts. All statistical significance utilized two-tailed test with significance being measured at a level of  $p < 0.05$ . Thibodeau et al. (2013) utilized both the NCS-R and NESARC, which are from the same study that is just showing two different survey groups. Each group is represented by an OR, which is the ratio of suicide attempts for someone suffering from all anxiety disorders versus someone without any anxiety disorders. Specifically, someone in this study will statistically attempt suicide 2.14 times to every one person that has no anxiety disorder that attempts suicide one time. Nam et al. (2016) shows that a person with panic disorder may have 2.75 suicide attempts to every one person without panic disorder attempting suicide once. Both of these studies had small subject sizes and, therefore, had larger statistical significances.

Table 5

*Anxiety Disorders on Suicide Attempts by Study: Fixed Effects*

Study name	Comparison	Outcome	OR	LL	UL	Z	p
Thibodeau et al.: NCS-R	Combined	Suicide Attempts	2.14	1.50	3.06	4.18	0.00
Thibodeau et al.: NESARC	Combined	Suicide Attempts	1.87	1.60	2.19	7.81	0.00
Nepon et al.	Combined	Suicide Attempts	1.23	0.78	1.95	0.91	0.36
Abreu et al.	Anxiety Versus No Anxiety Disorder	Suicide Attempts	0.96	0.70	1.32	-0.24	0.81
Yoon-Young Nam, et al.	Panic Disorder	Suicide Attempts	2.75	1.28	5.90	2.60	0.01
Combined Effects			1.68	1.49	1.91	8.21	0.00

The other two studies of Abreu et al. (2018) and Nepon et al. (2010) both were not found to be statistically significant for future suicide attempts with combined anxieties nor anxiety versus no anxiety disorder. Abreu et al. (2018) had a large sample size of  $n = 480$ , but only 63 patients (13.1%) had any suicide attempts. The population surveyed in this study were inpatient psychiatric patients in two separate psychiatric facilities. This study had an OR that was lower for anxiety versus no anxiety disorders of 0.96:1. Nepon et al. (2010) had a much larger subject pool of  $n = 34,653$  participants. Due to the large number of participants that were non-hospitalized adults that resided in the U.S. from 2001-2002 for wave 1 and 2004-2005 for wave 2 the suicide attempts within this representative sample was low and not statistically significant at  $p = 0.36$ . However, this study showed that those that suffered from anxiety disorders did have an OR of statistical significance with suicide attempts of 1.23:1.



Table 6 shows the statistical significance of anxiety disorders with suicide ideation. This table also looks at the study conducted by Thibodeau et al. (2013). In this portion of the study, suicide ideation is evaluated and found to be statistically significant at  $p = 0.00$  for both the NCS-R and the NESARC surveys. These both have significant OR's for combined anxiety disorders. The combined effects for both studies have the same statistical significance but with an OR of 1.80:1. The NCS-R was a survey that was conducted in the years of 2001 and 2003 and the NESARC is a two-wave survey conducted first wave in 2001 and 2002 and second wave in 2004 and 2005. Both the NCS-R and NESARC were nationally representative U.S. household surveys.

Table 6

*Anxiety Disorders on Suicide Ideation by Study: Fixed Effects*

Study name	Comparison	Outcome	OR	LL	UL	Z	p
Thibodeau et al.: NCS-R	Combined	Suicide Ideation	1.87	1.44	2.44	4.70	0.00
Thibodeau et al.: NESARC	Combined	Suicide Ideation	1.79	1.61	1.99	10.81	0.00
Combined Effects			1.80	1.63	1.98	11.78	0.00

In the study, it is noted that agoraphobia without panic disorder was not correlated with either future suicide ideation or future suicide attempts (Thibodeau et al., 2013) and should not be misconstrued as being so due to the current analysis.

The next analysis that was conducted looked at each study, the number of participants that had a specific anxiety disorder, and the OR related to suicide attempts or suicide ideation. This table also explains what type of study was used to ascertain these numbers. Each OR is statistically significant when looking at outcome and comparison,

except for, Abreu et al. (2018) anxiety versus no anxiety disorder and suicide attempts, and Thibodeau et al. (2013) agoraphobia without panic disorder and suicide attempts.

Table 7

*All Studies Anxiety Disorders and Suicide Ideation/Suicide Attempts: Odds Ratios*

# of participants	Study name	Subgroup within study	Comparison	Outcome	Data format	Odds ratio
16	Thibodeau et al.	NESARC Attempts	Posttraumatic Stress Disorder	Suicide Attempts	OR	4.25
25	Yoon-Young Nam	N/A	Panic Disorder	Suicide Attempts	OR	2.75
5	Thibodeau et al.	NCS-R Attempts	Social Anxiety Disorder	Suicide Attempts	OR	2.70
4	Thibodeau et al.	NCS-R Attempts	Posttraumatic Stress Disorder	Suicide Attempts	OR	2.64
15	Thibodeau et al.	NESARC Attempts	Panic Disorder with or without agoraphobia	Suicide Attempts	OR	2.13
3	Thibodeau et al.	NCS-R Attempts	Panic Disorder with or without agoraphobia	Suicide Attempts	OR	2.01
14	Thibodeau et al.	NESARC Attempts	Generalized Anxiety Disorder	Suicide Attempts	OR	1.91
6	Thibodeau et al.	NCS-R Attempts	Specific Phobia	Suicide Attempts	OR	1.83
30	Nepon et al.	N/A	Posttraumatic Stress Disorder	Suicide Attempts	OR	1.81
35	Stringer et al.	N/A	Lifetime Social Phobia	Suicide Attempts	Risk ratio	1.73
1	Thibodeau et al.	NCS-R Attempts	Agoraphobia without panic disorder	Suicide Attempts	OR	1.72

18	Thibodeau et al.	NESARC Attempts	Specific Phobia	Suicide Attempts	OR	1.63
17	Thibodeau et al.	NESARC Attempts	Social Anxiety Disorder	Suicide Attempts	OR	1.62
33	Stringer et al.	N/A	Lifetime GAD	Suicide Attempts	Risk ratio	1.45
29	Nepon et al.	N/A	Panic disorder with or without agoraphobia	Suicide Attempts	OR	1.31
27	Nepon et al.	N/A	Agoraphobia without panic disorder	Suicide Attempts	OR	1.21
34	Stringer et al.	N/A	Lifetime Panic	Suicide Attempts	Risk ratio	1.11
28	Nepon et al.	N/A	Generalized Anxiety Disorder	Suicide Attempts	OR	1.10
31	Nepon et al.	N/A	Social phobia	Suicide Attempts	OR	1.08
32	Nepon et al.	N/A	Specific phobia	Suicide Attempts	OR	1.04
26	Abreu et al.	N/A	Anxiety Versus No Anxiety Disorder	Suicide Attempts	Cohort 2x2 (Events)	0.96
13	Thibodeau et al.	NESARC Attempts	Agoraphobia without panic disorder	Suicide Attempts	OR	0.93
2	Thibodeau et al.	NCSARC Attempts	Generalized Anxiety Disorder	Suicide Attempts	OR	1.53
2	Thibodeau et al.	NCS-R Attempts	Generalized Anxiety Disorder	Suicide Attempts	OR	1.63
10	Thibodeau et al.	NCS-R Ideation	Posttraumatic Stress Disorder	Suicide Ideation	OR	2.34
22	Thibodeau et al.	NESARC Ideation	Posttraumatic Stress Disorder	Suicide Ideation	OR	2.26
11	Thibodeau et al.	NCS-R Ideation	Social Anxiety Disorder	Suicide Ideation	OR	2.09

9	Thibodeau et al.	NCS-R Ideation	Panic Disorder with or without agoraphobia	Suicide Ideation	OR	2.04
7	Thibodeau et al.	NCS-R Ideation	Agoraphobia without panic disorder	Suicide Ideation	OR	1.91
19	Thibodeau et al.	NESARC Ideation	Agoraphobia without panic disorder	Suicide Ideation	OR	1.80
21	Thibodeau et al.	NESARC Ideation	Panic Disorder with or without agoraphobia	Suicide Ideation	OR	1.78
23	Thibodeau et al.	NESARC Ideation	Social Anxiety Disorder	Suicide Ideation	OR	1.72
20	Thibodeau et al.	NESARC Ideation	Generalized Anxiety Disorder	Suicide Ideation	OR	1.63
24	Thibodeau et al.	NESARC Ideation	Specific Phobia	Suicide Ideation	OR	1.61
8	Thibodeau et al.	NCS-R Ideation	Generalized Anxiety Disorder	Suicide Ideation	OR	1.53
12	Thibodeau et al.	NCS-R Ideation	Specific Phobia	Suicide Ideation	OR	1.49

*\*Organized by order of OR from greatest to smallest with suicide ideation/attempts.*

## CHAPTER V

### DISCUSSION

#### **Summary of Findings**

This study aimed to discover if anxiety disorders are significantly correlated with suicide attempts and suicide ideation. Each of the above analysis of anxiety disorders and suicide ideation and suicide attempts mostly showed statistical significance and a correlation between the two. Correlation does not mean causation and no causation should be interpreted into anxiety and suicide ideation/attempts. However, this meta-analysis does help to show that anxiety disorders are indeed an issue when it is looked at with suicide ideation/attempts.

Thibodeau et al.'s (2013) study does help us understand the sheer number of people who may suffer from an anxiety disorder and the impact that has on someone's life as far as suicide is concerned. The anxiety disorders agoraphobia without panic disorder did not have a statistically significant correlation with suicide ideation/attempts. This sample of over 34,000 people is supposed to be generalizable to the greater U.S. population due to having been a nationally representative sample. However, this survey was conducted in 2001-2002 and 2004-2005 and may not represent the current population and sufferers of anxiety disorders.

The overall consensus between all the studies is that all of the anxiety disorders, except for social phobia and anxiety versus not anxiety disorder, were each statistically significant in all analysis of ORs and  $p$  values. PTSD appears to have the highest number of persons that suffer from suicide ideation/attempts within their lifetimes. Although PTSD is not classified as a *DSM-5* anxiety disorder, the main feature of this disorder is

one of hypervigilance, which is constant worry about a possible future event that may trigger someone's past traumatic experience (American Psychiatric Association, 2013). The majority of those that suffer from PTSD go to great lengths to avoid any situation that may trigger such an episode, which is also a similar symptom to an anxiety disorder. Agoraphobia was the next highest occurrence of suicide ideation/attempts within the frame of this study.

Nam et al. (2016) showed that there was a strong correlation between those with panic disorder and suicide ideation/attempts. It was also discovered that those that suffer from panic disorder are more likely to attempt suicide at a much younger age than those that do not have panic disorder. In addition, it was discovered that someone who suffered from panic disorder along with comorbid major depressive disorder had an even higher chance of suicide attempts than their cohorts with just panic disorder.

Nepon et al.'s (2010) study showed that only PTSD and agoraphobia with and without panic disorder were statistically significant when correlating with suicide ideation/attempts. This study shows that there is a correlation between all anxiety disorders and suicide ideation/attempts, except for in the case of looking at specific study results. When the results are pooled, all of the anxiety disorders have high ORs and  $p$  values for suicide ideation, but not when looking at suicide attempts. Social phobia and anxiety versus no anxiety disorder do not have statistical significance on the  $p$  values when correlating for suicide attempts. However, social phobia does have an OR of statistical significance even though anxiety versus no anxiety does not have an OR of statistical significance.

Thibodeau et al. (2013) argued that those that have anxiety disorders have an increased battle with future suicide ideation/attempts throughout their lifetime. Lepine (2002) showed that anxiety disorders become chronic when they are not treated, and further states that less than 30% of sufferers actually seek help. In addition, those that are age 40 to 64 years and have specific phobias are at much higher risk of heart attack (Allgulander & Lavori, 1991). In addition to the previous findings, men 12 to 52 years old and women who are 18 to 54 years old who had been misdiagnosed with panic disorder, when in fact they had other anxiety disorders, were found to have excessively higher rates of unnatural deaths (Noyes & Clancy, 1982; Coryell, Noyes, & House, 1986).

Although the numbers were not analyzed for honor code, aggression and self-harm, the literature does show that all three of these factors are correlated with anxiety disorders (Cassello-Robbins et al., 2015; Crowder & Kimmelmeier, 2017; Crowder & Kimmelmeier, 2018; Kerr & Muehlenkamp, 2010; Somech & Elizur, 2012; Subica et al., 2016). It is important that these three correlates with anxiety not be lost although they are beyond the scope of this studies analysis. The literature is clear that “honor code” (Crowder & Kimmelmeier, 2017; Howell et al., 2015; Somech & Elizur, 2012) plays a role in aggression and self-harm, especially in the southern states, and needs to be considered when trying to understand all the current and future costs of possibly not treating someone with an anxiety disorder. Due to this “honor code,” aggression, and suicide ideation/attempts that are much greater in the southern U.S., it is even more imperative that anxiety sufferers that do not have the resources to utilize mainstream mental healthcare need to be treated within the social services sector.

### **Implications for Policy**

The current policy that exists does not understand that anxiety is one of the most prevalent mental disorders in developed countries and turns sufferers away in the social services mental health area. The new policy needs to add anxiety to the current “Big 3” as a diagnosis for treatment. This study showed that those that suffer from anxiety disorders have higher instances of suicide ideation/attempts than their counterparts. As mentioned above, those that do not have the resources to gain access to mainstream mental health, are in greater need of being assisted through the social services mental health sector.

Social services mental health departments need to make sure that their policy is to treat anxiety disorders due to their close correlation with suicide ideation/attempts (Abreu et al., 2018; Darrell-Berry et al., 2016; Kaprinis et al., 2008; Nam et al., 2016; Stinger et al., 2013; Thibodeau et al., 2013). This meta-analysis also showed that there is a strong correlation between many anxiety disorders and suicide ideation/attempts. With this information in mind, it is important that anxiety disorders to be treated as a life-threatening disorder and be classified along with the “Big 3” in social services mental health facilities as a treatable disorder. The WHO (2014) ranked suicide as the second cause of death for people ages 15 through 19 years old. The CDC (2017) has suicide ranked as the tenth cause of death in U.S. These statistics should also inform those making policy due to anxiety disorders showing a strong correlation with suicide ideation/attempts within the scope of this and other studies.



Policy makers at the local, state, and federal levels need to be made aware of how important and prevalent anxiety disorders are within first-world nations. Policies at the local level should look at the possibility of partnering with local businesses in order to find the funds in which to pay for the extra cost of treating anxiety disorders within the social services mental health sector (Worth, 2017). If the local social services mental healthcare department is unable to take on the added cost, possibly due to the lack of qualified staff, a collaboration may be another option. In this collaboration, the social services department may contract out to other providers to treat the anxiety disorders and the social services mental health department would pay those providers. These providers could be facilities all the way through the spectrum to private practice providers. Utilizing clinical psychologists and clinical social workers is an option for collaboration at the local level. It would also be advantageous to collaborate with outside psychiatrists within an area and PCPs.

Collaboration policies could mandate that PCPs or medical personnel take a course or a set of courses for good practices when prescribing medications to patients for mental health purposes. It would be a fortuitous opportunity to help medical personnel to understand best practices for medication and even outside therapies when treating for anxiety disorders. These courses would allow for the medical personnel to understand the way in which the social services mental health department is mandated to care for their consumers and what is expected to fill this role in the private sector. A collaboration between the local mental health hospitals and the social services mental health departments would be a good fit.

## **Implications for Practice**

Those that suffer from homelessness have a highly stressful existence and suffer from depression and anxiety disorders (Fitzpatrick, 2017). This population also has a higher risk for suicide ideation and attempts (Noël et al., 2016). Since the homeless have high rates of anxiety disorders, and this study shows that anxiety sufferers are at higher rates of suicide, the correlations between anxiety disorders and the high suicide rates among this population may be a natural leap. This population finds it difficult to access resources due to their predicament. Those that are able to access services find that they are treated poorly by staff at clinics and receive subpar care (Mago, MacEntee, Brondani, & Frankish, 2018; Notaro, Khan, Kim, Nasaruddin, & Desai, 2013). This subpar care leaves many with feelings of anger and anxiety to reach out for care in other settings. Therefore, it is important that policy makers find a way to reach out to the homeless populations and show them that they care and are willing to give the best care possible.

This outreach may be achieved through the use of the Assertive Community Treatment (ACT) Team. The ACT Team goes into the community to treat severely mentally ill clients that are homeless within their communities (Woesner, Marsh, & Kanofsky, 2014). The ACT Team could do daily outreach to the homeless population that surrounds their current clients and try to help them gain access to the mental health services that they need. Possibly the ACT Team could start by handing out daily bus passes and other needed resources so that this population has the opportunity to utilize in-house mental health services.

Ophius et al. (2017) conducted a systematic review of the literature on which interventions are most cost-effective for treating anxiety disorders. Since the policy

should be changed to treat anxiety, it is pertinent to understand what the most cost-effective treatment in the current literature is. According to this study, the most cost-effective way in which to treat anxiety for children 8-18 years old was cognitive behavioral therapy (CBT) rather than family cognitive behavioral therapy (fCBT). In addition, showed that the most cost-effective way in which to treat adult anxiety was guided internet CBT (iCBT).

Internet CBT may be a low-cost, effective way in which to reach patients with anxiety disorders that do not have the resources to make it to appointments. This may be the program that a community partnership could be brokered under. For instance, having a local company pay for the cost for the set-up and maintenance of the web service, in exchange for having some advertisements on the webpage would be a great community partnership opportunity. Even possibly making a collaboration with mental health providers in the area to help pay for the cost of adding anxiety disorders as a treatable diagnosis in exchange for doing some sessions and getting their name out into the community as a good caregiver.

### **Implication for Research**

Due to the limited number of research articles that were available, and that they only looked at how anxiety disorders effected suicide ideation and attempts, future research should look at longitudinal studies comparing the effects of anxiety disorders on society versus the effects of the “Big 3” on society. Also, Subica et al. (2015) found that those that suffer from comorbid anxiety and depression are better served by targeting general distress in patients. This treatment may help to lower depression, anxiety, and self-harm in these patients that have the comorbid diagnosis.

PTSD was found to have much higher instances of suicide ideation/attempts in this study. Looking at how PTSD effects aggression, self-harm, and suicide ideation/attempts would be a good direction. In addition, it would be fortunate to compare honor codes, aggression, self-harm, and substance abuse and their correlation with anxiety disorders. Finding if correlations exist between these variables would help to add to the current literature that looks at each of these individually. Finally, it would help to look at each of these variables as they correlated with major depression disorder, bipolar disorder, and the schizophrenia spectrum disorders versus anxiety disorders correlations.

## CHAPTER VI

### LIMITATIONS AND CONCLUSION

The current study is limited by the small number of articles that only looked at suicide ideation/attempts within anxiety disorder sufferers. Two of the four articles had only small sample sizes. One of these small sample sizes only used patients within psychiatric care, which limits the generalizability of results to other populations. In addition, comorbidity with other disorders was not calculated within the current study results. However, the current study did show most of the anxiety disorders have statistical significance within the suicide ideation/attempts specifications. Two of the studies utilized large representative samples and showed statistical significance within most of the anxiety disorders, but the large samples were from two older surveys that were conducted back in 2001-2002 and 2004-2005. The current population statistics may be completely different from those represented by these two studies.

Due to the current studies' strengths of statistical significance both within the  $p$  values and the ORs, it may be seen that anxiety disorders are correlated with suicide ideation/attempts within the U.S. population. All anxiety disorders except for agoraphobia without panic disorders, the old *DSM-4*'s social phobia, and anxiety disorders versus no anxiety disorders were found to be correlated with suicide ideation and suicide attempts. This information does show that there is a strong relationship

between the two and due to the results being written within the last 10 years, it is possible to take the result at face value.

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APPENDIX A

Institutional Review Board Approval Letter

**ABILENE CHRISTIAN UNIVERSITY**

*Educating Students for Christian Service and Leadership Throughout the World*

Office of Research and Sponsored Programs  
320 Hardin Administration Building, ACU Box 29109, Abilene, Texas 79699-9109  
325-674-2885



12/12/2017

Adela Robinson

Department of Social Work

1007 Wolfe Rd.

Abilene, TX 79602

Dear Adela,

On behalf of the Institutional Review Board, I am pleased to inform you that your project titled "Anxiety, a Growing Social Problem in Indigent, Low-Income, and Uninsured Populations"

(IRB# 17-108 ) is exempt from review under Federal Policy for the Protection of Human

Subjects as:

- Non-research (45 CFR 46.102(d))
- Non-human research (45 CFR 46.102(f))

Based on:

Anonymous or coded data or specimens in which the data are anonymous (there are no identifiers attached to the original data or specimens)

If at any time the details of this project change, please resubmit to the IRB so the ~~committee can determine whether or not the exempt status is still applicable.~~

I wish you well with your work.

Sincerely,

*Megan Roth*

Megan Roth, Ph.D.  
Director of Research and Sponsored Programs

## APPENDIX B

### Relevancy Of Study Questionnaire

<b>Question</b>	<b>Yes/No</b>
Does the study include participants with anxiety, depression, bipolar, or schizophrenia?	
Is the study conducted in a financially first world country?	
Does the study look at aggression, suicide, self-harm, or substance abuse?	
Are the articles quantitative studies that examined outcomes pertaining to effects of anxiety, depression, or schizophrenia spectrum disorders on public health (e.g., suicidality, homicidality, mental illnesses, etc.)?	

\*Any articles that receive a **NO** on any of the questions will be disqualified.

## APPENDIX C

### Survey Rating Form

**Purpose**

The SRF is designed to compute a single index of the quality of any type client survey (including needs assessment and client satisfaction). Higher scores indicate a stronger survey study that may range from a through 100. This section is designed to provide you with practice with SRF to determine whether to apply survey results to your own practice.

**Instructions**

Please read the Explanation for each criterion on the SRF form with the intent of applying the criteria to what you read. Check “yes” for each numbered item that meets the criteria. Give one point for each check mark and divide the number by 18 to convert to a percentage. Scores can range from 0 to 100. This is only an ordinal scale, meaning that a score of 10 is higher than a score of 5 but not necessarily twice as high a score. No norms exist for SRF, nor data for its validity (other than the literature cited here), nor reliability checks for independent ratings using the form.

**Source in APA Format (American Psychological Association, 2001)**

<i>Clear About What the Author(s) Wanted to Know</i>			<i>Clear Question Wording. Examine the three principal questions (most important to your potential use for the study's results) on the</i>		
1. Importance	2. Authors stated hypothesis is before study began	3. Pretested the Questionnaire or interview guide	4. No double-barreled questions (i.e., multiple headed, two questions posed as one, multiple questions)	5. No leading or loaded questions	6. No questions that go beyond the expected vocabulary of respondents

<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
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<i>Questionnaire or interview guide (if at least three are not given in the article, then give no points for question wording on items 4 through 8).</i>			<i>Sampling Procedures</i>		
7. No vague questions	8. No extremely long or complex questions	9. Subjects assured anonymity or confidentiality	10. Population stated	11. Random or stratified random sampling procedure	12. Survey instrument checked for reliability
<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No

	<i>Analysis</i>			<i>Study Findings</i>	
13. At least 80% of those selected for inclusion in sample included in study	14. Analysis done by disinterested worker	15. Data checking applied	16. Sample size determined statistically	17. Generalizations founded	18. Reader avoids extrapolation error
<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No

Total Number Checked \_\_\_\_\_

Score = (number checked/18) X 100 \_\_\_\_\_

1. Importance of the study. The authors (a) cite literature that states specifically why the survey is worth doing, and (b) the literature supports the need for the survey, and (c) the authors address how the survey fills a gap or need.
2. Authors stated hypothesis before study began. The authors stated in writing, before gathering data, their reasons for selecting particular variables for study or stated their hypothesis. Give the point for this one for any evidence that they did so with another person (e.g., research proposal) before collecting any data. This keeps the research from becoming a fishing expedition where even random data appear to contain some structure.
3. Pretested the Questionnaire or interview guide. The authors state specifically that they pretested their questionnaire or interview guide on persons similar to those whom they would eventually survey.
4. No double-barreled questions (i.e., multiple-headed, two questions posed as one, multiple questions) Give one point if you cannot find a double-barreled question among the survey's questions (i.e., two questions posed as one, usually connected by *and* or *or*).
5. No leading or loaded questions: Give one point if you cannot find a leading or loaded question. Such questions tell the respondent, often in a subtle way, what the researcher expects for an answer. Here are examples: "Please list your reasons for being satisfied with your services here on the Neurosciences Ward." (This could be converted to a nonleading format by asking two questions as follows: Have you been satisfied with your services on the Neurosciences ward? Yes [ ] No [ ] Both Yes and No [ ]." Then ask for explanations for each.
6. No questions that go beyond the expected vocabulary of respondents: Give one point if you cannot find a single word in a question on the survey that might confuse respondents because it goes beyond their level of education, cultural background, or life experience.
7. No vague questions: Give one point if you cannot find a question that seems unclear to you.
8. No extremely long or complex questions: Give one point if you cannot find a single question that you could word more clearly or more briefly but say the same thing.
9. Subjects assured anonymity or confidentiality: Those who did the study state that they gave respondents assurance that their responses would be kept anonymous (i.e., their names would not appear in any way on their responses) or that they would be kept confidential (no one but the researcher would know who gave what response).
10. Population stated: The authors state specifically the population from which they drew their sample (e.g., the population for a study of client satisfaction might be every family that adopts a child from the Friends Agency from June 1,2002, to

December 1,2002). If you are clear about exactly who qualifies for membership in the population, then give this point.

11. Random or stratified random sampling procedure: The authors state that they have selected the sample to take the questionnaire or to be interviewed according to a random or stratified random procedure and they describe precisely how they did their selection (table of random numbers, specific computer algorithm).
12. Survey instrument checked for reliability: The authors state that their questionnaire was checked in some way for reliability and at least one of the reliability coefficients is above .70 or 70% agreement.
13. At least 80% of those selected for inclusion in sample included in study: Divide the number who actually completed their interviews or questionnaires by the number of subjects selected for study and multiply this quotient by 100 to get the percent studied.
14. Analysis done by disinterested worker: The authors state that workers who did the analysis had no stake in the study's outcome. Ideally, those doing the analysis should be independent of the agency to prevent intentional bias.
15. Data checking applied: It is amazing how often errors can creep into data collection, coding, and analysis. If the authors refer to any data-checking procedure (e.g., plotting data, checking for illogical values, checking for outliers), then give one point here.
16. Sample size determined statistically: The authors state specifically what statistical procedure was applied (based on confidence interval, I) value, and variance) to determine how many subjects they needed to study.
17. Generalizations founded: The authors generalize their findings only to the population from which they selected their sample. For example, if their population was families adopting a child from the Friends Agency from June 1, 2002, to December 1,2002, then their generalizations technically should be made only about this sample. Do not give the point here if they generalize to other agencies or to adoptions in general.
18. Reader avoids extrapolation error: To be useful, the study's findings should apply to your own clients. This squishy criterion can be met if you judge that the observations made in the study would apply to your clients. Are they the same age, sex, race, ethnic background? Do they have the same problem type, strengths, and so on?