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An Examination of the Psychometric Properties of the Mental Health Literacy Scale with K-12 Educators

Cassandra A. Kenney
ckenney15@georgefox.edu

AN EXAMINATION OF THE PSYCHOMETRIC PROPERTIES OF THE MENTAL HEALTH LITERACY SCALE WITH K-12 EDUCATORS

by

Cassandra A. Kenney

FACULTY RESEARCH COMMITTEE:

Chair: Dane C. Joseph, PhD

Member: Karen Buchanan, EdD

Member: Susanna Thornhill, PhD

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This dissertation has been approved and accepted by:

3/19/19		Committee Chair
Date	Dane Joseph, PhD	Assistant Professor of Education
3/19/19	Karen Buchanan	
Date	Karen Buchanan, EdD	Professor of Education
3.19.19	Susanna Thornhill	
Date	Susanna Thornhill, PhD	Associate Professor of Education

Abstract

The aim of this study was to explore the psychometric properties of the Mental Health Literacy Scale (MHLS) with K-12 educators, including the exploration of an education-modified version of the MHLS, and a between groups comparison of practicing educators. A tool that is reliable and easy to administer could help assess staff mental health literacy needs and guide district professional development. In this study, the MHLS was found to have several strong scales. The *disorder recognition scale, information seeking knowledge scale,* and the *attitudes scale,* which demonstrated better reliability and factorability when divided into two sub-scales, all demonstrated good to excellent reliability. The education-modified version of the MHLS did not demonstrate any practical difference in factor structure or reliability from the standard MHLS. The education-modified MHLS may be a viable option for quickly assessing educator mental health literacy given the limited time schools have available for making effective professional development decisions. Between groups comparisons of MHLS scores revealed no significant differences between classified and certified staff, as well as no significant differences between general and special educators. Comparison of the mean MHLS score to other research studies utilizing the MHLS demonstrated that the sample of educators had the lowest mean score out of any previous samples. These results merit further investigation into how to support all school district staff and provide them with the tools and professional development required to successfully identify and support students with mental health needs.

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Table of Contents

List of Tables

List of Figures

Chapter One

Many mental health disorders develop for the first time in childhood and adolescence with as many as 20% of children and adolescents under 18 years old experiencing mental health concerns (National Research Council and Institute of Medicine, 2009; US Surgeon General, 2001). If the child is in an adverse environment, the prevalence increases to 25% (McLaughlin et al., 2012; World Health Organization, 2004). Examples of adverse environments include parental loss, child maltreatment, and poverty (McLaughlin et al., 2012). According to a 2001 report on children's mental health, of those 20% of children who require mental health interventions, 11% have impairment in functioning at home, school, and with peers that is significant according to the DSM IV diagnostic criteria, and 5% experience impairment in functioning that is extreme (U.S. Surgeon General, 2001). Research on trends in child and adolescent mental health demonstrates an increase in prevalence of mental health disorders (Perou, Bitsko & Blumberg, 2012) with consequences up to and including youth suicide (Cash & Bridge, 2009). Given the needs, it is alarming that only 30% of children and adolescents with mental health concerns access treatment (Merikanges et al., 2010).

There has been an evolution in the role that schools are expected to play in supporting student mental health needs (Adelman & Taylor, 2000), which stems from several factors converging in the early 1990's. These factors include a rise in teen suicide and dropout rates (Puskar, Lamb & Norton, 1990; Rhodes & Jason, 1998) as well as Public Law 94-142, and the Education for All Handicapped Children Act of 1975, which mandated schools to educate students with disabilities in the least restrictive environment. As part of this evolution, educators have been identified as being on the front lines of identification, prevention, and referral for students with mental health needs (Burns, Costello, Tweed, Farmer & Erkanli, 1995). Although

this need has been identified, there are few empirically-validated instruments to assess current educator capacity to perform these tasks (Wei, McGrath, Hayden & Kutcher, 2016).

The ability to navigate needed mental health services can be viewed from a public health perspective. In the past 20 years, a subsection of health literacy (HL) focused on psychological well-being, titled mental health literacy (MHL), has emerged (Jorm, 1997). HL has long been recognized as an important component of physical health and has been linked to numerous positive outcomes including self-efficacy, satisfaction, and patient coping skills (Adams, 2010). However, people with lower levels of mental health literacy often hold largely negative attitudes towards mental health treatment resulting in stigmas that create a barrier to appropriate treatment referrals for themselves, as well as for those around them (Jorm, 2000). To date, research has identified that educators are uniquely positioned to identify students with mental health concerns and connect them with needed services. Research has also demonstrated that MHL is an important component of being able to identify and refer self and others for support. There is a gap, however, in research on the MHL of educators.

Rationale

Research has identified that educators are uniquely positioned to identify students with mental health concerns and connect them with needed services, and that MHL is an important component of being able to identify and refer others for needed support. However, existing research on MHL does not include practicing educators (Whitley & Gooderham, 2016). In addition to this gap in research, there are limited empirically-validated methods to assess MHL in any population (Wei, McGrath, Hayden & Kutcher, 2016). Without any empirically-validated methods to assess MHL, or any research on the MHL of educators utilizing an empirically-validated method, the current literature is unable to validly assess the level of MHL that

educators possess. Nor is there understanding of what educators need in order to connect students with mental health services.

Although international literature on MHL is relatively new, research completed in the United States surrounding the MHL of educators is extremely sparse. This may be due to a national decrease in the funding of mental health research between 2005 and 2015 (Hoagwood, Atkins, Kelleher, Peth-Pierce, Olin, Burns & Horwitz, 2018). Research has also indicated the need for a more standardized way to measure MHL (O'Connor, Casey & Clough, 2014). In the past several years there have been strides towards a validated form of measurement, including the Mental Health Literacy Scale (MHLS) (O'Connor & Casey, 2015).

The MHLS includes multiple items regarding participant interactions with people experiencing mental illness. Although these items are designed to examine attitudes, contextually they are not a fit for the educational environment.

Purpose Statement

The purpose of this study was three-fold. First, it sought to examine the psychometric properties of the MHLS in a sample of practicing educators. Second it aimed to compare scores between groups of educators in order to understand whether there are any statistically significant differences among groups. Third, the study intended to compare the factor structure of the original MHLS and an education-modified version of the MHLS, in a step toward creating a version of the MHLS that better fits within educational contexts. This study was a cross-sectional quantitative survey using data collected from a sample of educators in selected Oregon K-12 school districts. The independent variables were the educator demographics ascertained from the survey and the dependent variable were scores on the MHLS.

Research Questions

This study explored four research questions.

1. What is the factor structure of the MHLS?
2. Are the scores on the MHLS reliable?
3. Are scores on the MHLS significantly different across groups of educators?
    a. By gender (male, female, transgender, or other).
    b. By special educator status (yes or no).
    c. By instructional level (elementary or secondary).
    d. By employment classification (certified or classified).
4. Is there a practical difference in factor structure and reliability between the original MHLS version and an education-modified MHLS version?

Significance

There were several potential contributions of this research. The first potential contribution was to examine whether the factor structure and reliability of the MHLS could be substantiated in a sample of educators. A tool that is valid, reliable, and easy to utilize would be of great practical significance to school districts working to assess educator knowledge of student mental health. Accurate assessment of educator knowledge could assist leadership in determining appropriate mental health training needs for personnel. This study had the potential to enhance the field by giving input into whether the MHLS could become that tool.

A second potential contribution of this research was the comparison between groups of educators. The between-groups comparison may enable school districts to better target their professional development around student mental health. Professional development and release time come at a financial cost to districts. The knowledge of which group needs the greatest

amount of support regarding MHL would allow districts to prioritize more effectively who receives professional development.

The third potential contribution of this research was a step towards the development of an education-modified version of the MHLS to better fit the context of the school environment. A version that uses language modified to better fit the population of educators, while still maintaining the same psychometric properties as the original version, has the potential to seem more relevant to the target population. Educators may be more likely to complete the full measure if they feel it is relevant to their current position.

A final potential contribution of this research was to assist in future standardization of the MHLS. An assessment that is standardized would have great practical significance in the field of education to assess the actual level of MHL that educators possess, rather than solely scores relative to other populations. Currently, there is no cut-off score to determine whether a participant has sufficient MHL, or to determine levels of MHL. Part of the standard-setting process includes demonstrating that the measure has a high level of reliability. Documentation of participant demographics and the measure's descriptive statistics are essential in interpreting the consistency of scores across multiple samples and research studies (Meyer, 2010). The Cronbach's alpha, as well as mean and standard deviations found in this research, offers the potential to inform future standard-setting efforts for the MHLS.

Definitions of Terms

Attitudes: A way of thinking or feeling about someone or something. In MHL, this specifically includes attitudes surrounding recognition or appropriate help-seeking behavior (O'Connor, Casey & Clough, 2014).

Classified Staff: School employees who do not require a specific certification or licensure for their position (e.g. instructional assistants).

Elementary Educators: Educators primarily employed in the elementary setting (grades kindergarten-5/6).

General Educators: School district staff hired with general funds to provide instruction and services to all students (e.g. content area teachers).

Certified Staff: School employees who require a specific certification or licensure for their position (e.g. teachers).

Knowledge: Understanding of facts and information. In MHL, this includes knowledge of how to obtain information regarding mental health, risk factors for mental health concerns, causes of mental health concerns, and professional help available for mental health concerns (O'Connor, Casey & Clough, 2014).

Mental Health Literacy (MHL): The general public's beliefs and knowledge about mental disorders, which may aid in their prevention, recognition, and management (Jorm, 1997).

Secondary Educators: Educators primarily employed in the middle and high school setting (grades 6/7- 12+).

Recognition: Ability to identify signs and symptoms. In MHL, this refers to the ability to recognize concerning symptoms suggestive of mental health disorders (O'Connor, Casey & Clough, 2014).

Special Educators: School district staff hired to provide specially designed instruction and services to students eligible for special education services.

Stigma: The belief that an attribute that one possesses is discrediting, which leads to feelings of shame and isolation (Corrigan, 2002).

Limitations/Delimitations

This study had several limitations and delimitations. The first limitation was that, given the topic of MHL and the stigma that can surround mental illness, (Woodall, Morgan, Sloan & Howard, 2010) participants may have self-selected out of the study before beginning, or aborted the survey after partial completion.

A second limitation of the research was the lack of previous research on MHL in the United States. The majority of research on MHL has been completed in the United Kingdom (Atkins & Roger, 2016), Australia (Burns & Rapee, 2006; Jorm, 1997; Jorm, 2012), and Canada (Fortier, Lalonde, Venesoen, Legwegoh & Short, 2017; Kutcher, Wei & Coniglio, 2016). One potential source of this limitation may be the 42% decrease in funding from the National Institute of Mental Health for child and adolescent mental health research between 2005 and 2015 (Hoagwood et. al, 2018). During this same time period, research on MHL has consistently come out of other countries which have funded research on MHL. Lack of research in MHL conducted in the United States limits generalizability of MHL research to populations in the United States.

One delimitation of the research was the choice of independent variables. The research included teachers' gender (male; female; transgender; other), special educator status (yes or no), classification (classified; certified), and instructional level (elementary; secondary). Specific role in school was not chosen as an independent variable in order to better ensure the anonymity of participants. Given the relatively small size of some of the participating school districts, breaking the independent variable down into specific roles could have inadvertently led to identification of staff members. For example, if a district only employs six school psychologists and one of them had a score that was vastly different than the other five, it may have been possible for district leadership to ascertain the identity of that individual.

A second delimitation of the study was the choice to focus on practicing educators rather than pre-service educators. Although the majority of the research involving educator MHL (Atkins & Rogers, 2016; Gooderham, 2016) focuses on pre-service educators, the choice was made to focus on educators who were currently practicing, in order to better understand current and ongoing professional development needs.

Summary

MHL is a concept that entails the ability to recognize signs of mental health concerns as well as connect to appropriate sources of help. Given the prevalence of child and adolescent mental health disorders and the proximity of school staff to students who may have mental health concerns, there was a need to examine potential forms of MHL assessment in the educator population. The examination of the psychometric properties of the MHLS in a sample of educators contributed information regarding factor structure as well as an avenue to compare MHLS scores between groups of educators. The findings of the research may help to inform school district decisions around professional development needs and targeted audiences. This chapter has set the purpose, rationale, and significance for the study. The following chapter offers a review of the literature on topics relevant to the research.

Chapter Two

The purpose of this literature review is to discuss current research on several relevant topics to the research. The first major theme summarizes research on mental health during childhood and adolescence, including the prevalence of mental health disorders in children, the impact of mental health on school performance, educators' role in school-based mental health, and educators' perceptions of barriers to school-based mental health. This section also examines the need for school-based mental health based upon the current percentages of students experiencing mental health distress, as well as the role of the educator in navigating school-based mental health.

The second portion of the literature review introduces and defines the concept of mental health literacy (MHL), including the evolution of MHL from health literacy (HL), along with known components of MHL for educators. This offers a framework to identify the necessary parts of understanding MHL needs, along with the ability to appropriately refer students to needed mental health services.

The final theme of this literature review focuses on the Mental Health Literacy Scale (MHLS) instrument, including its development and reported psychometric properties. It also summarizes research that has been done in various populations utilizing the MHLS, and offers comparisons of its results between samples of different populations.

Mental Health During Childhood and Adolescence

Mental health is an integral component of overall health. The World Health Organization (2016) defines mental health as, "a state of well-being in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community" (para 2). Given this definition and the

importance of mental health, the rates of unmet mental health needs in children and adolescents is a significant issue deserving attention from researchers and educators alike.

More than 20% of children and adolescents will experience a mental disorder, with half of all adult mental health disorders manifesting prior to the age of 14 (National Research Council and Institute of Medicine, 2009; US Surgeon General, 2001). To put it in educator terms, it is estimated that over the past school year, 13% of children and adolescents ages 8-15, or slightly more than 1 in 10 children in every classroom, has had a mental health disorder (Kessler, Berglund, Demler, Jin & Walters, 2005). The Center for Disease Control and Prevention (2013) reported that between the years of 2005-2011, 6.8% of children and adolescents had ADHD, 3.5% had behavioral or conduct problems, 3% had anxiety, and 2% had depression at any one time. Impulse control disorders and anxiety disorders demonstrate the earliest age of onset with 80% of all lifetime prevalence of ADHD beginning between the ages of 4-11, and the median age of onset for phobias and separation anxiety falling between 7-14 years of age (Kessler, Amminger, Aguilar-Gaxiola, Alonso, Lee & Ustun, 2007). Mood disorders demonstrate a later age of onset, typically in early adolescence through middle age (Kessler et al., 2007).

Given the prevalence of children and adolescents experiencing a mental health disorder, it is concerning that an estimated 70% of them do not access needed mental health services (U.S. Surgeon General, 1999; Merikanges et al., 2011). The World Health Organization's World Health Initiative examined data from 28 countries and found the median delays to receiving help ranged from 6 to 18 years for substance abuse disorders, 3 to 30 years for anxiety-related disorders and 1 to 14 years for mood-related disorders (Wang, Angermeyer, Borges, Bruffaerts, Chiu & de Girolamo, 2007). It has even been found that there are delays of several months before people with more extreme psychotic disorders seek professional mental health treatment

(Marshall, Lewis, Lockwood, Drake, Jones & Croudace, 2005). This delay in accessing help has been demonstrated across a range of mental health disorders, and the longer a person goes without appropriate treatment, the poorer the outcome of treatment tends to be (Altamura, Dell'osso, D'Urso, Russo, Fumagalli & Mundo, 2008; Altamura, Dell'Osso, Berlin, Buoli, Bassetti & Mundo, 2010).

Mental health impact on school performance. The potential negative impact of mental health disorders on school performance is substantial. Poor mental health can create barriers to school success and there is a growing body of research that makes the connection between academic success and mental health. According to a report on school-based mental health out of Ontario, Canada by Santor, Short and Fergusen (2009), children experiencing mental health concerns miss up to 40% more days of school than their peers not experiencing mental health issues. Additionally, mental health concerns are related to 14% of school dropouts. On the path to dropping out, students experiencing mental health concerns are more likely to have lower academic achievement, lower class engagement, and poorer peer relationships (Meldrum, Ven & Kutcher, 2009; Volk, Craig, Boyce & King, 2006).

The impact that mental health has on school performance is shown throughout all grade levels. At the elementary school level, students who display withdrawn or aggressive behaviors in the first grade are more likely to struggle academically in the third grade as demonstrated through grades in language arts and math (Farmer & Bierman, 2002). Di Lalla, Marcus & Wright-Phillips (2004) similarly found that middle school students experiencing depression or anxiety obtained lower grades than peers without mental health concerns. At the high school level, adolescents experiencing depression demonstrate lower grades, less engagement, and increased negative attitudes around education (Humensky, Kuwabara, Fogel, Wells, Goodwin &

Van Voorhees, 2010). Once students graduate from high school, the impact of mental health concerns continue on through their post-graduation years. Post-secondary outcomes are also less promising for students with poor mental health, including decreased amounts of higher education and employment (Fergusson & Woodward, 2002). Only 32% of students experiencing significant mental health concerns will continue their postsecondary education, which limits their future career and earning potential (U.S. Government Accountability Office, 2008).

Educators' role in school based mental health. Given the amount of time students spend in school each day, the educational environment has been identified as a key setting for early mental health identification and intervention (Frauenholtz, Mendenhall & Moon, 2017). School-based mental health integration into the school setting started in the mid-1980s at a small number of schools, with mental health practitioners employed in both school-based health centers and outside mental health agencies partnering with school districts. It has since spread to thousands of schools across the country (Foster et al., 2005). Both the Surgeon General's report (US Department of Health and Human Services, 1999) as well as the President's New Freedom Commission on Mental Health (2003) have advocated for an increase in mental health services provided in the school environment. However, this is not a newly-identified need for educators who have long been aware of how the psychosocial needs of students impact teachers' abilities to educate children in their classrooms (Carnegie Council on Adolescent Development, 1989).

With the expansion of mental health services in schools, it is estimated that school provides around 70-80% of all psychosocial interventions that children and adolescents receive (Rones & Hoagwood, 2000). In this natural setting where students spend the majority of their day, there has been a call for personnel in the school environment to further help students access appropriate mental health care (Atkins, Hoagwood, Kutash & Seidman, 2010). The most obvious

personnel to help with this mission have been identified as educators due to the time they spend interacting with students in a classroom or school milieu on a daily basis (Atkins et al., 2008). This natural screening that occurs through frequent school-based interactions can be utilized to initiate prevention and early intervention of student mental health concerns (Adelman & Taylor, 2006). The American Academy of Pediatrics (2004) recommends that educators play a role in recognizing stresses and early warning signs of mental health concerns and further, to connect students to mental health interventions for help.

Educators' perceptions of barriers to school-based mental health. Although educators have been identified as critical participants in student mental health, and are on the front lines of mental health needs in school, research suggests they have perceived barriers to performing this role (Franklin, Kim, Ryan, Kelly & Montgomery, 2012). Research in this area of teacher perceptions of barriers to school based mental health is limited. Several studies, however, have indicated that two of the largest perceived barriers for teachers are lack of knowledge regarding signals that a student is experiencing a mental health concern, and where to connect students with help. Related to both of these issues is the associated stigma of students and staff regarding seeking help for a mental health concern (Frauenholtz, Mendenhall & Moon, 2017; Reinke et al., 2011). Teachers have reported that their lack of knowledge can lead to stigma around seeking help for mental illness (Frauenholtz, Mendenhall & Moon, 2017).

In a quantitative study of 119 urban elementary school teachers from six schools, Walter, Gouze and Lim (2006) surveyed teachers on what they perceived as the biggest barriers to addressing student mental health needs. Teachers who participated in the survey reported concerns regarding their limited mental health knowledge and limited confidence in their abilities to serve students with mental health concerns in their classrooms. Other studies

assessing educator preparedness to support student mental health needs in school have found similar results, with limited knowledge regarding identifying students' mental health concerns and lack of training on student mental health needs repeatedly topping the list of educator concerns (Frauenholtz, Williford & Mendenhall, 2015; Reinke, Stormont, Herman, Puri & Goel, 2011). Research remains unclear on whether educators' lack of knowledge is real or perceived, given the lack of validated measures used in studies to assess educator mental health knowledge. Studies also tend to conflate knowledge with confidence when discussing educator perceptions of concerns (Reinke et al., 2011; Walter, Gouze & Lim, 2006). This combination of the two terms is problematic, as the correlation between confidence and knowledge has not been addressed in studies using the terms interchangeably.

Another theme that frequently emerges in studies on teacher perceptions of barriers to student mental health support is stigma from both students and teachers surrounding seeking professional help. Stigma is commonly defined as the belief that an attribute that one possesses is discrediting, which leads to feelings of shame and isolation (Corrigan, 2002). Frauenholtz, Mendenhall and Moon (2007) utilized focus groups of school staff to explore the topic of stigma around school based mental health services. The school staff who participated indicated that the stigma they felt towards mental health concerns derived from their own limited knowledge about mental health concerns, as well as a lack of confidence in their abilities to support students who are experiencing mental health concerns.

Mental Health Literacy

Mental Health Literacy (MHL), a concept derived from Health Literacy, was originally defined by Jorm (1997) as the general public's beliefs and knowledge about mental disorders, which may aid in their prevention, recognition, and management.

Evolution from health literacy. The construct of MHL stems from the domain of HL research, which speaks to an individual's skills and knowledge that help them to interact with and within the healthcare system. This includes skills like knowing when to seek help, where to seek it, and how to use treatments as prescribed, all of which ultimately improve long-term health outcomes (Baker, 2006). The World Health Organization (2013) has stated that HL is one of the most important social facets of health, and that it is "a stronger predictor of an individual's health status than income, employment status, education and racial or ethnic group" (p. 7). Poor levels of HL have been demonstrated to be related to multiple negative outcomes including a decrease in use of health services, an increase in health care costs, a higher rate of chronic illness and even early death (Baker, Wolf, Feinglass, Thompson, Gazmararian & Huang, 2007, Berkman, Sheridan, Donahue, Halpern & Crotty, 2011). As the concept of HL has continued to be defined, it currently includes the skills and competencies required to maintain health, identify physical illness, access healthcare, and utilize prescribed treatments, as well as understand one's rights when it comes to healthcare (World Health Organization, 2013, Kanj & Mitic, 2009). Kutcher, Wei & Coniglio (2016) have also noted that for health literacy to be effective, it must be developmentally appropriate to reach the intended audience, be applied with the individual's context in mind, include necessary stakeholders, and be available through all social and institutional structures (e.g. media, schools, workplace).

From this concept of HL, Jorm (1997) set out to explore the general public's perceptions of mental health disorders and available treatments. The study in Australia utilized a cross-sectional survey design of 2,031 participants ages 18-74. The survey design utilized vignettes of individuals experiencing either depression (which 39% of participants recognized) or schizophrenia (which 27% of participants recognized). The survey also asked participants to rate

which types of treatment would be most helpful for the individual in each vignette, with many non-standard treatments such as vitamins and special diets being rated as more helpful than evidence-based treatments such as antidepressants and antipsychotics. The limited knowledge of mental health concerns and treatment options demonstrated through these results led Jorm to coin the term MHL.

Studies have shown that mental health knowledge in the general population is limited in comparison with physical health. This affects people's ability to recognize mental health concerns and seek out appropriate mental health intervention (Farrer, Leach, Griffiths, Christensen & Jorm 2008; Jorm, Christensen & Griffiths, 2005). Numerous individuals are unable to identify symptoms of psychological disorders, including common ones such as depression, and they also misunderstand the treatments that would be recommended by professionals (Jorm et al., 2005). These misunderstandings regarding common mental health issues can lead to stigma, which reduces the likelihood that people will seek needed psychological help (Jorm, 2000; Martin, Pescosolido & Tuch, 2000).

Components of mental health literacy. Jorm's (1997) research first identified key attributes of MHL for the general population which included (a) the ability to recognize mental distress and disorders, (b) beliefs and knowledge about causes and risk factors, (c) beliefs and knowledge about self-help, (d) beliefs and knowledge about professional help, (e) attitudes which lead to appropriate recognition and help seeking and (f) knowledge of how to find mental health information. Since the time of that research, the seven components have been integrated into three main areas of recognition: recognition, knowledge, and attitudes (O'Connor, Casey & Clough, 2014, see figure 1). Data from adolescents who took the Canadian Mental Health and Illness Survey indicate that three of the most significant barriers reported by adolescents to their

seeking mental health treatment are: a) not recognizing mental illness, b) not knowing where to go for help, and c) the perceived stigma associated with mental health needs (Davidson & Manion, 1996). MHL is not solely about obtaining knowledge regarding mental health disorders that could be gained in a psychology class, it is knowledge specifically linked to the action of improving the mental health of self and others (Jorm, 2012). Kitchner and Jorm (2001) developed a training model titled "Mental Health First Aid" that seeks to target the components of mental health literacy by linking knowledge of mental health concerns to recognition and connection to appropriate mental health treatment. The three components of recognition, knowledge, and attitudes are discussed in the next section.

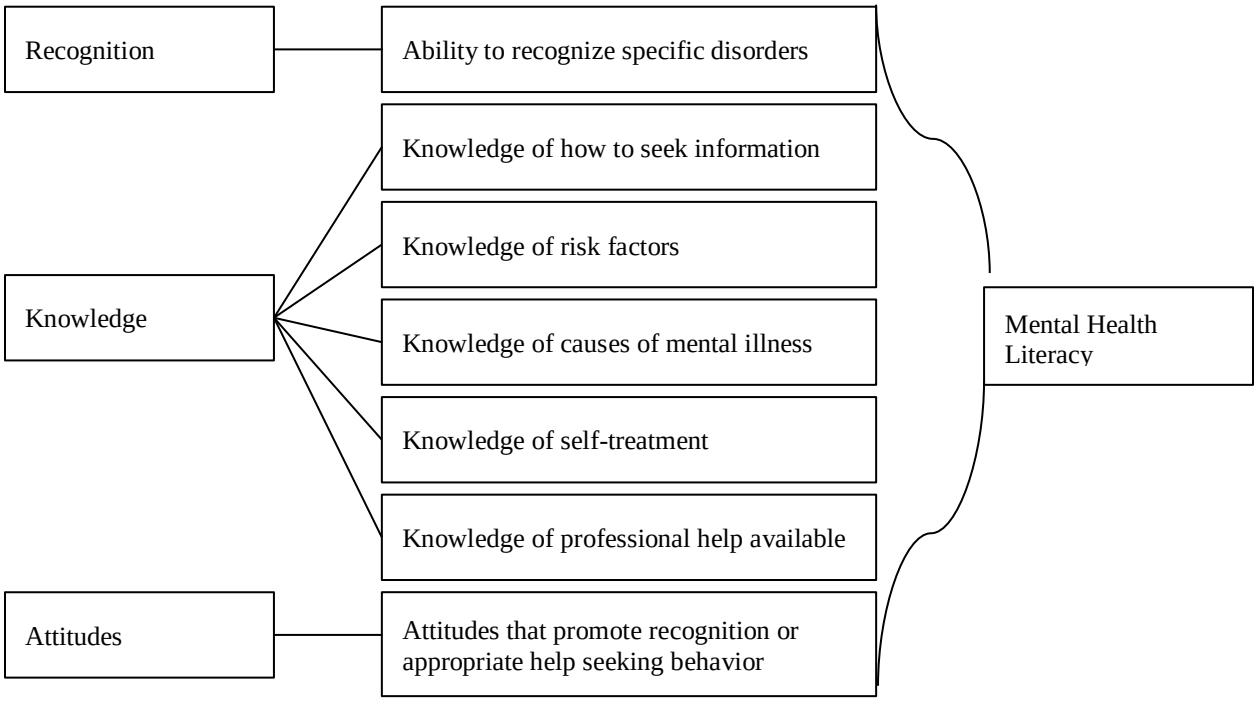

Figure 1. Components of MHL (O'Connor, Casey & Clough, 2014).

Recognition. Recognition entails an individual's ability to identify concerning symptoms suggestive of mental health disorders (O'Connor, Casey & Clough, 2014). In MHL, recognition is the first step to helping people access appropriate services. In the United States, the National Stigma Study- Children was the first nationally-representative study of the public's perceptions of child and adolescent mental health concerns (Pescolido, Jensen, Martin, Perry, Olafsdottir & Fettes, 2008). In the face-to-face survey, 1,393 adult participants were given vignettes about children demonstrating symptoms of ADHD (41.9% of participants correctly identified) or depression (58.5% of participants correctly identified). These rates of identification led the authors to suggest that the general public's lack of knowledge needs to be addressed to increase referral rates to appropriate mental health treatment resources. Other research has indicated that the recognition rates of other mental health disorders among the general population, including anxiety and schizophrenia, are even lower than the recognition rates for depression and ADHD (Jorm et al., 2005; Wright, Harris, Wiggers, Jorm, Cotton, Harrigan & McGorry, 2005; Wright & Jorm, 2009). Recognition of mental health concerns also interacts with professional help-seeking behavior in that adolescents who are able to identify a mental health disorder in a vignette are also more likely to indicate they would seek professional help for a mental health concern for themselves or others (Wright, Jorm, Harris & McGorry, 2007).

When targeting an intervention to impact levels of recognition in a population, it is important to look at demographic differences that may exist related to levels of recognition. Although research among various demographics is limited, gender differences have been found when looking at recognition rates of mental health concerns. Cotton, Wright and Harris (2006) as well as Burns and Rapee (2006) found that Australian female youth were almost twice as likely to recognize depression in a vignette format as compared to male youth. Why this difference

exists or whether it holds true across various populations has not been examined in current research.

Knowledge. The category of knowledge in MHL contains multiple areas including knowledge of how to obtain information regarding mental health, risk factors for mental health concerns, causes of mental health concerns, and professional help available for mental health concerns (O'Connor, Casey & Clough, 2014). The majority of research in this area has been around professional help-seeking, which entails an individual seeking out support and treatment for a mental health disorder. One area of concern is that adolescents have demonstrated low levels of knowledge regarding substance abuse and mental health resources available to them and report not knowing where to go for mental health support as one of the most significant barriers to accessing school-based health services (Bowers, Manion, Papadopoulos & Gauvreau, 2013).

When children and adolescents have limited information regarding where to go for help, they frequently turn to their friends, which is a concern in that their peers may also lack the knowledge and experience to direct them towards appropriate support (Burns & Rapee, 2006; Jorm & Wright, 2007). Demographic differences around gender have also been found in this component, with adolescent females reporting they are more likely to have knowledge about where to pursue professional help than their male peers. Research also indicates that male adolescents are less likely to engage in this topic in a research setting (Bowers, Manion, Papadopoulos & Gavreau, 2013; Chandra & Minkovitz, 2006).

Attitudes. Individuals' negative attitudes regarding mental health concerns can act as a significant barrier to positive mental health outcomes for themselves and those around them. The stigma that derives from real or perceived negative attitudes decreases the likelihood of timely

intervention for mental health concerns (Jorm, 2000). In a survey of forty 12-17 year-olds who met diagnostic criteria for a mental health disorder, Kranke, Floersch, Townsend & Munson (2010) found that children and adolescents are highly aware of the behavior of school peers and teachers. And if they perceive stigma from others around them, they are far more likely to feel shame regarding their mental health needs. This aligns with research indicating that individuals across multiple populations perceive stigma of self and others as the most significant barrier to accessing mental health services. It is significant that these characteristics hold true across various samples of children and adolescents and treatment providers, as well as for parents of a child who has committed suicide (Bowers, Manion, Papadopoulos & Gauvreau, 2013; Davidson & Manion, 1996; Star, Mulgrew, Akroyd, Hemaloto, Goodman & Wyllie, 2005; Moskos, Olson, Halbern & Gray, 2007).

Mental Health Literacy in educators. Jorm (2012) has indicated that the K-12 school setting is ideal for improving MHL in children and adolescents due to its educational purpose and the critical age range of the student population. Educators are uniquely placed as members of the school community to assist and support the student populations they serve. Many children and adolescents do not recognize that they are experiencing mental health concerns or have a significant level of knowledge regarding services available to them, and people experiencing mental health concerns demonstrate higher help-seeking behaviors if someone else in their life suggests it (Cusack, Dean, Wilson & Ciarrochi, 2004; Dew, Bromet, Schulberg, Parkinson & Curtis, 1991).

It has been demonstrated in previous areas of research that the decisions educators make in responding to student behavior are significantly influenced by their attitudes and beliefs (Jordan & Stanovich, 2004; Whitley, 2010). For example, if a teacher holds the belief that

students demonstrate challenging behavior by choice, rather than because of mental health needs, she will more frequently select punitive measures as opposed to connecting the student with mental health support (Tollefson, 2000). MHL in educators is not focused on expertise in mental health treatment, however it does entail the knowledge, recognition, and beliefs that are required to orient educators to student needs and increase their ability to connect students with appropriate services (Weston, Anderson-Butcher & Burke, 2008).

The need to explore the MHL of educators has been called for with increasing urgency as awareness of the implications for not doing so has grown (Meldrum, Venn & Kutcher, 2009; Whitley & Gooderham, 2016). Whitley and Gooderham (2016) have noted that, "as educators play a key role in early identification of mental health issues as well as timely and appropriate referral and intervention, exploring their mental health literacy including beliefs and knowledge… is essential" (p. 83). Meldrum et al. (2009) also state that it is, "imperative that teachers are equipped with the practical tools and knowledge required to recognize and intervene appropriately in situations where mental illness may be a concern" (p. 63). The call to explore this area of research is also stemming from children and adolescents, who report they would like educators to be more aware of mental health's effects on school performance, and a minority of who report that their teachers are prepared to identify or support a student with mental health concerns (Bowers, Manion, Papadopoulos & Gauvreau, 2013; Chandra & Minkovitz, 2007).

The Mental Health Literacy Scale

The majority of research on MHL has utilized a vignette design to ascertain participants' ability to identify characteristics of mental health disorders. This is problematic because vignettes do not utilize a scale-based scoring system and can be time-consuming to use (O'Connor et al., 2014). In addition, reviews of various measures of MHL have concluded that

although there are vignette-based survey measures that look at recognition, knowledge, and attitudes separately, there were no instruments that capture all three synthesized components of MHL (Wei, McGrath, Hayden & Kutcher, 2015).

Development of the MHLS. O'Connor and Casey (2015) aimed to develop the MHLS in response to this need for an easy-to-administer, scale-based, and methodologically-sound measure. The development of the MHLS took place in three phases of measurement development, pilot testing, and assessment of psychometrics and methodological quality. During phase one, a panel of clinical psychologists attempted to operationally define the seven attributes of MHL introduced earlier in this literature review and concluded that it was not possible to differentiate between "risk factors" and "causes for mental illness," leading the team to combine the two attributes into the single attribute of "knowledge of risk factors and causes." Operational definitions of the six factors are included in Table 1 (O'Connor and Casey, 2015). Items were then created for each of the six attributes and the team checked the literature to confirm answers for items requiring a correct answer.

Table 1
Operational Definition of MHL Attributes (O'Connor & Casey, 2015)

Attribute	**Operational Definition**
Ability to recognize specific disorders	Ability to correctly identify features of a disorder, a specific disorder or category of disorders
Knowledge of how to seek mental health information	Knowledge of where to access information and capacity to do so
Knowledge of risk factors and causes	Knowledge of environmental, social, familial or biological factors that increase the risk of developing a mental illness
Knowledge of self-treatment	Knowledge of typical treatments recommended by mental health professionals and activities that an individual can conduct
Knowledge of professional help available	Knowledge of mental health professionals and the services they provide
Attitudes that promote recognition and appropriate help-seeking	Attitudes that impact on recognition of disorders and willingness to engage in help-seeking behavior

During phase two, the team tested the items in the MHLS-Pilot, which consisted of 79 questions, by administering it online to a sample of community members (n = 202). The participants were men (n = 62) and women (n = 140) who were residents of Australia and were all over 18 years of age. Data from the MHLS-Pilot were analyzed and several modifications to the instrument were made as a result. The first modification was the exclusion of 28 items that had a response rate greater than 80%, in alignment with the decision by the researchers to remove dichotomous variables with an 80-20 split. Feedback from the clinical panel also resulted in modifications to add reverse-scored items and move to a four-point Likert scale. The refinements made in this phase resulted in 51-item instrument, including 25 reverse-scored items, which was named the MHL-Pilot-Revised.

The MHL-Pilot-Revised was then administered to a community sample of men (n = 94) and women (n = 278) attending a university in Australia, as well as a sample of female (n = 37) and male (n= 6) mental health professionals. Demographics were collected from all participants including age, gender, ethnicity, education, and residence. Information on mental health experience was gathered from participants in only the community sample. Additional questionnaires were administered to both samples, including the General Help-seeking Questionnaire (Wilson, Deane, Ciarrochi & Rickwood, 2007) and the Kessler Psychological Distress Scale 10 (Kessler, Andrews, Colpe, Hiripi, Mroczek, Normand, Walters, Zaslavsky, 2002) in order to establish construct validity across instruments. Test-retest reliability was also assessed by inviting the community sample to complete the measure a second time two weeks after the initial assessment.

Results from this work led researchers to further reduce the total number of items on the MHLS-Pilot-Revised in an effort toward improved reliability and a better overall Cronbach's alpha. This revision yielded a 35-item instrument with a Cronbach's alpha level of .873. A factor structure of the 35 items was re-analyzed and a four-factor structure was found. However, there were low commonalities and mean factor loadings (.251) and a univariate structure was found to be the best interpretation. In the sample of the community that took the MHLS-Pilot-Revised a second time two weeks later, results demonstrated good reliability ($r(69) = .97$, $p < .001$). The minimum score on the resulting MHLS was 35 and the maximum score was 160. Meaning that the lowest score an individual can receive is 35 and the highest score they can receive is 160. The score is computed by adding up scores on all of the dichotomous and Likert scale items in the MHLS, considering the standard and reverse-scaled items.

The mean score of the MHLS was 127.38 (SD = 12.63) and the MHLS was significantly positively correlated with the General Help-seeking Questionnaire which links people with higher MHL with a higher overall likelihood to seek help. The relationship between the MHLS and the Kessler Psychological Distress Scale 10 was not found to be significant, indicating that MHL as measured by the MHLS was not significantly related to levels of mental health distress for the individuals in the sample.

A systematic review of tools measuring mental health knowledge by Wei, McGrath, Hayden and Kutcher (2016) examined the MHLS (see Appendix A) through the Consensus-based Standards for the selection of Measurement Instruments (COSMIN). The review found the MHLS to have excellent internal consistency, strong content validity, and good structural validityu and reliability. The review also indicated that the MHLS demonstrated fair hypothesis testing and that cultural validity and responsiveness had not yet been examined. This information is based on the initial samples of Australian university students and mental health professionals and does not include any individuals from the United States or practicing educators.

Further research utilizing the MHLS. Gorczynski, Sims-schouten, Hill and Wilson (2016) utilized the MHLS as part of their research on the MHL of UK university students to examine whether a strong MHL demonstrates a relationship with better mental health outcomes and professional help-seeking. The sample for this study consisted of students at a university in England who were part of various academic departments made up of women (*n* = 146), men (*n* = 233), and one participant who did not identify gender. The mean age of the sample was 20.94 years (SD = 5.29, range = 18-64) and 54.4% were in their first year of undergraduate studies. The MHLS was administered along with the General Help-Seeking Questionnaire, Kessler Psychological Distress Scale and the Warwick-Edinburgh Mental Well-being Scale (Tennant et

al., 2007). The mean MHL score was 122.8 (SD = 12.06, range = 87=160, 95 percent CI = 121.63 - 124.06). The Shapiro-Wilk test showed results of the scale were normally distributed and the MHLS demonstrated a Cronbach's alpha of 0.839, which indicated good internal consistency. The differences between the measures administered were explored using an analysis of variance for current education year, previous diagnosis of mental health problems, sexuality, and gender. The score on the MHLS was positively correlated with the general help-seeking questionnaire total score r (380) = 0.123, p = 0.017, which indicated that respondents with higher scores on the MHLS were also more likely to seek help for a mental health issue. The score on the MHLS did not demonstrate a significant relationship with scores on the Kessler Psychological Distress Scale or the Warwick-Edinburgh Mental Well-being Scale, which indicated that levels of mental health literacy were not associated with levels of well-being or distress. In comparison to the study by O'Connor and Casey (2015) of Australian university students, which had a mean MHLS score of 127.38, this study had a lower mean MHLS score of 122.88. The cause of the difference between mean scores of undergraduate students in different countries is unclear.

Recto and Champion (2017) utilized the MHLS to examine MHL among perinatal adolescents. The study selected a convenience sample (n = 30) of pregnant and postpartum adolescents in San Antonio, Texas. The MHLS was administered along with a sociodemographic and health history questionnaire that included questions regarding the participants' past experience with perinatal depression. The MHLS was modified for use in this study by omitting two items which assessed personality disorder and dysthymia and modifying gender-specific case scenarios. The resulting scale had a maximum score of 154 and a minimum score of 33. The scale minimum was two points less than the original MHLS, and the maximum was six points

less than the original, due to the omission of the two Likert scale items. Cronbach's alpha of the MHLS for this study was 0.80. Results showed that adolescents who reported perinatal depression had significantly higher ($p = .03$) scores on the MHLS than those who did not. They also demonstrated significantly higher scores on the ability to recognize mental health disorders ($p = .03$) and attitudes which facilitate help-seeking and recognition ($p = .03$).

Vermaas, Green, Haley and Haddock (2017) administered the MHLS and other demographic questions to a sample of 238 clergy of different denominations across the United States. The sample included evangelical Protestant ($n = 118$), mainline Protestant ($n = 78$), Catholic ($n = 39$), and historically Black Protestant ($n = 3$) participants. Demographic questions included age, gender, years of education and education received on mental health topics. Utilizing a stepwise multiple linear regression analysis, results showed that both the female gender and more years of clinical mental health courses were variables that significantly and positively predicted scores on the MHLS ($p = .001$). No significant differences in score on the MHLS were found between different denominational groups, suggesting that denomination does not have a significant impact of levels of MHL. Compared to O'Connor and Casey's (2015) sample of Australian university students, clergy in this sample demonstrated higher scores on the MHLS ($M = 134.20$) than the community sample in the previous study ($M = 127.38$), and lower scores than the mental health professional sample in the previous study ($M = 145.49$). This is not surprising, given the differences in mental health-related training between a community sample, a sample of clergy, and a sample of mental health professionals.

Conclusion

Childhood and adolescence are a time period where many mental health concerns begin to manifest. Mental health concerns can have a negative impact on educational performance, and

schools have expanded their school-based mental health services in response to student needs (Adelman & Taylor, 2006). Educators have indicated they do not think they have the level of knowledge necessary to successfully identify and connect students with services and MHL has a demonstrated relationship between positive attitudes towards professional help seeking and lower levels of stigma related to mental health needs. The MHLS offed an opportunity to examine MHL in a scale-based manner as well as compare scores on the MHL among different demographics. This study aimed to examine the psychometric properties of the MHLS in a sample of educators and had the potential to offer insight into needed areas of educator professional development.

Chapter Three

This chapter discusses the methodology that was utilized to examine the psychometric properties of the Mental Health Literacy Scale (MHLS), as well as those used to determine whether there was a difference in educator MHLS scores based on gender, educator status, level, and classification. This chapter includes details on the sampling plan, measure, data collection, data analysis, and ethical considerations of the research.

Research Questions

This study explored four research questions.

1. What is the factor structure of the MHLS?
2. Are the scores on the MHLS reliable?
3. Are scores on the MHLS significantly different across groups of educators?

   3a. Is there a statistically significant difference in educator MHLS scores by gender (male, female, transgender or other)?

   3b. Is there a statistically significant difference in educator MHLS scores by special educator status (special educator; yes or no)?

   3c. Is there a statistically significant difference in educator MHLS scores by instructional level (elementary or secondary)?

   3d. Is there a statistically significant difference in MHLS scores by classification (certified or classified)?
4. Is there a practical difference in factor structure and reliability between the original MHLS version and an education-modified MHLS version?

Design and Sample

This quantitative non-experimental study was a cross-sectional survey of educators' mental health literacy (MHL) utilizing the MHLS. A survey design was appropriate for this study, as the numeric data collected was used to quantify, describe, and characterize groups of educators (Privitera, 2017) as well as report on the current status of the sample (Fink, 2013).

The population for this study was comprised of educators in three Oregon school districts. Five Oregon school districts were contacted via email regarding the study and three expressed interest in participating. The sample included all educators in these three school districts who opted to complete the voluntary online survey. District one was a rural school district that served approximately 6,000 students in ten schools and employed approximately 350 certified staff and 250 classified staff. District two was also a rural school district that served approximately 5,000 students in ten schools, and employed approximately 300 teachers and 230 classified staff. District three was an urban school district that served approximately 49,000 students in 81 schools, and employed approximately 3,500 certified staff and 2,000 classified staff. Nonprobabilistic convenience sampling was used to select the target population, which posed a threat to external validity of the study. Although convenience sampling minimized generalizability, the outcome data provided an initial impression of educator MHL and was generalizable to similar districts in close geographic proximity.

Research indicates various responses to appropriate sample size when performing an exploratory factor analysis ranging from a minimum participant-to-item ratio of 5:1 (Gorsuch, 1983; Hatcher, 1994) to 10:1 (Nunnally, 1978). Costello and Osborne (2005) found that the average number of items misattributed to the incorrect factor decreased, and the percent of samples with the correct factor structure increased, with a higher ratio of participants to items.

This study sought a minimum participant-to-item ratio of 10:1 to decrease the probability of errors and increase generalizability of the results (Osborne, 2014). Given the 10:1 ratio and number of items on the MHLS, a minimum of 350 respondents was sought across the districts. A smaller sample size of 60-70 respondents was sought for the educator-modified version of the MHLS. This allowed for comparisons in factor structure for the fourth research question. Survey Monkey was utilized to randomly assign each participant either the MHLS or the education-modified MHLS version, until each district had between 20-25 responses on the education-modified MHLS version. At that point, randomization was de-selected and all further participants were routed to the MHLS.

In survey research, response rates can vary significantly. In a meta-analysis of 1,607 internet-based and paper-based academic studies between 2000 and 2005, Barruch and Holtom (2008) found the average response rate was 52.7 percent with a standard deviation of 20.4 percent. The same study did not find any significant differences between response rates of paper-based or internet-based surveys; however, concurrent research indicated a lower response rate of up to 11 percent for internet-based surveys (Manfreda, Bosnjak, Berzelak, Haas, & Vehovar, 2008). Factors that impact response rate include salience to the participants, length of survey, and sponsorship (Fan & Yan, 2010). Higher response rates help to minimize non-response bias in survey research, and can be seen as one component of overall survey quality (Stoop, 2010).

Measure

The instrument that was administered in this research was the MHLS (O'Connor & Casey, 2015). This instrument was chosen due to the fact that it was, at the time of this study, the only scale-based measure of MHL that aimed to include all components of MHL and did not

utilize a vignette design. MHLS attributes, broken down by response format and number of items, can be found in Table 2. Although the MHLS was utilized in research over the last several years after its development (Gorczynski, Sims-schouten, Hill & Wilson, 2016; Recto & Champion, 2017; Vermaas, Green, Haley & Haddock, 2017), prior to this study, it had not been administered to a sample of practicing K-12 educators.

During development, the MHLS was found to have a four-factor structure, however there were low commonalities and mean factor loadings (.251) and a univariate structure was found to be the best interpretation (O'Connor & Casey, 2015). The MHLS has also demonstrated good reliability, with a Cronbach's alpha of .873 (O'Connor & Casey, 2015). The MHLS includes both dichotomous and Likert items, as well as positive and negative items which may decrease response set bias.

Table 2
MHLS format

Attribute	**Response format**	**Number of items**
Recognition of disorders	Multiple choice	8
Knowledge of how to seek mental health information	Multiple choice question and Likert	4
Knowledge of risk factors and causes	Dichotomous	2
Knowledge of self-treatments	Multiple choice	2
Knowledge of professional help available	Multiple choice	3
Attitudes that promote recognition and appropriate help-seeking	Likert	16

The education-modified version of the MHLS (see Appendix B) was developed through the alteration of five items on the MHLS to better fit educational contexts (see Table 3). Items

were altered through consultation with dissertation committee and colleagues employed in the education system.

Table 3
Original and education-modified MHLS items

Item	MHLS	Education-modified MHLS
29	How willing would you be to move next door to someone with a mental illness?	How willing would you be to work with a parent with a mental illness?
32	How willing would you be to have someone with a mental illness start working closely with you on a job?	How willing would you be to work with a teacher with a mental illness?
33	How willing would you be to have someone with a mental illness marry into your family?	How willing would you be to work with a student with mental illness?
34	How willing would you be to vote for a politician if you knew they had suffered a mental illness?	How willing would you be to have a supervisor you knew had suffered a mental illness?
35	How willing would you be to employ someone if you knew they had a mental illness?	How willing would you be to supervise a student teacher or intern if you knew they had a mental illness?

Variables

The dependent variable for the third research question and associated sub-questions was educator mental health literacy as assessed through scores on the MHLS. The independent variables were the following demographic categories:

1. Gender (male, female, transgender or other)

Participants were asked to select whether they identified as male, female, transgender or other. Several studies of MHL have found higher rates of recognition and appropriate help-seeking attitudes in participants who identify as female than in participants who identify as male

(Burns and Rapee, 2006; Cotton, Wright and Harris, 2006; Hadjimina, & Furnham, 2017). This difference had not previously been examined in a sample of educators.

2. Special educator status (yes or no).

Participants were asked to answer yes or no to the question of whether they were currently employed by special education. Previous research on the MHL of educators did not include special education status in their reported demographic categories. According to the 2017 Federal IDEA report of Children with Disabilities Receiving Special Education, 7% of students receiving special education services in Oregon have the primary eligibility of emotional disturbance (U.S. Department of Education). Given that the population of students served by special educators often includes students with emotional and behavioral disorders, the level of MHL in these educators was particularly relevant to this study.

3. Instructional level (elementary or secondary).

Participants were asked to identify whether they were primarily employed in the elementary (kindergarten through 5/6th grade) or the secondary (6/7th grade through 12th grade including transition) setting. Previous literature on the MHL of educators did not include a comparison between elementary and secondary educators. This information may help to inform and target future professional development needs between these two groups of teachers.

4. Employment classification (certified or classified).

Participants were asked to identify whether they were a certified or classified employee. Certified employees require a specific license or certification to be employed in their position (e.g. teacher), and are represented by the certified employees' union. In contrast, classified employees are often required to have a certain level of education depending on the district, but do not require a specific license or certification in their position (e.g. instructional assistant).

Classified employees are represented by the classified employees' union. Although literature involving MHL of certified staff is scarce, there is less information on the MHL of classified staff. Only one piece of literature on MHL included classified educators (Frauenholtz, Willford, & Mendenhall, 2015); this is troubling, given their key role in supervising students during non-instructional times where mental health concerns may appear.

Data Collection Procedures

This study was conducted via electronic survey format using Survey Monkey as the online platform. Although an online platform was selected over paper and pencil due to convenience and time constraints, research has demonstrated the potential drawbacks of this method. Yetter and Cappacioli (2010) found substantially lower response rates for school professionals given internet-based surveys as compared to same-length paper surveys. The same study also found that internet-based respondents tend to be younger than paper-based respondents. Items in the MHLS were entered into Survey Monkey and the online format was pilot tested by a group of five colleagues, some with and some without mental health expertise. Fan and Yan (2010) have compared pilot testing to the process of making revisions on a paper before it is submitted. This involves first piloting the instrument with a group of respondents in a real-life situation, and then inviting content experts to take the survey, before sending out the survey to participants. Using their guidelines, this pilot test assisted with calculating the expected time to complete the survey as well as enabling the researcher to check for any errors made while entering the MHLS into Survey Monkey. Revisions were made before sending out to possible participants.

The email survey invitation containing participant-informed consent and link to the MHLS was sent out directly or via building principals. Several recommendations have been

made in the research regarding survey invitation design including personalization, scarcity, and technical details. Personalization of the invitation with the invitees' name, although recommended in survey research, was avoided in this survey design. A list-serve was utilized for distribution, but the intended recipient's name was not included in the salutation. This was done because personalization has been shown to influence participants to answer sensitive questions in a more socially desirable manner (Heerwegh, Vanhove, Matthijs & Loosveldt, 2005), and the MHLS contains items regarding stigma and mental illness. Examples of scarcity in a survey invitation include mentioning that the participant is one of a smaller group to be selected to participate or the time-limited nature of the study, and has been shown to enhance response rate in internet-based surveys (Porter & Whitcomb, 2003). The concept of scarcity was incorporated into this research through the wording in the email invitation. Finally, suggestions for the technical details of survey invitations were followed. These recommended technical details included avoiding attachments, identifying survey tasks clearly, including where participants' email addresses were obtained, providing a realistic estimation of time needed to complete the survey, and providing contact information if they need help completing the survey (Crawford et al., 2001; Kaczimerek, 2005).

After completing the survey, participants had the option of entering their contact information into a drawing for one of five $50 Amazon gift cards. This amount was selected after an examination of school districts' policy limits regarding financial gifts. Although drawing-only incentives generally produce a lower response rate than advance cash token incentives (Goritz, 2006), it was the most feasible incentive structure for the study.

Data Analysis Procedures

Data analysis was completed using SPSS statistical software. The first data analyses were descriptive statistics of the sample for gender, educator status, level taught and whether the respondents were certified or classified employees. The descriptive analysis also included mean MHLS scores and standard deviations.

1. What is the factor structure of the MHLS?

   Analysis was an exploratory factor analysis (EFA) of the MHLS. The data analysis process included, in order:

a. Cleaning the data

b. Determining which extraction method to use

c. Determining the number of factors to retain

d. Determining a method of rotation

e. Interpreting the results

Throughout these steps, attention was paid to best practice in the field of EFA, as well as to the default settings in the SPSS software used for data analysis. The first step was to clean the collected data. Cleaning the data to remove missing or inaccurate data produced better estimates of the population and increased the accuracy and replicability of the analysis (Osborne, 2013). Following this, an extraction method of Principal Components Analysis (PCA) was utilized. PCA is a data reduction technique that is similar to an EFA, and aims to reduce a large number of variables into smaller sets of components (Laerd, 2018a). Assumptions for EFA were evaluated through the use of a correlation matrix to assess linearity as well as a Kaiser-Meyer-Olkin (KMO) measure to assess sampling adequacy (Laerd, 2018a).

Following the first two steps, a determination was be made regarding the number of factors to retain through a process of exploration and reduction. Following Osborne (2014), extracted factors should be empirically defensible and make theoretical and conceptual sense. Next, a rotation method was selected and factors were rotated with the goal of clarifying factor structure. The default rotation in SPSS is Varimax, however this rotation requires that factors be completely uncorrelated, therefore consideration was also given to oblique algorithms that allow factors to correlate. Finally, results were interpreted through a lens of whether they were sensible and fit with the conceptual framework of MHL in some way. This was an essential step, as it is easy to get results from an EFA, but more challenging to demonstrate simplicity of fit to a framework.

A final recommended step of an EFA is to determine the replicability of the results (Osborne, 2014). This step was beyond the scope of the research and was therefore excluded from the above data analysis list.

2. Are the scores on the MHLS reliable?

Analysis was conducted to examine the reliability coefficient utilizing Cronbach's alpha. Cronbach's alpha is a measure of how well the items on the scale measure the same underlying dimensions (Laerd, 2018b).

3. Are scores on the MHLS significantly different across groups of educators?

3a. Is there a statistically significant difference in educator MHLS scores by gender (male, female, transgender or other)?

3b. Is there a statistically significant difference in educator MHLS scores by educator status (special educator; yes or no)?

3c. Is there a statistically significant difference in educator MHLS scores by level (elementary or secondary).

3d. Is there a statistically significant difference in MHLS scores by classification (certified or classified).

Analyses were independent samples t-tests and a one-way ANOVA comparing the mean scores across demographics in each research question. For the first question regarding gender, a one-way ANOVA was utilized. The first three assumptions of the one-way ANOVA are in alignment with this research question, including (a) continuous dependent variable, (b) independent variable is two or more groups, and (c) independence of observations (Laerd, 2014c). The fourth assumption, no significant outliers, was examined. The fifth assumption, approximate normal distribution of the dependent variable for each group of the independent variable, was tested for utilizing the Shapiro-Wilk test for normality. The final assumption, homogeneity of variances, was examined through Levene's test of equality of variances.

For the rest of the demographic group comparisons, independent-samples t-tests were used. Independent samples t-tests are utilized to determine whether the difference in means of two independent groups are statistically significant (Laerd, 2014d). Assumptions for independent samples t-tests are (a) there is a continuous dependent variable, (b) the independent variable consists of two groups, (c) there is independence of observations, (d) there are no significant outliers in independent variable groups, (e) the dependent variable is normally distributed, and (f) there is homogeneity of variances. The research met criteria for the first three assumptions. The fourth assumption, that there are no significant outliers in the independent variable groups, was explored through the use of boxplots in SPSS. The fifth assumption, that the dependent variable is normally distributed, was examined through the use of the Shapiro-Wilk test for

normality. The final assumption of the independent samples t-test, that there is homogeneity of variances, was examined utilizing Levene's test of equality of variances.

After exploring and adjusting for the assumptions of the independent samples t-tests, they were run through SPSS and interpreted based on whether the data met or violated the final assumption of homogeneity of variances.

4. Is there a statistical and practical difference in factor structure and overall scores between the original MHLS version and an education-modified MHLS version?

Analysis for this question constituted an EFA of the sample that completed the education-modified version of the MHLS, following the same procedures as research question one. The results of the EFA for the original MHLS and the EFA of the education-modified version of the EFA were then compared through observations of their factor structures and component matrices.

Timeline

The following steps were completed, culminating in a completed dissertation.

1. February 28, 2018- Obtained consent to use MHLS from authors O'Connor & Casey (2015) through email communication at M.O'Connor@stpeters.qld.edu.au
2. August 2018- Precis approved through dissertation committee.
3. August/September 2018- Wrote draft of chapters one through three and exchanged with chair.
4. October 2, 2018- Defended proposal and submitted information to George Fox IRB.
5. November/December 2018- Collected data and began analysis.
6. January/February 2019- Wrote up chapters four and five to exchange with chair.

7. March 2019- Submitted final draft to committee for dissertation defense.
8. March 19, 2019- Dissertation defense with committee.

Ethical Considerations

This study was a non-experimental survey design and educators in the population self-selected whether to participate. Participants' IP addresses were not collected through Survey Monkey and they had the ability to exit the survey at any time should they have wished to discontinue their participation. Further details regarding the research ethics of this study and informed consent for participants can be found in the George Fox University IRB application (see Appendix C).

Another ethical consideration is that at the time of this study, I was employed in one of the districts in this study as a student services administrator. Given the modest size of the district and the number of educators I supervise, I did not collect detailed information regarding specific position in any district. By limiting information regarding position in district (e.g. school psychologist), the anonymity of each participant was better maintained.

Given the nature of the MHLS and the topics it covers, a statement about expected psychological burden was included in the informed consent. After completion of the survey, there was a final page thanking them for their participation, giving directions on how to enter the optional drawing, and offering county hotlines to call if they were experiencing mental health distress.

Chapter 4

The purpose of this study was three-part. First, the study sought to examine the psychometric properties of the Mental Health Literacy Scale (MHLS) in a sample of practicing K-12 educators. Second, it compared component scores between groups of educators to ascertain any statistically significant differences among them. Third, the research qualitatively compared factor structures of the MHLS and the education-modified version of the MHLS. This chapter begins with a description of participant demographics before outlining findings by research question; however, research questions are presented out of their original order in the interest of clarifying the data analysis sequence.

Collection and Data Screening

Upon IRB approval of the study, a link to the MHLS online survey was sent via email to educators in three Oregon school districts. The survey was open between Tuesday, October 30th, and Monday, December 10th, 2018. Each district received an initial email invitation sent either by this researcher or other district personnel, as well as a follow-up reminder email invitation. Survey data was collected from 727 participants. However, only 644 participants fully completed either version of the MHLS. 578 participants fully completed the MHLS and 69 participants fully completed the education-modified MHLS. The other 83 participants discontinued the research at various points in the survey. The number of participants was well above the target participant to item ratio of 1:10, or 350 total respondents for the MHLS, recommended by Costello (2014).

Once the survey was closed, data was downloaded into an Excel sheet and uploaded into IBM SPSS statistical software. From that point, variable names and labels were cleaned to reflect scale labels in the MHLS and education-modified MHLS version. Values for the Likert scales

were transformed from string type data to numerical data and labels were assigned and reverse ordered for reverse coded items. An identification of duplicate cases revealed no duplicate cases, meaning that no participant took the survey more than one time. Analyses of data missingness found that data was missing completely at random and pairwise deletion was used.

Participant Demographics

Demographic information collected from participants included gender (male, female, transgender, or other), special educator status (yes or no), instructional level (elementary or secondary), and employee classification (classified or certified). Table 4 shows the distribution of the sample across these demographics. The majority of respondents identified as female. This is typical of population ratios in the education profession. The largest percentage of participants were not employed as a special educator. Participants were almost evenly divided between the categories of elementary (grades pre-K to 5th/6th) and secondary (grades 6th/7th to 12th/transition services) for instructional level, and the majority of the participants were certified employees.

Table 4
Participant Demographics

	Frequency	Percent
Gender		
Male	130	17.9
Female	592	81.4
Transgender	1	0.1
Other	4	0.6
Educator Status		
Special Educator	158	21.7
Non-Special Educator	569	78.3
Instructional Level		
Elementary	371	51.0
Secondary	356	49.0
Employment Classification		
Classified	139	19.1
Certified	588	80.9

MHLS Items and Scales

The MHLS consists of 35 items and six scales. The six scales are *disorder recognition, risk factor knowledge, self-treatment knowledge, available professional help, information seeking knowledge*, and *attitudes*. The MHLS scales, scale abbreviations, and scale items by scale category can be found in Table 5.

Table 5
MHLS Items and Scales

Scale	Item	Item Text
Disorder Recognition (DR)	*DR1*	If someone became extremely nervous or anxious in one or more situations with other people (e.g., a party) or performance situations (e.g., presenting at a meeting) in which they were afraid of being evaluated by others and that they would act in a way that was humiliating or feel embarrassed, then to what extent do you think it is likely they have Social Phobia
	DR2	If someone experienced excessive worry about a number of events or activities where this level of concern was not warranted, had difficulty controlling this worry and had physical symptoms such as having tense muscles and feeling fatigued then to what extent do you think it is likely they have Generalized Anxiety Disorder
	DR3	If someone experienced a low mood for two or more weeks, had a loss of pleasure or interest in their normal activities and experienced changes in their appetite and sleep then to what extent do you think it is likely they have Major Depressive Disorder
	DR4	To what extent do you think it is likely that Personality Disorders are a category of mental illness
	DR5	To what extent do you think it is likely that Persistent Depressive Disorder (Dysthymia) is a disorder
	DR6	To what extent do you think it is likely that the diagnosis of Agoraphobia includes anxiety about situations where escape may be difficult or embarrassing
	DR7	To what extent do you think it is likely that the diagnosis of Bipolar Disorder includes experiencing periods of elevated (i.e., high) and periods of depressed (i.e., low) mood
	DR8	To what extent do you think it is likely that the diagnosis of Drug Dependence includes physical and psychological tolerance of the drug (i.e., require more of the drug to get the same effect)
Risk Factor Knowledge (RFK)	*RFK1*	To what extent do you think it is likely that in general in the United States, women are MORE likely to experience a mental illness of any kind compared to men
	RFK2	To what extent do you think it is likely that in general, in the United States, men are MORE likely to experience an anxiety disorder compared to women
Self-Treatment Knowledge (STK)	*STK1*	To what extent do you think it would be helpful for someone to improve their quality of sleep if they were having difficulties managing their emotions (e.g., becoming very anxious or depressed)
	STK2	To what extent do you think it would be helpful for someone to avoid all activities or situations that made them feel anxious if they were having difficulties managing their emotions
Available Professional Help (APH)	*APH1*	To what extent do you think it is likely that Cognitive Behavior Therapy (CBT) is a therapy based on challenging negative thoughts and increasing helpful behaviors
	APH2	Mental health professionals are bound by confidentiality; however, there are certain conditions under which this does not apply. To what extent do you think it is likely that the following is a condition that would allow a mental health professional to break confidentiality: If you are at immediate risk of harm to yourself or others

Scale	Item	Item Text
	APH3	Mental health professionals are bound by confidentiality; however, there are certain conditions under which this does not apply. To what extent do you think it is likely that the following is a condition that would allow a mental health professional to break confidentiality: If your problem is not life-threatening and they want to assist others to better support you
Information Seeking Knowledge (ISK)	*ISK1*	I am confident that I know where to seek information about mental illness
	ISK2	I am confident using the computer or telephone to seek information about mental illness
	ISK3	I am confident attending face to face appointments to seek information about mental illness (e.g., seeing the General Practitioner)
	ISK4	I am confident I have access to resources (e.g., General Practitioner, internet, friends) that I can use to seek information about mental illness
Attitudes (A)	*A1*	People with a mental illness could snap out if it if they wanted
	A2	A mental illness is a sign of personal weakness
	A3	A mental illness is not a real medical illness
	A4	People with a mental illness are dangerous
	A5	It is best to avoid people with a mental illness so that you don't develop this problem
	A6	If I had a mental illness I would not tell anyone
	A7	Seeing a mental health professional means you are not strong enough to manage your own difficulties
	A8	If I had a mental illness, I would not seek help from a mental health professional
	A9	I believe treatment for a mental illness, provided by a mental health professional, would not be effective
	A10	How willing would you be to spend an evening socializing with someone with a mental illness?
	A11	How willing would you be to make friends with someone with a mental illness?
	A12	How willing would you be to move next door to someone with a mental illness?
	A13	How willing would you be to have someone with a mental illness start working closely with you on a job?
	A14	How willing would you be to have someone with a mental illness marry into your family?
	A15	How willing would you be to vote for a politician if you knew they had suffered a mental illness?
	A16	How willing would you be to employ someone if you knew they had a mental illness?

Research Question One- What is the factor structure of the MHLS?

Assumptions for factor analysis were assessed before proceeding with a Principal Components Analysis (PCA). First, linearity between all variables was assessed through matrix scatterplots and linearity was assumed. Then, a correlation matrix was generated (see Appendix

D). It was noted that all items on the *disorder recognition*, *information seeking knowledge*, and *attitude* scales had a correlation of at least .3 with one other item. Items on the *risk factor knowledge, self-treatment knowledge,* and *available professional help* scales did not evidence a correlation of at least .3 with one other item. Although it is recommended that all items have a minimum correlation with one other item of $r \leq .3$ (Laerd, 2015a), the decision was made to proceed with the principal components analysis and keep an eye on the items with correlations less than .3 throughout the analysis.

Second, factorability was assessed with the Kaiser-Mayer-Olkin (KMO) Measure of Sampling Adequacy as well as Bartlett's Test of Sphericity. KMO measures whether there are linear relationships between variables to ensure they are suitable for factor analysis, with a value of 0.6 suggested as a minimum acceptable score (Laerd, 2015a). The KMO was 0.890, which is considered "meritorious" (Kaiser, as cited in Laerd, 2015a). Further, The Bartlett's Test of Sphericity was statistically significant, $\chi 2\ (595) = 7406.008$, $p < .001$. This indicated that there was sampling adequacy. Given these results, it was deemed appropriate to continue with a factor analysis of the 35 items.

An exploratory factor analysis using the principal components analysis extraction method was performed. Several strategies were applied to identify useful factors, or to "separate the wheat from the chaff" (Huck, 2011, p. 490). The first applied strategy was to review eigenvalues for each factor (see Table 6). A larger eigenvalue indicates a more useful factor, and eigenvalues were only retained if they were larger than 1.0. Results from this analysis indicated a 9-factor structure for the MHLS that contributed to 59.338% of cumulative variance over 35 items. The next strategy utilized to identify factor loadings was a scree plot (Figure 2). The scree plot 'elbowed' at five and seven factors and then leveled out in a more horizontal fashion. This result

indicated that there were fewer factors than shown in the total variance eigenvalues. This result was also more in line with the six scales in the MHLS.

Table 6
Total Variance Explained

	Initial Eigenvalues			Extraction Loadings			Rotation Loadings
	Total	% Variance	Cum %	Total	% Variance	Cum%	Total
1	7.870	22.485	22.485	7.870	22.485	22.485	5.195
2	2.854	8.155	30.641	2.854	8.155	30.641	2.882
3	2.189	6.254	36.895	2.189	6.254	36.895	2.679
4	1.946	5.559	42.454	1.946	5.559	42.454	2.624
5	1.432	4.090	46.544	1.432	4.090	46.544	1.879
6	1.318	3.767	50.311	1.318	3.767	50.311	1.812
7	1.121	3.203	53.514	1.121	3.203	53.514	1.304
8	1.038	2.966	56.480	1.038	2.966	56.480	1.197
9	1.000	2.858	59.338	1.000	2.858	59.338	1.195

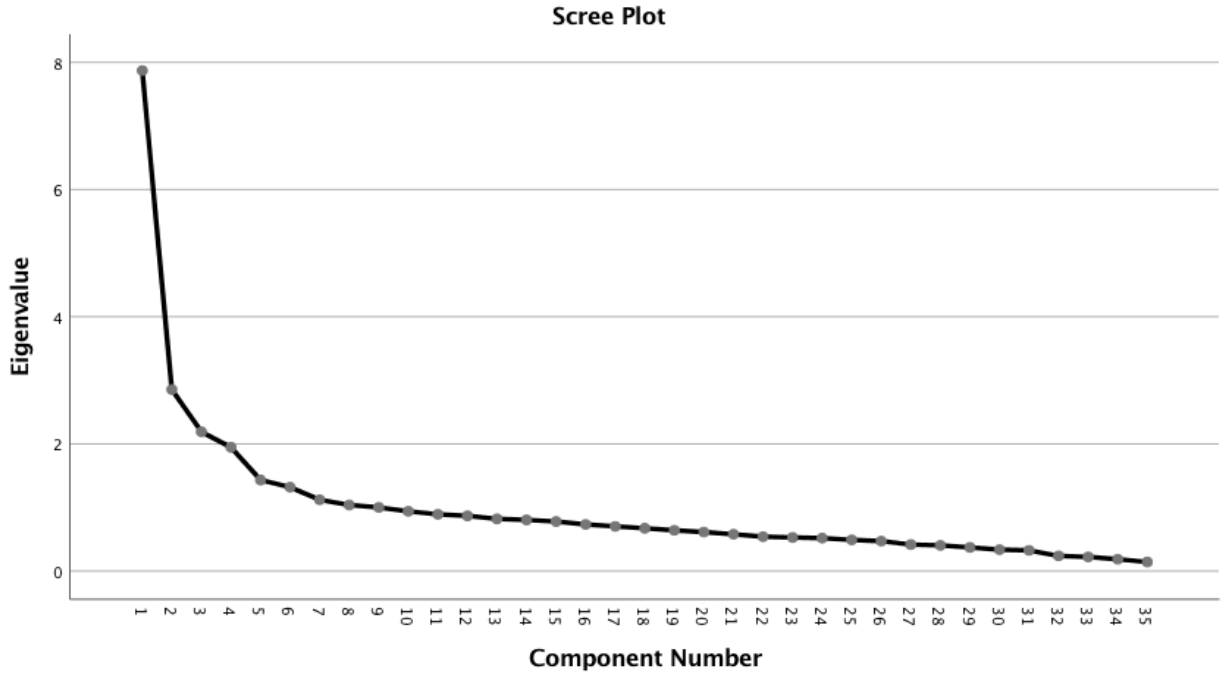

Figure 2. Scree plot of MHLS factors

The factor loadings were examined through a rotated factor matrix (see Table 7). Both varimax and oblimin rotations with Kaiser normalization were utilized and the results were the same. The results overall did not yield the coveted simple structure for every factor. Simple

structure is attained when each variable has only one component that loads strongly on it and each component loads strongly on a minimum of three variables (Laerd, 2015a). When results are less clear than this, they can be defined as being more complex than a simple structure. Results from the rotated factor matrix demonstrated complexity in several factors. Factors one through six demonstrated simple structure in that each item only loaded strongly on one factor, and each factor contained at least three items. This result is consistent with the five to seven factors found in the scree plot. Factors did not match up neatly with scales on the MHLS. Although each item loaded strongly onto one factor, the majority of MHLS scales had items that loaded onto multiple factors. *Attitude* scale items loaded strongly on to factors one (*attitude* items ten through sixteen) and two (*attitude* items one, two, three, five and seven). All four items on the *information seeking* scale loaded strongly on to factor three while multiple *disorder recognition* items (four through eight) loaded strongly onto factor four. Factor five consisted of three items from the *disorder recognition* scale, and one from the *risk factor knowledge* scale. The final factor demonstrating simple structure, factor six, consisted of the three items from the *attitudes* scale not attributed to earlier factors. The additional three factors demonstrated a complex structure with no discernable pattern of scale items.

Table 7
MHLS Rotated Factor Matrix

	1	2	3	4	5	6	7	8	9
A13	0.870								
A12	0.845								
A16	0.833								
A14	0.825								
A11	0.811								
A15	0.776								
A10	0.756								
A2		0.820							
A3		0.693							
A5		0.665							
A1		0.627							
A7		0.620				0.320			
ISK4			0.793						
ISK2			0.782						
ISK1			0.769						
ISK3			0.721			-0.339			
DR5				0.709					
DR7				0.697					
DR8				0.651					
DR4				0.646					
DR6				0.623					
DR1					0.737				
DR3					0.697				
DR2					0.652				
RFK1					0.447				0.332
A8						0.710			
A6						0.708			
A9		0.316				0.531			
STK1							0.773		
APH2							0.659		
RFK2								0.741	
STK2								0.678	
APH3									0.728
A4	-0.316								0.462
APH1						-0.351			-0.357

Research Question Two- Are the Scores on the MHLS Reliable?

The range, mean score, standard deviation, and Cronbach's Alpha were calculated for each scale (see Table 8). Cronbach's alpha was utilized to assess reliability through the internal

consistency of each scale. Internal consistency focuses on how well items on a single measure "hang together" (Huck, 2011, p.71), or how consistently samples from hypothetical populations of the same size would respond on the items over time. A Cronbach's alpha of 0.5 indicates fair internal consistency, 0.7 or higher indicates a good level of internal consistency (Laerd, 2018b), and a score above 0.9 indicates excellent internal consistency. MHLS *disorder recognition* and *information seeking knowledge* scales both demonstrated good reliability and the *attitudes* scale indicated fair reliability. The *risk factor knowledge* scale had poor internal reliability and the *self-treatment knowledge* and *available professional help* scales demonstrated negative Cronbach's alpha values. Negative values violate reliability model assumptions, and as such, the item coding for each of these scales was re-checked and found to be appropriately coded. To examine the fit of the items within each scale, item-total statistics were used. See Appendix E for reliability statistics.

Table 8
MHLS Scale Range, Scores, and Reliability

	N of Items	Scale Range	Mean Score	SD	Cronbach's Alpha	# of items effected r/t Cronbach's alpha if item deleted
DR	8	8-32	27.62	2.790	0.728	0
RFK	2	2-8	4.86	1.030	0.063	N/A
STK	2	2-8	5.79	0.878	-0.048	N/A
APH	3	3-12	8.98	0.954	-0.237	1
ISK	4	4-20	17.12	2.682	0.822	0
A	16	16-80	42.18	4.926	0.613	8

Disorder recognition scale. There were eight items measuring participant *disorder recognition*. This scale demonstrated good internal consistency, as determined by a Cronbach's alpha of 0.728. An examination of item-total statistics suggested that removal of any of the eight items would result in a lower Cronbach's alpha; therefore, all items should be kept in the scale.

Risk factor knowledge scale. The MHLS includes two items on the *risk factor knowledge* scale. This scale had a poor Cronbach's alpha of 0.063. However, since it only consisted of two items, the impact of deleting individual items on the Cronbach's alpha could not be assessed.

Self-treatment knowledge scale. This two-item scale showed a Cronbach's alpha value of -0.048. Due to the negative value, the item-coding was re-checked to ensure they were coded correctly. It was determined that the reverse-coded item was coded correctly, and further analysis on the individual item's removal on internal consistency could not be assessed due to the small number of scale items.

Available professional help scale. The *available professional help* scale also demonstrated a negative Cronbach's alpha of -.0237. Reverse coded items in the scale were re-checked to ensure they were coded correctly, and it was determined that they were. Although the corrected item total correlation value for all three items were negative, the removal of *available professional help* item-number three ('to what extent do you think it is likely that the following is a condition that would allow a mental health professional to break confidentiality: if your problem is not life-threatening and they want to assist others to better support you') would result in a Cronbach's alpha of 0.221. This item was the reverse-coded item in the scale which may indicate that the reverse coding was an issue, or that the item was not worded clearly.

Information seeking knowledge scale. There were four items on the *information seeking scale*, which had a Cronbach's alpha of 0.822 and demonstrated good internal consistency. Removal of any of the four items would result in a lower internal reliability, and therefore all items should be kept in the scale.

Attitudes scale. There were 16 items included in the *attitudes scale*, making it the largest scale of the measure. The scale demonstrated a fair Cronbach's alpha of 0.613. An examination of item-total statistics showed that there were eight items, *attitudes* one through six, eight, and nine, that would result in a slight increase in Cronbach's alpha if the item were deleted. Although the increase in alpha scores would be minimal if each individual item were deleted, this result led to further examination of the scale.

Attitudes subscales. It was noted that the *attitudes scale* contained two different Likert-type response scales. The first nine items of the *attitudes scale* included a 5-point Likert response scale ranging from 'strongly disagree' to 'strongly agree.' The second seven items of the *attitudes scale* included a 5-point Likert response scale ranging from 'definitely unwilling' to 'definitely willing.'

The *attitudes scale* was split into two smaller subscales, divided by the two different response scales, and the internal reliability of each subscale was calculated (see Table 9). *Attitudes sub-scale 1* demonstrated good internal consistency with a Cronbach's alpha score of .742, while *attitudes sub-scale 2* demonstrated excellent internal consistency with a Cronbach's alpha of 0.930. This outcome showed that the attitudes scale demonstrated greater internal consistency when split into two subscales. Examination of item total statistics of the two individual sub-scales demonstrated only one item on *attitudes sub-scale 1* that would result in a slightly higher Cronbach's alpha of 0.745 if deleted.

Table 9
Attitudes Sub-Scales

	N of Items	Cronbach's Alpha	# of items effected r/t Cronbach's alpha if item deleted
Attitudes Sub-Scale 1	9	0.742	1
Attitudes Sub-Scale 2	7	0.930	0

Research Question Three- Is there a practical difference in factor structure and reliability between the MHLS and an education-modified MHLS version?

A principal components analysis was performed with the 66 respondents that were randomly assigned the education-modified version of the MHLS and all data can be found in Appendix F. The only scale that was altered for the 66 participants was *attitudes sub-scale 2*; all other scales remained the same as the original MHLS. Eigenvalue results indicated a ten-factor structure that explained 63.413% of the total variance, as opposed to the nine-factor structure that was found for the MHLS. Scree plot elbowed around 5 factors, consistent with the findings for the MHLS. A rotated factor matrix identified that all seven items on the education modified scale loaded onto factor one. This result was also consistent with the items that loaded onto factor one on the original MHLS rotated factor matrix.

In terms of reliability of the MHLS and the education-modified version of the MHLS, the Cronbach's alpha of the education-modified MHLS *attitude sub-scale 2* was 0.914 (Table 10). Item-total statistics indicate that removal of any of the items would result in a lower internal consistency (Appendix F). When compared with the Cronbach's alpha of the MHLS *attitude sub-scale 2*, they both fall in the excellent range for reliability.

Table 10
MHLS and Education-modified MHLS Reliability

	Cronbach's Alpha
MHLS Attitudes Sub-Scale 2	0.930
Education-Modified MHLS Scale	0.914

Research Question Four- Are scores on the MHLS significantly different among groups of educators?

One-way ANOVAs and their associated follow-up post-hoc tests, as well as independent t-tests, were performed to investigate the various subparts of research question four.

a. By gender (male, female, transgender, or other). A one-way ANOVA was conducted to examine the differences between scale scores on the MHLS by gender to determine whether they were statistically significant. Due to the fact that only one participant selected transgender, this category was combined with "other" to make the third group of "transgender/other" to allow for statistical analysis. Homogeneity of variances was assessed through Levene's test for equality of variances (see Table 11). Levene's test was not statistically significant ($p > .05$) for all scales, with the exception of *attitudes sub-scale 1* ($p = .003$) which violated the assumption of homogeneity of variances. Due to the violation of Levene's test for homogeneity of variances, a Welch and Brown-Forsythe ANOVA was utilized for *attitudes sub-scale 1*.

Table 11
Test of Homogeneity of Variances for MHLS scales x Gender

MHLS Scales	Levene's Statistic	df_1	df_2	Sig.
DR	1.541	2	677	0.215
RFK	0.770	2	677	0.464
STK	0.331	2	666	0.719
APH	0.704	2	658	0.495
ISK	0.705	2	650	0.494
A	1.926	2	575	0.147
A1	5.739	2	650	0.003
A2	0.888	2	575	0.412
EMVA	2.037	2	66	0.139

A more conservative alpha of .01 was used to reduce the chances of false positives due to the fact that multiple pair wise analyses were run on the same data set. Results from these ANOVAs (see Table 12) were statistically significant for *attitudes sub-scale 1*, Welch's $F(2, 7.997) = 6.901$, $p = .018$, Brown-Forsythe's $F(2, 32.824) = 10.654$, $p < .01$; and *attitudes sub-scale 2*, $F(2, 575) = 5.918$, $p < .01$. Results for all other scales did not show any statistically significant differences across gender categories.

Table 12
One-Way ANOVA of Various MHLS scale scores x Gender

Scale		Sum of Squares	df	Mean Square	F	Sig.
DR	Between Groups	49.699	2	24.850	3.214	0.041
	Within Groups	5233.924	677	7.731		
	Total	5283.624	679			
RFK	Between Groups	0.198	2	0.099	0.093	0.911
	Within Groups	720.807	677	1.065		
	Total	721.006	679			
STK	Between Groups	1.040	2	0.520	0.675	0.510
	Within Groups	513.393	666	0.771		
	Total	514.433	668			
APH	Between Groups	2.701	2	1.350	1.486	0.227
	Within Groups	598.044	658	0.909		
	Total	600.744	660			
ISK	Between Groups	36.845	2	18.423	2.573	0.077
	Within Groups	4654.597	650	7.161		
	Total	4691.443	652			
A	Between Groups	29.968	2	14.894	0.617	0.540
	Within Groups	13968.593	575	24.293		
	Total	13998.561	577			
A1	Between Groups	282.541	2	141.270	10.577	0.000
	Within Groups	8681.732	650	13.357		
	Total	8964.273	652			
A2	Between Groups	241.111	2	120.555	5.918	0.003
	Within Groups	11712.739	575	20.370		
	Total	11953.849	577			
EMVA	Between Groups	72.369	2	36.185	1.550	0.220
	Within Groups	1540.935	66	23.347		
	Total	1613.304	68			

Table 13
Robust Tests of Equality of Means: Attitudes Sub-scale 1

		Statistic	df1	df2	Sig.
A1	Welch	6.901	2	7.997	0.018
	Brown-Forsythe	10.654	2	32.824	0.000

The post-hoc results from the Games-Howell test shown in Table 14 depicts where the statistically significant differences across gender groups were found on the attitudes sub-scales. Post- hoc tests are utilized to identify where the statistically significant group differences exist after a one-way ANOVA has identified an overall difference within the group. The Games-Howell results provide confidence intervals for the difference between group means for all available comparisons (Laerd, 2015c). The descriptive statistics for each group can be found in

Appendix G. The Games-Howell results for *attitude sub-scale 1* indicate there was a higher score for participants who identified as male (M = 15.02, SD = 4.51) as compared to participants who identified as female (M = 13.29, SD = 3.44), a mean increase of 1.72, 95% CI [0.66, 2.78], which was statistically significant ($p < .001$). There was no statistically significant difference between either the participants who identified as male or female and the participant group that identified as transgender/other on *attitudes sub-scale 1*. The Games-Howell results for *attitudes sub-scale 2* indicated an increase in score in the inverse. Participants who identified as female scored higher (M = 24.67, SD = 4.49) than participants who identified as male (M = 23.07, SD = 4.62), a mean increase of 1.60, 95% CI [0.42, 2.77] which was statistically significant ($p <.001$). There was no statistically significant difference between either the participants who identified as male or female and the participant group that identified as transgender/other on the *attitudes sub-scale 2*.

Table 14
Games-Howell for MHLS Scales x Gender

			Mean	Std.		95% Confidence	
		Comparison	Diff.	Error	Sig.	Lower	Upper
A1	Male	Female	1.72646	0.44692	0.000	0.6681	2.7849
		Transgender/Other	1.77609	1.43990	0.503	-3.6400	7.1921
	Female	Male	-1.72646	0.44692	0.000	-2.7849	-0.6681
		Transgender/Other	0.04963	1.38495	0.999	-5.6512	5.7505
	Transgender/Other	Male	-1.77609	1.43990	0.503	-7.1921	3.6400
		Female	-0.04963	1.38495	0.999	-5.7505	5.6512
A2	Male	Female	-1.60112	0.49499	0.004	-2.7727	-0.4296
		Transgender/Other	-4.42453	1.56592	0.283	-24.6655	15.8165
	Female	Male	1.60112	0.49499	0.004	0.4296	2.7727
		Transgender/Other	-2.82340	1.51424	0.449	-29.1559	23.5091
	Transgender/Other	Male	4.42453	1.56592	0.283	-15.8165	24.6655
		Female	2.82340	1.51424	0.449	-23.5091	29.1559

b. By special educator status (yes or no). An independent samples t-test was conducted to examine MHLS scale scores by special educator status (yes or no). Descriptive statistics for special educator status can be found in Appendix G. Independent samples t-test results (Table 15) did not find a significant difference between MHLS scale scores by special educator status. Levene's test for equality of variances was run. The assumption of equality of variances is violated if $p < .05$ for any MHLS scale. Levene's test was violated for both the *disorder recognition* ($p = .006$) and *available professional help* ($p = .025$) scales. Therefore, equal variances were not assumed for those two scales. However, no statistically significant differences were found on any scale for special educator status and the null hypothesis was accepted.

Table 15
Independent Samples T-test of MHLS scale scores x Educator Status

		Levene's Test for E.V.						Std. Error	95% Confidence	
		F	Sig.	t	df	Sig. 2-Tail	Mean Diff.	Diff.	Lower	Upper
DR	E.V. Assumed	7.557	0.006	0.103	678	0.918	0.02659	0.25880	-0.48155	0.53474
	E.V. Not Assumed			0.111	268.746	0.911	0.02659	0.23888	-0.44372	0.49691
RFK	E.V. Assumed	0.323	0.570	-0.216	678	0.829	-0.02065	0.09560	-0.20836	0.16705
	E.V. Not Assumed			-0.231	263.520	0.817	-0.02065	0.08929	-0.19646	0.15515
STK	E.V. Assumed	0.007	0.935	-0.487	667	0.627	-0.03992	0.08199	-0.20090	0.12107
	E.V. Not Assumed			-0.486	233.944	0.627	-0.03992	0.08215	-0.20176	0.12193
APH	E.V. Assumed	5.061	0.025	-0.011	659	0.991	-0.00095	0.0930	-0.17630	0.17440
	E.V. Not Assumed			-0.012	277.943	0.991	-0.00095	0.08070	-0.15982	0.15791
ISK	E.V. Assumed	0.016	0.899	-0.085	651	0.932	-0.02157	0.25338	-0.51912	0.47598
	E.V. Not Assumed			-0.085	230.522	0.932	-0.02157	0.25311	-0.52028	0.47714
A	E.V. Assumed	1.020	0.313	0.763	576	0.446	0.37656	0.49359	-0.59282	1.34601
	E.V. Not Assumed			0.752	200.841	0.453	0.37656	0.50056	-0.61047	1.36359
A1	E.V. Assumed	3.497	0.062	-0.990	651	0.323	-0.34643	0.34999	-1.03368	0.34082
	E.V. Not Assumed			-1.089	268.008	0.277	-0.34643	0.31800	-0.97252	0.27966
A2	E.V. Assumed	0.000	0.988	1.426	576	0.154	0.64955	0.45554	-0.24518	1.54428
	E.V. Not Assumed			1.431	205.912	0.154	0.64955	0.45388	-0.24530	1.54440
EMVA	E.V. Assumed	2.947	0.091	1.136	67	0.260	1.61111	1.41861	-1.22044	4.44266
	E.V. Not Assumed			1.500	38.234	0.142	1.61111	1.07385	-0.56235	3.78457

c. By instructional level (elementary or secondary).

An independent samples t-test was conducted to examine MHLS scale scores by instructional level (elementary or secondary). Descriptive statistics by instructional level can be found in Appendix G. Independent samples t-test results (Table 16) did not find a significant difference between MHLS scale scores by instructional level. Levene's test for equality of variances was run and was not was found to be violated on any scale. Equal variance was

assumed for all scales. No statistically significant differences were found for any scale and the null hypothesis was accepted.

Table 16
Independent Samples T-test of MHLS Scale scores x Instructional Level

		Levene's Test for E.V.						Std.	95% Confidence	
		F	Sig.	t	df	Sig. 2-Tail	Mean Diff.	Error Diff.	Lower	Upper
DR	E.V. Assumed	1.074	0.300	-0.831	678	0.406	-0.17801	0.21409	-0.59836	0.24235
	E.V. Not Assumed			-0.832	677.388	0.406	-0.17801	0.21391	-0.59801	0.24199
RFK	E.V. Assumed	0.428	0.513	1.146	678	0.252	0.09056	0.07905	-0.06465	0.24577
	E.V. Not Assumed			1.149	676.903	0.251	0.09056	0.07882	-0.06420	0.24532
STK	E.V. Assumed	0.162	0.687	1.794	667	0.073	0.12155	0.06777	-0.01151	0.25462
	E.V. Not Assumed			1.797	666.887	0.073	0.12155	0.06766	-0.01129	0.25440
APH	E.V. Assumed	0.071	0.789	0.462	659	0.644	0.03432	0.07429	-0.11155	0.18018
	E.V. Not Assumed			0.462	658.956	0.644	0.03432	0.07420	-0.11139	0.18002
ISK	E.V. Assumed	0.378	0.539	-0.420	651	0.674	-0.08830	0.21013	-0.50092	0.32432
	E.V. Not Assumed			-0.421	650.855	0.674	-0.08830	0.20998	-0.50062	0.32402
A	E.V. Assumed	0.781	0.377	-1.598	576	0.111	-0.65514	0.41000	-1.46041	0.15013
	E.V. Not Assumed			-1.605	574.412	0.109	-0.65514	0.40815	-1.45680	0.14651
A1	E.V. Assumed	0.545	0.460	-1.109	651	0.268	-0.32192	0.29023	-0.89182	0.24799
	E.V. Not Assumed			-1.107	638.090	0.269	-0.32192	0.29088	-0.89311	0.24927
A2	E.V. Assumed	0.288	0.592	-0.871	576	0.384	-0.33048	0.37946	-1.07578	0.41481
	E.V. Not Assumed			-0.869	562.507	0.385	-0.33048	0.38017	-1.07721	0.41625
EMVA	E.V. Assumed	1.093	0.299	0.469	67	0.640	0.58696	1.25109	-1.91024	3.08415
	E.V. Not Assumed			0.518	57.120	0.607	0.58696	1.13376	-1.68326	2.85717

d. By employment classification (certified or classified). An independent samples t-test was conducted to examine MHLS scale scores by employment classification (certified or classified). Descriptive statistics by employment classification can be found in Appendix G.

Independent samples t-test results (Table 17) did not find a significant difference between MHLS scale scores by employment classification. Levene's test for equality of variances was run and not violated for any scale. No statistically significant differences were found and the null hypothesis was accepted.

Table 17
Independent Samples T-test of MHLS Scale Scores x Employment Classification

		Levene's Test for E.V.				Sig.	Mean	Std. Error	95% Confidence	
		F	Sig.	t	df	2-Tail	Diff.	Diff.	Lower	Upper
DR	E.V. Assumed	0.406	0.524	-2.513	678	0.012	-0.69355	0.27596	-1.23538	-0.15171
	E.V. Not Assumed			-2.563	185.962	0.011	-0.69355	0.27059	-1.22737	-0.15973
RFK	E.V. Assumed	0.180	0.672	1.654	678	0.099	0.16906	0.10221	-0.03162	0.36975
	E.V. Not Assumed			1.565	172.025	0.120	0.16906	0.10805	-0.04422	0.38235
STK	E.V. Assumed	0.713	0.399	-1.561	667	0.119	-0.13656	0.08749	-0.30835	0.03524
	E.V. Not Assumed			-1.493	172.957	0.137	-0.13656	0.09147	-0.31709	0.04398
APH	E.V. Assumed	1.923	0.166	-0.173	659	0.862	-0.01670	0.09634	-0.20587	0.17247
	E.V. Not Assumed			-0.168	169.928	0.867	-0.01670	0.09953	-0.21318	0.17978
ISK	E.V. Assumed	0.039	0.843	-1.073	651	0.284	-0.29180	0.27189	-0.82569	0.24208
	E.V. Not Assumed			-1.066	173.225	0.288	-0.29180	0.27381	-0.83224	0.24863
A	E.V. Assumed	0.866	0.352	-0.148	576	0.882	-0.07983	0.53788	-1.13627	0.97661
	E.V. Not Assumed			-0.144	142.678	0.886	-0.07983	0.55617	-1.17924	1.01957
A1	E.V. Assumed	3.242	0.072	2.365	651	0.018	0.88578	0.37456	0.15029	1.62128
	E.V. Not Assumed			2.153	159.402	0.033	0.88578	0.41136	0.07336	1.69820
A2	E.V. Assumed	0.431	0.512	-1.152	576	0.250	-0.57213	0.49648	-1.54726	0.40301
	E.V. Not Assumed			-1.149	147.027	0.252	-0.57213	0.49798	-1.55626	0.41200
EMVA	E.V. Assumed	0.055	0.815	0.531	67	0.597	0.75926	1.42919	-2.09342	3.61193
	E.V. Not Assumed			0.531	22.413	0.600	0.75926	1.42863	-2.20038	3.71890

Summary

This chapter provided a description of the statistical analyses conducted as part of an examination of the psychometric properties of the MHLS with K-12 educators. First, an exploratory factor analysis enabled an examination of the components of the MHLS and the education-modified MHLS. Next, scale reliability was assessed for both versions of the measure and between-groups comparisons were made for the outlined categories of educators.

Several of the results from the analyses outlined above are discussed in Chapter Five. The first is the comparison between the MHLS and the education-modified MHLS, which both evidenced excellent internal consistency and a similar factor structure. The second is the statistically significant difference on the attitude scales between participants who identified as male and participants who identified as female. The third is the lack of statistically significant differences in MHLS scores between any other professional category assessed, including special educator status and employment classification. Chapter Five discusses limitations of the research as well as proposed next steps for future research.

Chapter 5

During the course of this research study, the Oregon Education Association (OEA) released a report entitled "A Crisis of Disrupted Learning." This report detailed the day-to-day experiences of classroom teachers in Oregon who participated in forums held by OEA during the spring and fall of 2018. The report included that, from a teacher perspective, "more students are coming to school with substantial social emotional needs, physical health needs, and mental health challenges" (OEA, 2019, p. 7). Teachers are reaching out to be heard and asking for additional support. Specific requests for support, as detailed in the report, include professional development that is targeted to the unique needs of the school and district and extended to reach all staff members (including all classifications of education support personnel).

As a Licensed Marriage and Family Therapist working in the field of education for the past eleven years, first as a mental health specialist and later as a building and district administrator, I have been afforded a unique vantage point from which to view this issue. Through file reviews, I have seen the repeated narrative of a student with mental health needs that go unidentified for too long, allowing nascent concerns to transform into significant and complex problems. I have also had the opportunity to truly listen to teachers who want the best for their students, but feel lost in the maze of student behaviors and mental health diagnoses, wishing they could be more effective and proactive. Teachers want to know how to address mental health issues and students need help from educators to access the support they require.

The key aim of this study was to explore the psychometric properties of the Mental Health Literacy Scale (MHLS) in a sample of K-12 educators. This study also focused on the between-groups comparison of MHLS scales in different educator groups, as well as the exploration of an education modified version of the MHLS. A tool that is valid and reliable in

assessing educators' mental health literacy would allow school districts to ascertain educator needs and better target professional development, rendering it more effective. This chapter discusses the main findings of the results previously outlined in Chapter 4, along with limitations of the research and suggestions for future inquiry.

Discussion of Findings

The following section discusses relevant findings to the subsequent research questions. The research questions were:

1. What is the factor structure of the MHLS?
2. Are the scores on the MHLS reliable?
3. Is there a practical difference in factor structure and reliability between the original MHLS and an education-modified version of the MHLS?
4. Are the scores on the MHLS significantly different among groups of educators?
    a. By gender (male, female, transgender, or other).
    b. By special educator status (yes or no).
    c. By instructional level (elementary or secondary).
    d. By employment classification (certified or classified).

Factor structure and reliability of the MHLS and education-modified MHLS. One aim of the research was the exploration of an education-modified version of the MHLS, based on continued validation work on the original MHLS. Findings demonstrated no practical differences between the MHLS and the education-modified MHLS. This means that the education-modified MHLS may be a step in the direction of an education specific MHLS measure, which is a better fit within the educational context.

Factor Structure. Factor structures of both versions of the MHLS were similar. The scales that demonstrated the simplest structure were *attitudes sub-scales 1* and *2.* The first factor on the rotated factor matrix fit cleanly into *attitudes sub-scale 2* while the majority of items from *attitudes sub-scale 1* fit into factor 2 on the matrix. Items on *attitudes sub-scale 1* include '*a mental illness is not a real medical illness*' and '*I believe treatment for a mental illness, provided by a mental health professional, would not be effective,*' which could be interpreted as general attitudes towards mental illness and treatment. Items on *attitudes sub-scale 2* include '*how willing would you be to make friends with someone with a mental illness*' and '*how willing would you be to have someone with a mental illness start working closely with you on a job,*' which could be interpreted as attitudes towards interactions with people with a mental illness. These results, and subsequent interpretation, reinforce the idea that the *attitudes scale* is best viewed as two separate scales, *attitudes sub-scale 1* (general attitudes towards mental illness and treatment) and *2* (attitudes towards interactions with people with a mental illness).

In terms of other MHLS scales, all four items on the *information seeking knowledge scale* loaded onto factor 3, and the *disorder recognition* items loaded onto factor 4 and 5. The other three scales did not evidence any specific pattern. This information is useful as part of the picture of overall scale strength, when considering reliability findings discussed below.

Scale reliability. In both the MHLS and the education-modified MHLS, four of the seven scales demonstrated good or excellent reliability, while the other three scales had poor or negative Cronbach's alpha values. It is interesting to note that previous research on the MHLS did not report reliability values broken down by scale, only overall Cronbach's alphas of the measure. The *risk factor knowledge scale* demonstrated poor reliability and the *self-treatment knowledge* and *available professional help scales* demonstrated negative Cronbach's alphas.

These three scales had the lowest number of items per scale on the measure, and each included a single reverse item in the scale. Reverse-scored item codings were re-checked multiple times throughout the course of the data analysis in SPSS to ensure they were coded correctly. Reverse scored items appeared to be problematic across the measure and merit further examination in future scale development of the MHLS. Wording of reverse scored items should be re-examined for clarity. For example, item two on the risk factor knowledge scale asks *'to what extent do you think it is likely that in general, in the United States, men are MORE likely to experience an anxiety disorder compared to women'?* The way this question is worded may have been confusing to participants, particularly when it is one of only three reverse-scored items on the first four scales. Although reverse-scored items are often incorporated to reduce response-bias, research has also indicated that reverse-scored items may cause issues within a measure. Participants may require a higher level of linguistic skill to process reverse-scored items, and the concern is more pronounced when participants have to switch back and forth rapidly between regular items and reverse-scored items (Suarez-Alvarez, Pedrosa, Lozano, Garcia-Cueto, & Muniz, 2018). This may help explain why scales with a small number of items, including a reverse-scored item, indicated concerns regarding reliability, while *attitudes sub-scale 1* did not.

The *disorder recognition scale* and *attitudes sub-scale 1* demonstrated good reliability while the *information seeking knowledge scale* and *attitudes sub-scale 2* demonstrated excellent reliability. These scales had higher numbers of items, and although *attitudes sub-scale 1* contained reverse-scored items, it consisted only of reverse-scored items. These four MHLS scales consist of 28 total items that offer a quick measure of participant disorder recognition, information seeking and attitudes towards mental illness.

Practical Implications. Practical implications of these findings include that the study demonstrates the MHLS as a tool that is quick to administer and score, with good to excellent reliability on multiple scales. School district personnel are often crunched for time and staff surveys can feel like one more method of standardized testing. An effective and easy-to-administer measure, such as the education-modified MHLS, can provide administration with timely information regarding professional development needs of staff. SurveyMonkey results from this study indicated that the typical amount of time it took for educators to complete the MHLS was seven minutes. Seven minutes is a reasonable amount of time to spend at the end of a staff meeting to ask faculty to complete a school-or district-wide mental health literacy needs assessment. Taking those seven minutes could help district administrators make effective decisions on how to best focus their fiscal resources toward staff professional development in the area of mental health literacy. The MHLS could also be utilized to determine whether given interventions are achieving the desired result of increasing MHL in a sample of educators. The MHLS has potential to be administered either annually in the Spring to gauge ongoing fluctuations in educator MHL, or as a pre and post measure of MHL interventions and professional development opportunities.

Between-group MHLS findings. The research examined differences in MHLS scores among multiple groups of educators. Only one group demonstrated statistically significant differences in mean score on *attitudes sub-scale 1*. However, the lack of statistically significant differences between groups on the rest of the scales was arguably the more interesting finding of the research.

Gender. Previous research has indicated that women tend to have higher levels of disorder recognition and help-seeking attitudes than men (Burns and Rapee, 2006; Cotton,

Wright and Harris, 2006; Hadjimina & Furnham, 2017). The findings in this study indicated that the only scales in which there was a statistically significant difference in mean scale scores were *attitudes sub-scales 1* and *2*. The difference among groups in *attitudes sub-scale 2*, interpreted as attitudes towards interactions with people with mental illness, was in line with what previous research has indicated. Participants who identified as female demonstrated more positive attitudes towards interactions with individuals experiencing mental illness than participants who identified as male. The findings for *attitudes sub-scale 1* were in the inverse. Participants who identified as male demonstrated a more positive general attitude towards mental illness and treatment on average than participants who identified as female.

It may be important to note that the two sub-scales had different response scales. *Attitudes sub-scale 1* had a 5-point reverse-scored Likert response scale that ranged from '*strongly disagree'* to '*strongly agree'* while *attitudes sub-scale 2* had a 5-point Likert response scale that ranged from '*definitely unwilling'* to '*definitely willing.'* A consistent finding across all items and scales on the MHLS was that scales with reverse scored items demonstrated lower, and sometimes negative, reliability. *Attitudes sub-scale 1* was the only scale that consisted entirely of reverse scored items. Therefore, although it may not have impacted Cronbach's alpha of the scale, it is possible that the fact that all items are reverse-scaled may have impacted how this scale relates to other scales in the measure. This scale may merit further examination in future studies, including modifying the response scale and wording to better align with *attitudes sub-scale 2*. This may include changing the reverse-coding of the scale back to standard to see whether it impacts reliability of the overall attitudes scale.

Educator status, classification, and instructional level. These findings, or rather, lack thereof, were some of the most intriguing in the study. There was no statistically significant

difference in scores across any of the remaining demographic categories including special educator status, employee classification, or instructional level. Common belief would have anticipated that special educators would have a higher MHLS score than general educators. This is due to the fact that our special educators are the staff members who work with students with the most significant emotional and behavioral disabilities in the school system. Common belief would also have anticipated that certified staff would have high scores on the MHLS than classified staff. This general belief is due to the fact that educational requirement for classified staff are lower than for that of certified staff. For example, in district one, classified staff are required to have the equivalent of 72 quarter credits of postsecondary education, or pass a basic skills test, while certified staff are required to have a master's degree or beyond. These findings may have significant implications for how we view, support, and provide professional development for staff.

Districts tend to put special educators on a pedestal as having a higher level of expertise surrounding student mental health needs. This assumption was not found to be accurate in the MHLS results. The fact that there was no statistically significant difference in MHLS scores among general and special educators was not surprising given my experience in the field working alongside special educators. They, too, are asking for additional support and can feel lost in the maze of intensive student needs. Special educators self-select into a field where they are likely to support students with emotional and behavioral needs. At face value, based on cultural expectations in our schools, we assume special educators have more knowledge due to their role and duties they perform each day. Those duties include working with students who require specially designed instruction to manage their emotions and behaviors in the school setting. In reality, special educators are learning on the job, through trial and error, what works to

support students and do not receive a higher level of specialized training in mental health needs or literacy prior to employment.

Special educators are highly valuable members of any school district, and general education staff often look to them for guidance surrounding how to support students with mental health concerns. This research indicated that districts need to be mindful of special educator professional development needs in the area of mental health literacy, and work to provide the necessary supports and ongoing resources.

Classified and certified staff alike should also be included in any future and ongoing professional development in mental health literacy. Certified staff are often informal supervisors of classified staff, and classified staff look to them for guidance on how to best support students. It is important then to note that certified staff were not found to have scores on the MHLS that were significantly different than those of classified staff. Classified staff may be seeking direction and guidance on how to support student mental health needs that certified staff simply do not possess. On top of this, classified staff often do not have as many hours of professional development built into their contract on an annual basis and can be overlooked when designing district trainings.

Classified staff are valuable members of any district that frequently build close and ongoing relationships with individual students. It is necessary that when a student divulges information to a classified staff member regarding mental health needs, or a classified staff member notices a concern, they are able to identify it and direct it to the correct avenue for support. Classified staff members also provide supervision during unstructured school times, including recess, lunch, and hallway passing times. These less structured times are often when students may feel overwhelmed and mental health concerns may manifest. Without the

appropriate mental health literacy lens to know what to look for and how to seek help, these opportunities to identify needs and connect students to resources may be lost.

Other studies utilizing MHLS. Although not part of the statistical analyses in the previous chapter, it is relevant to discuss the findings of this study in comparison to previous research utilizing the MHLS. There are three other studies that warrant discussion in regards to the current research. O'Connor and Casey (2015) completed research in Australia during the development of the MHLS with two different samples in Australia, one sample of first year university students and another sample of mental health professionals. Gorcynski, Sims-schouten, Hill & Wilson (2016) completed a study in England with a sample of university students, and Vermaas, Green, Haley, and Haddock (2017) completed a study in the United States with a sample of clergy. These studies and the current research are summarized in Table 18. The sample with the highest mean MHLS score was the group of mental health professionals, which is to be expected given their advanced training in the subject area. The next highest mean score comes from the sample of clergy in the United States, which is also to be expected given the helping nature of their profession. Next, the university students from the studies in Australia and England had mean scores 5 points apart. Last, the mean score from this study on K-12 educators in Oregon is the lowest of the group. Although no formal comparison of MHLS mean scores can be made due to differences in samples and location, it is interesting to note the difference in mean scores. K-12 educators scored 38.94 points less on average than the sample of mental health professionals in Australia, which would be expected, but also 16.55 points less on average than the sample with the closest mean score of university students in England. This is unexpected, as education is a helping profession. At face value, we would expect individuals who have self-selected into a helping profession to have higher levels of mental health literacy

than a general sample of university students. This alarming discrepancy in scores should be further explored, with consideration given to cultural and contextual factors.

Table 18
Comparison of MHLS Studies

Study	Location	Sample	N	M
O'Connor & Casey, 2015	Australia	First year university students	372	127.38
	Australia	Mental health professionals	43	145.49
Gorczynski, Sims-schouten, Hill & Wilson, 2016	England	University students	380	122.88
Vermaas, Green, Haley, & Haddock, 2017	United States	Clergy	238	134.20
Current Study	United States	K-12 educators	727	106.55

Mental health expertise in schools. It is worth considering how districts are utilizing staff who are trained in mental health, including psychologists and other licensed mental health professionals, to provide ongoing support and coaching to all staff. Often times mental health professionals are employed by outside community agencies and counsel students in schools, but they are also employed directly by school districts with increasing frequency. These professionals have dedicated years of study to the development of expertise in the area of mental health, and post-graduate requirements for supervised practice are stringent. In Oregon to be certified as a Licensed Professional Counselor, a provider must complete three years of supervised clinical counseling experience as a registered intern. This experience must include at minimum 2,400 hours of direct client contact, counseling individuals with mental health concerns. To be licensed as a Marriage and Family Therapist, those 2,400 hours must include a minimum of 1,000 hours of systemic therapy, working with more than one client at a time.

At times, mental health professionals in schools are pigeonholed into working individually with students behind a closed door. This limits their ability to work within the larger system and they would have a greater impact if part of their roles were allocated to consistent

staff professional development, collaboration, and coaching. These mental health providers need to be firmly ensconced in the school system, and at the table when district decisions are being made regarding how to support student mental health and staff mental health literacy.

Given the sobering nature of these findings regarding educator mental health literacy, school district personnel need to take action as a collective team. At times educators can exist in silos and engage in turf wars over roles and responsibilities (Brown, Dahlbeck, & Sparkman-Barnes, 2006). Administrators, teachers, school counselors, specialists, and mental health providers need to work in unison to improve staff knowledge and connect students with needed mental health supports. The stakes of untreated mental illness are too high to ignore, and students need the support of the educators they interact with on a daily basis.

Limitations

This research study had several limitations. The first limitation was the sample. Although the sample size was sufficient, and included both urban and rural districts, all three districts were located in Oregon which decreased generalizability to other areas of the United States. A second limitation of the research was the disparity in respondent demographics. Due to the low response rate of participants who identified as transgender or other, the two demographic categories had to be combined to allow statistical analysis. There was also a much larger number of respondents who identified as female as compared to respondents who identified as male, as well as a larger number of certified respondents than classified respondents. The distribution of male to female participants is to be expected, and in line with demographics in the teaching profession. The difference between certified and classified respondents, however, was wider than what one would expect of a school district sample and classified respondents were under represented.

A second limitation to the research is the lack of available studies with which to compare mean MHLS scores. Other research using the measure has been completed in different countries, or with different populations. Only one other study utilizing the MHLS in the United States, with a sample of clergy, was available for comparison of mean scores.

Limitations regarding design of the original instrument were also present. In previous research that included the original MHLS design, reliability was not considered by each individual scale, but instead as the overall reliability of the measure. Items during the original design were removed based on their impact on the entire measure, not by individual scale. Although the MHLS was available and published online, which items are assigned to each scale was information that was not readily available. That information was only obtained for this study through direct contact with the lead researcher. This approach to designing the measure based on overall reliability score may have impacted the discrepancy in number of items per scale and use of reverse-coded items. Several scales consisted of only two or three items, one of which was reverse coded, while other scales consisted of eight to sixteen items with consistent coding. Subsequent studies also elected not to examine individual scale reliability, instead choosing to focus on the overall Cronbach's alpha of the MHLS. This limited the ability to compare scale Cronbach's alpha scores with previous research.

A final identified limitation of the study is that demographics of the respondents and other information regarding survey administration could not be verified. The survey results were collected through an online link sent via district email addresses, and therefore who, when, where, and how the respondents took the survey could not be confirmed or controlled for.

Suggestions for Future Research

This study was the first to attempt an education-modified version of the MHLS and currently three scales of the MHLS demonstrate poor or negative reliability. Future research on the MHLS should include Cronbach's alpha values by individual scale, as opposed to an overall value for the instrument, and work to expand on the number of scales on the education-modified version with good to excellent reliability. Future research may also look towards including a larger number of items on the scales with poor reliability and further investigate the use of reverse-scored items on the scales with negative reliability. A measure that is quick to administer, demonstrates good to excellent reliability on multiple scales, and is educator-specific merits further exploration.

A second area of future research is utilizing the MHLS with new samples of the population in the United States. Currently, it is difficult to compare research studies among various samples that have taken the MHLS. Research with multiple groups will help to inform the field on disparities that may exist in MHL across different sections of the population. Future research may also explore this difference through cross comparative analysis on studies with different mean scores on the MHLS.

A third area of future research is the connection between the mental health first aid curriculum (Kitchner and Jorm, 2001) and MHL assessment measures. Once we know how to measure MHL, the logical next step is the connection between assessment and MHL professional development. The MHLS could be explored as a pre and post measure for MHL training among school district staff.

Finally, the lack of statistically significant differences in scores between general and special educators merits further investigation. Special educators are tasked with supporting some

of our most vulnerable students who have been identified with emotional and behavioral disorders. It will be important to examine what mental health specific training special educators are receiving in preparatory programs as well as through their employers.

Conclusions

This study sought to answer research questions surrounding the psychometric properties of the MHLS, the exploration of an education-modified version of the MHLS, and a between-groups comparison of practicing K-12 educators. The MHLS was found to have several strong scales including the *disorder recognition scale* and the *attitudes scale*, which demonstrated better reliability and factorability when divided into two sub-scales. The education-modified version of the MHLS did not demonstrate any practical difference in factor structure or reliability from the standard MHLS. The education-modified MHLS may be a viable option for quickly assessing educator mental health literacy given the limited time schools have available for making effective professional development decisions. Between groups comparisons of MHLS scores revealed no significant differences between classified and certified staff, as well as no significant differences between general and special educators. These results merit further investigation into how we support all school district staff and provide them with the tools and professional development they need to successfully identify and support students with mental health needs.

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APPENDIX A

THE MENTAL HEALTH LITERACY SCALE

Demographic Items

1. Gender:

Male	Female	Transgender	Other

2. Employed by Special Education:

Yes	No

3. Instructional Level (at which level do you spend the most time working):

Elementary (pre-K to 5th/6th grade)	Secondary (Grades 6/7th to 12th/transition services)

4. Employment Classification:

Certified (e.g. teacher)	Classified (e.g. instructional assistant)

The purpose of these questions is to gain an understanding of your knowledge of various aspects to do with mental health. When responding, we are interested in your degree of knowledge.

Therefore, when choosing your response, consider that:
Very unlikely = I am certain that it is NOT likely
Unlikely = I think it is unlikely but am not certain
Likely = I think it is likely but am not certain
Very Likely = I am certain that it IS very likely

1. If someone became extremely nervous or anxious in one or more situations with other people (e.g., a party) or performance situations (e.g., presenting at a meeting) in which they were afraid of being evaluated by others and that they would act in a way that was humiliating or feel embarrassed, then to what extent do you think it is likely they have Social Phobia

Very Unlikely	Unlikely	Likely	Very Likely

2. If someone experienced excessive worry about a number of events or activities where this level of concern was not warranted, had difficulty controlling this worry and had physical symptoms such as having tense muscles and feeling fatigued then to what extent do you think it is likely they have Generalized Anxiety Disorder

Very Unlikely	Unlikely	Likely	Very Likely

3. If someone experienced a low mood for two or more weeks, had a loss of pleasure or interest in their normal activities and experienced changes in their appetite and sleep then to what extent do you think it is likely they have Major Depressive Disorder

Very Unlikely	Unlikely	Likely	Very Likely

4. To what extent do you think it is likely that Personality Disorders are a category of mental illness

Very Unlikely	Unlikely	Likely	Very Likely

5. To what extent do you think it is likely that Persistent Depressive Disorder (Dysthymia) is a disorder

Very Unlikely	Unlikely	Likely	Very Likely

6. To what extent do you think it is likely that the diagnosis of Agoraphobia includes anxiety about situations where escape may be difficult or embarrassing

Very Unlikely	Unlikely	Likely	Very Likely

7. To what extent do you think it is likely that the diagnosis of Bipolar Disorder includes experiencing periods of elevated (i.e., high) and periods of depressed (i.e., low) mood

Very Unlikely	Unlikely	Likely	Very Likely

8. To what extent do you think it is likely that the diagnosis of Drug Dependence includes physical and psychological tolerance of the drug (i.e., require more of the drug to get the same effect)

Very Unlikely	Unlikely	Likely	Very Likely

9. To what extent do you think it is likely that in general in the United States, women are MORE likely to experience a mental illness of any kind compared to men

Very Unlikely	Unlikely	Likely	Very Likely

10. To what extent do you think it is likely that in general, in the United States, men are MORE likely to experience an anxiety disorder compared to women

Very Unlikely	Unlikely	Likely	Very Likely

When choosing your response, consider that:

- Very Unhelpful = I am certain that it is NOT helpful
- Unhelpful = I think it is unhelpful but am not certain
- Helpful = I think it is helpful but am not certain
- Very Helpful = I am certain that it IS very helpful

11. To what extent do you think it would be helpful for someone to improve their quality of sleep if they were having difficulties managing their emotions (e.g., becoming very anxious or depressed)

Very Unhelpful	Unhelpful	Helpful	Very Helpful

12. To what extent do you think it would be helpful for someone to avoid all activities or situations that made them feel anxious if they were having difficulties managing their emotions

Very Unhelpful	Unhelpful	Helpful	Very Helpful

When choosing your response, consider that:

- Very unlikely = I am certain that it is NOT likely
- Unlikely = I think it is unlikely but am not certain
- Likely = I think it is likely but am not certain
- Very Likely = I am certain that it IS very likely

13. To what extent do you think it is likely that Cognitive Behavior Therapy (CBT) is a therapy based on challenging negative thoughts and increasing helpful behaviors

Very Unlikely	Unlikely	Likely	Very Likely

14. Mental health professionals are bound by confidentiality; however, there are certain conditions under which this does not apply. To what extent do you think it is likely that the following is a condition that would allow a mental health professional to break confidentiality: *If you are at immediate risk of harm to yourself or others*

Very Unlikely	Unlikely	Likely	Very Likely

15. Mental health professionals are bound by confidentiality; however, there are certain conditions under which this does not apply. To what extent do you think it is likely that the following is a condition that would allow a mental health professional to break confidentiality: *if your problem is not life-threatening and they want to assist others to better support you*

Very Unlikely	Unlikely	Likely	Very Likely

Please indicate to what extent you agree with the following statements:

- Strongly Disagree
- Disagree
- Neither Agree or Disagree
- Agree
- Strongly Agree

16. I am confident that I know where to seek information about mental illness

Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree

17. I am confident using the computer or telephone to seek information about mental illness

Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree

18. I am confident attending face to face appointments to seek information about mental illness (e.g., seeing the General Practitioner)

Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree

19. I am confident I have access to resources (e.g., General Practitioner, internet, friends) that I can use to seek information about mental illness

Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree

20. People with a mental illness could snap out if it if they wanted

Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree

21. A mental illness is a sign of personal weakness

Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree

22. A mental illness is not a real medical illness

Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree

23. People with a mental illness are dangerous

Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree

24. It is best to avoid people with a mental illness so that you don't develop this problem

Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree

25. If I had a mental illness I would not tell anyone

Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree

26. Seeing a mental health professional means you are not strong enough to manage your own difficulties

Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree

27. If I had a mental illness, I would not seek help from a mental health professional

Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree

28. I believe treatment for a mental illness, provided by a mental health professional, would not be effective

Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree

Please indicate to what extent you agree with the following statements:

- Definitely unwilling
- Probably unwilling
- Neither unwilling or willing
- Probably willing
- Definitely willing

29. How willing would you be to spend an evening socializing with someone with a mental illness?

Definitely Unwilling	Probably Unwilling	Neither Unwilling or Willing	Probably Willing	Definitely Willing

30. How willing would you be to make friends with someone with a mental illness?

Definitely Unwilling	Probably Unwilling	Neither Unwilling or Willing	Probably Willing	Definitely Willing

31. How willing would you be to move next door to someone with a mental illness?

Definitely Unwilling	Probably Unwilling	Neither Unwilling or Willing	Probably Willing	Definitely Willing

32. How willing would you be to have someone with a mental illness start working closely with you on a job?

Definitely Unwilling	Probably Unwilling	Neither Unwilling or Willing	Probably Willing	Definitely Willing

33. How willing would you be to have someone with a mental illness marry into your family?

Definitely Unwilling	Probably Unwilling	Neither Unwilling or Willing	Probably Willing	Definitely Willing

34. How willing would you be to vote for a politician if you knew they had suffered a mental illness?

Definitely Unwilling	Probably Unwilling	Neither Unwilling or Willing	Probably Willing	Definitely Willing

35. How willing would you be to employ someone if you knew they had a mental illness?

Definitely Unwilling	Probably Unwilling	Neither Unwilling or Willing	Probably Willing	Definitely Willing

Scoring
Total score is produced by summing all items (see reverse scored items below).
Questions with a 4-point scale are rated 1- very unlikely/unhelpful, 4 – very likely/helpful and for 5-point scale 1 – strongly disagree/definitely unwilling, 5 – strongly agree/definitely willing

Reverse scored items: 10, 12, 15, 20-28
Maximum score – 160
Minimum score – 35

APPENDIX B

THE MENTAL HEALTH LITERACY SCALE- EDUCATION MODIFIED VERSION

Demographic Items

5. Gender:

Male	Female	Transgender	Other

6. Employed by Special Education:

Yes	No

7. Instructional Level (at which level do you spend the most time working):

Elementary (pre-K to 5th/6th grade)	Secondary (Grades 6/7th to 12th/transition services)

8. Employment Classification:

Certified (e.g. teacher)	Classified (e.g. instructional assistant)

The purpose of these questions is to gain an understanding of your knowledge of various aspects to do with mental health. When responding, we are interested in your degree of knowledge.

Therefore, when choosing your response, consider that:
Very unlikely = I am certain that it is NOT likely
Unlikely = I think it is unlikely but am not certain
Likely = I think it is likely but am not certain
Very Likely = I am certain that it IS very likely

1. If someone became extremely nervous or anxious in one or more situations with other people (e.g., a party) or performance situations (e.g., presenting at a meeting) in which they were afraid of being evaluated by others and that they would act in a way that was humiliating or feel embarrassed, then to what extent do you think it is likely they have Social Phobia

Very Unlikely	Unlikely	Likely	Very Likely

2. If someone experienced excessive worry about a number of events or activities where this level of concern was not warranted, had difficulty controlling this worry and had physical symptoms such as having tense muscles and feeling fatigued then to what extent do you think it is likely they have Generalized Anxiety Disorder

Very Unlikely	Unlikely	Likely	Very Likely

3. If someone experienced a low mood for two or more weeks, had a loss of pleasure or interest in their normal activities and experienced changes in their appetite and sleep then to what extent do you think it is likely they have Major Depressive Disorder

Very Unlikely	Unlikely	Likely	Very Likely

4. To what extent do you think it is likely that Personality Disorders are a category of mental illness

Very Unlikely	Unlikely	Likely	Very Likely

5. To what extent do you think it is likely that Persistent Depressive Disorder (Dysthymia) is a disorder

Very Unlikely	Unlikely	Likely	Very Likely

6. To what extent do you think it is likely that the diagnosis of Agoraphobia includes anxiety about situations where escape may be difficult or embarrassing

Very Unlikely	Unlikely	Likely	Very Likely

7. To what extent do you think it is likely that the diagnosis of Bipolar Disorder includes experiencing periods of elevated (i.e., high) and periods of depressed (i.e., low) mood

Very Unlikely	Unlikely	Likely	Very Likely

8. To what extent do you think it is likely that the diagnosis of Drug Dependence includes physical and psychological tolerance of the drug (i.e., require more of the drug to get the same effect)

Very Unlikely	Unlikely	Likely	Very Likely

9. To what extent do you think it is likely that in general in the United States, women are MORE likely to experience a mental illness of any kind compared to men

Very Unlikely	Unlikely	Likely	Very Likely

10. To what extent do you think it is likely that in general, in the United States, men are MORE likely to experience an anxiety disorder compared to women

Very Unlikely	Unlikely	Likely	Very Likely

When choosing your response, consider that:

- Very Unhelpful = I am certain that it is NOT helpful
- Unhelpful = I think it is unhelpful but am not certain
- Helpful = I think it is helpful but am not certain
- Very Helpful = I am certain that it IS very helpful

11. To what extent do you think it would be helpful for someone to improve their quality of sleep if they were having difficulties managing their emotions (e.g., becoming very anxious or depressed)

Very Unhelpful	Unhelpful	Helpful	Very Helpful

12. To what extent do you think it would be helpful for someone to avoid all activities or situations that made them feel anxious if they were having difficulties managing their emotions

Very Unhelpful	Unhelpful	Helpful	Very Helpful

When choosing your response, consider that:

- Very unlikely = I am certain that it is NOT likely
- Unlikely = I think it is unlikely but am not certain
- Likely = I think it is likely but am not certain
- Very Likely = I am certain that it IS very likely

13. To what extent do you think it is likely that Cognitive Behavior Therapy (CBT) is a therapy based on challenging negative thoughts and increasing helpful behaviors

Very Unlikely	Unlikely	Likely	Very Likely

14. Mental health professionals are bound by confidentiality; however, there are certain conditions under which this does not apply. To what extent do you think it is likely that the following is a condition that would allow a mental health professional to break confidentiality: *If you are at immediate risk of harm to yourself or others*

Very Unlikely	Unlikely	Likely	Very Likely

15. Mental health professionals are bound by confidentiality; however, there are certain conditions under which this does not apply. To what extent do you think it is likely that the following is a condition that would allow a mental health professional to break confidentiality: *if your problem is not life-threatening and they want to assist others to better support you*

Very Unlikely	Unlikely	Likely	Very Likely

Please indicate to what extent you agree with the following statements:

- Strongly Disagree
- Disagree
- Neither Agree or Disagree
- Agree
- Strongly Agree

16. I am confident that I know where to seek information about mental illness

Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree

17. I am confident using the computer or telephone to seek information about mental illness

Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree

18. I am confident attending face to face appointments to seek information about mental illness (e.g., seeing the General Practitioner)

Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree

19. I am confident I have access to resources (e.g., General Practitioner, internet, friends) that I can use to seek information about mental illness

Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree

20. People with a mental illness could snap out if it if they wanted

Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree

21. A mental illness is a sign of personal weakness

Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree

22. A mental illness is not a real medical illness

Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree

23. People with a mental illness are dangerous

Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree

24. It is best to avoid people with a mental illness so that you don't develop this problem

Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree

25. If I had a mental illness I would not tell anyone

Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree

26. Seeing a mental health professional means you are not strong enough to manage your own difficulties

Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree

27. If I had a mental illness, I would not seek help from a mental health professional

Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree

28. I believe treatment for a mental illness, provided by a mental health professional, would not be effective

Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree

Please indicate to what extent you agree with the following statements:

- Definitely unwilling
- Probably unwilling
- Neither unwilling or willing
- Probably willing
- Definitely willing

29. How willing would you be to spend an evening socializing with someone with a mental illness?

Definitely Unwilling	Probably Unwilling	Neither Unwilling or Willing	Probably Willing	Definitely Willing

30. How willing would you be to make friends with someone with a mental illness?

Definitely Unwilling	Probably Unwilling	Neither Unwilling or Willing	Probably Willing	Definitely Willing

31. *How willing would you be to work with a parent with a mental illness?*

Definitely Unwilling	Probably Unwilling	Neither Unwilling or Willing	Probably Willing	Definitely Willing

32. *How willing would you be to work with a teacher with a mental illness?*

Definitely Unwilling	Probably Unwilling	Neither Unwilling or Willing	Probably Willing	Definitely Willing

33. *How willing would you be to work with a student with a mental illness?*

Definitely Unwilling	Probably Unwilling	Neither Unwilling or Willing	Probably Willing	Definitely Willing

34. *How willing would you be to have a supervisor or principal you knew had suffered a mental illness?*

Definitely Unwilling	Probably Unwilling	Neither Unwilling or Willing	Probably Willing	Definitely Willing

35. *How willing would you be to supervise a student teacher or intern if you knew they had a mental illness?*

Definitely Unwilling	Probably Unwilling	Neither Unwilling or Willing	Probably Willing	Definitely Willing

Scoring
Total score is produced by summing all items (see reverse scored items below).
Questions with a 4-point scale are rated 1- very unlikely/unhelpful, 4 – very likely/helpful and for 5-point scale 1 – strongly disagree/definitely unwilling, 5 – strongly agree/definitely willing

Reverse scored items: 10, 12, 15, 20-28
Maximum score – 160
Minimum score – 35

**Education modified items 31-35 shown in italics.*

APPENDIX C

INFORMED CONSENT

Sample Informed Consent Form

Dear _____School District Staff,

My name is Cassandra Kenney and I am a doctoral student in Educational Leadership at George Fox University. I am conducting a study on Educator Mental Health Literacy and you have been selected to participate in this timely research. Participation is voluntary and will take between seven and twelve minutes depending on your reading speed. Please see the informed consent, including possible benefits of this research, below. At the end of the survey you will also have the opportunity to enter into a drawing for one of five $50 Amazon gift cards. Your voice and participation in this research are very appreciated. The link to the survey is at the end of the informed consent below.

Title of Study: An Examination of the Psychometric Properties of the Mental Health Literacy Scale with K-12 Educators

Funding Source: None

IRB Approval: TBD

Principal Investigator: Cassandra Kenney M.Ed. LMFT ckenney15@georgefox.edu

Dissertation Chair/Other Investigator: Dane Joseph, PhD, djoseph@georgefox.edu

Description of the Study: The purpose of this research is to evaluate the psychometric properties of the Mental Health Literacy Scale (O'Connor & Casey, 2015), compare levels of mental health literacy between different categories of educators, as well as compare properties of the Mental Health Literacy Scale and an education-modified version of the Mental Health Literacy Scale. The study focuses on the responses of practicing educators in three school districts in Oregon. If you agree to participate, you will be randomly assigned to complete a survey consisting of questions developed by O'Connor and Casey (2015) intended to measure mental health literacy, or an education-modified version of the survey. Additionally, there will be a few demographic questions to be used during data analysis. The survey will take between seven and twelve minutes to complete, depending on your reading speed.

At the end of the survey, you will have the option to click on a secondary survey link to enter your contact information into the optional incentive drawing.

Risks/Benefits to the Participant: Your responses will contribute to a better understanding of the Mental Health Literacy Scale in a sample of educators. Your responses may inform future educator professional development topics as well as the development of a Mental Health Literacy Scale modified for the educator population. There may be minimal risk involved in participating in this study, such as loss of time. You may expect typical psychological burden from answering questions related to knowledge of mental illness and attitudes towards mental illness. Questions regarding mental health are designed around basic knowledge and not personal

participant experience. If at any point in the survey you experience distress related to mental health, crisis lines for the surrounding counties are as follows: Washington County (503-291-9111), Multnomah County (503-988-4888), Yamhill County (1-844-842-8200), Clackamas County (503-655-8585).

If you have any questions or concerns regarding the risks/benefits of participating in this study, you may contact the principal investigator (Cassandra Kenney) at ckenney15@georgefox.edu, or the director of the George Fox Institutional Review Board (Chris Koch, Ph.D.) at ckoch@gfu.edu.

Cost and Payment to the Participants: There is no cost if you choose to participate in this research study. Participation is voluntary and no payment will be provided, although there is a chance to win one of five $50 Amazon gift cards through a random drawing.

Confidentiality: No mandatory personally identifiable information will be collected via Survey Monkey, including participant IP addresses. You will have the option to enter the drawing through a secondary survey link that will not be attached to your survey responses. Drawing will be held in the presence of dissertation chair Dr. Dane Joseph. Contact information will be deleted when data is downloaded for analysis and will only be used for the purpose of selecting gift card winners. All data will be stored on a secured flash drive and housed in the principal investigator's office in a locked file drawer for seven years and then destroyed. No specific district names will be used in the external reporting of results, whether in publication or conference presentation. Your email will only be used for communicating with winners of the random drawing for the Amazon gift cards.

Participant's Right to Withdraw from the Study: You have the right to refuse to participate or withdraw from the study at any point during the survey, up to submitting your survey results. Data will always remain de-identified.

I have read and fully understand this letter. I understand that my consent does not take away any legal rights in the case of negligence or other legal fault of anyone who is involved in this study. I further understand that nothing in this consent form is intended to replace any applicable federal, state, or local laws. If I have any questions, I will ask the primary investigator prior to participation so that any further questions regarding this study or my participation in it can be answered. I understand that by completing this survey, I am giving my consent to participate in this study.

By clicking on the survey link below, I am giving my informed consent to participate in this research study:

Click here to enter survey

APPENDIX D

MHLS FACTOR ANALYSIS STATISTICAL TESTS

Table D1
Correlation Matrix

	DR1	DR2	DR3	DR4	DR5	DR6	DR7	DR8	RFK1	RFK2	STK1	STK2
DR1	1.000	0.413	0.343	0.133	0.193	0.165	0.150	0.198	0.172	-0.005	0.130	0.017
DR2	0.413	1.000	0.359	0.234	0.286	0.195	0.254	0.287	0.157	-0.035	0.204	-0.104
DR3	0.343	0.359	1.000	0.067	0.186	0.148	0.117	0.168	0.149	0.038	0.094	-0.046
DR4	0.133	0.234	0.067	1.000	0.468	0.240	0.333	0.294	0.065	-0.041	0.152	-0.043
DR5	0.193	0.286	0.186	0.468	1.000	0.371	0.370	0.356	0.096	-0.071	0.152	-0.032
DR6	0.165	0.195	0.148	0.240	0.371	1.000	0.336	0.309	0.051	-0.001	0.109	0.053
DR7	0.150	0.254	0.117	0.333	0.370	0.336	1.000	0.426	0.093	-0.082	0.132	-0.011
DR8	0.198	0.287	0.168	0.294	0.356	0.309	0.426	1.000	0.071	-0.050	0.145	0.003
RFK1	0.172	0.157	0.149	0.065	0.096	0.051	0.093	0.071	1.000	0.033	0.114	0.066
RFK2	-0.005	-0.035	0.038	-0.041	-0.071	-0.001	-0.082	-0.050	0.033	1.000	-0.036	0.133
STK1	0.130	0.204	0.094	0.152	0.152	0.109	0.132	0.145	0.114	-0.036	1.000	-0.024
STK2	0.017	-0.104	-0.046	-0.043	-0.032	0.053	-0.011	0.003	0.066	0.133	-0.024	1.000
APH1	0.187	0.295	0.125	0.212	0.284	0.215	0.186	0.217	0.064	-0.046	0.256	-0.059
APH2	0.030	0.118	0.066	0.104	0.141	0.086	0.115	0.151	-0.045	-0.081	0.222	-0.090
APH3	-0.100	-0.125	-0.009	-0.133	-0.111	-0.034	-0.105	-0.106	0.049	0.058	-0.048	0.103
ISK1	0.119	0.186	0.175	0.164	0.239	0.220	0.265	0.175	0.030	-0.082	0.136	-0.137
ISK2	0.074	0.156	0.153	0.160	0.130	0.139	0.129	0.122	-0.021	-0.033	0.159	-0.104
ISK3	0.134	0.204	0.112	0.069	0.163	0.119	0.103	0.112	-0.028	0.003	0.160	-0.054
ISK4	0.114	0.214	0.168	0.113	0.151	0.148	0.191	0.132	-0.023	-0.036	0.148	-0.116
A1	-0.069	-0.247	-0.149	-0.118	-0.177	-0.122	-0.173	-0.125	-0.067	0.034	-0.170	0.057
A2	-0.067	-0.229	-0.116	-0.140	-0.160	-0.131	-0.170	-0.122	-0.017	0.084	-0.170	0.098
A3	-0.057	-0.228	-0.077	-0.171	-0.209	-0.088	-0.144	-0.149	0.023	0.078	-0.075	0.138
A4	-0.082	-0.169	-0.052	-0.109	-0.105	-0.057	-0.105	-0.086	-0.002	0.054	-0.051	0.093
A5	-0.076	-0.217	-0.108	-0.179	-0.190	-0.132	-0.190	-0.171	-0.009	0.083	-0.106	0.123
A6	-0.007	-0.154	-0.002	-0.096	-0.093	-0.036	-0.120	-0.110	-0.017	0.042	-0.089	0.046
A7	0.018	-0.136	-0.098	-0.073	-0.112	-0.091	-0.131	-0.117	0.001	0.089	-0.089	0.047
A8	-0.037	-0.128	-0.053	-0.022	-0.038	-0.087	-0.048	-0.065	0.022	0.021	-0.079	0.034
A9	-0.074	-0.164	-0.026	-0.109	-0.147	-0.049	-0.082	-0.112	-0.075	-0.004	-0.119	0.030
A10	0.060	0.246	0.084	0.230	0.149	0.165	0.222	0.204	0.001	-0.059	0.108	-0.203
A11	0.101	0.257	0.121	0.229	0.155	0.126	0.169	0.181	0.013	-0.059	0.090	-0.187
A12	0.101	0.269	0.100	0.200	0.171	0.104	0.163	0.127	0.033	-0.060	0.088	-0.200
A13	0.090	0.190	0.049	0.192	0.177	0.108	0.136	0.106	0.015	-0.003	0.047	-0.139
A14	0.075	0.219	0.069	0.209	0.190	0.107	0.174	0.169	0.037	-0.010	0.069	-0.170
A15	0.112	0.247	0.102	0.171	0.204	0.103	0.152	0.138	0.032	-0.022	0.030	-0.182
A16	0.108	0.173	0.073	0.150	0.167	0.133	0.150	0.116	0.028	-0.023	0.053	-0.150

	APH1	APH2	APH3	ISK1	ISK2	ISK3	ISK4	A1	A2	A3	A4	A5
DR1	0.187	0.030	-0.100	0.119	0.074	0.134	0.114	-0.069	-0.067	-0.057	-0.082	-0.076
DR2	0.295	0.118	-0.125	0.186	0.156	0.204	0.214	-0.247	-0.229	-0.228	-0.169	-0.217
DR3	0.125	0.066	-0.009	0.175	0.153	0.112	0.168	-0.149	-0.116	-0.077	-0.052	-0.108
DR4	0.212	0.104	-0.133	0.164	0.160	0.069	0.113	-0.118	-0.140	-0.171	-0.109	-0.179
DR5	0.284	0.141	-0.111	0.239	0.130	0.163	0.151	-0.177	-0.160	-0.209	-0.105	-0.190
DR6	0.215	0.086	-0.034	0.220	0.139	0.119	0.148	-0.122	-0.131	-0.088	-0.057	-0.132
DR7	0.186	0.115	-0.105	0.265	0.129	0.103	0.191	-0.173	-0.170	-0.144	-0.105	-0.190
DR8	0.217	0.151	-0.106	0.175	0.122	0.112	0.132	-0.125	-0.122	-0.149	-0.086	-0.171
RFK1	0.064	-0.045	0.049	0.030	-0.021	-0.028	-0.023	-0.067	-0.017	0.023	-0.002	-0.009
RFK2	-0.046	-0.081	0.058	-0.082	-0.033	0.003	-0.036	0.034	0.084	0.078	0.054	0.083
STK1	0.256	0.222	-0.048	0.136	0.159	0.160	0.148	-0.170	-0.170	-0.075	-0.051	-0.106
STK2	-0.059	-0.090	0.103	-0.137	-0.104	-0.054	-0.116	0.057	0.098	0.138	0.093	0.123
APH1	1.000	0.136	-0.139	0.245	0.197	0.204	0.200	-0.207	-0.174	-0.147	-0.184	-0.187
APH2	0.136	1.000	-0.139	0.153	0.108	0.107	0.152	-0.166	-0.202	-0.126	-0.043	-0.183
APH3	-0.139	-0.139	1.000	-0.177	-0.189	-0.122	-0.157	0.194	0.177	0.082	0.125	0.191
ISK1	0.245	0.153	-0.177	1.000	0.573	0.528	0.593	-0.186	-0.212	-0.165	-0.153	-0.181
ISK2	0.197	0.108	-0.189	0.573	1.000	0.490	0.546	-0.195	-0.194	-0.129	-0.089	-0.175
ISK3	0.204	0.107	-0.122	0.528	0.490	1.000	0.554	-0.148	-0.204	-0.138	-0.095	-0.140
ISK4	0.200	0.152	-0.157	0.593	0.546	0.554	1.000	-0.189	-0.208	-0.152	-0.056	-0.199
A1	-0.207	-0.166	0.194	-0.186	-0.195	-0.148	-0.189	1.000	0.524	0.402	0.261	0.344
A2	-0.174	-0.202	0.177	-0.212	-0.194	-0.204	-0.208	0.524	1.000	0.565	0.287	0.550
A3	-0.147	-0.126	0.082	-0.165	-0.129	-0.138	-0.152	0.402	0.565	1.000	0.217	0.394
A4	-0.184	-0.043	0.125	-0.153	-0.089	-0.095	-0.056	0.261	0.287	0.217	1.000	0.300
A5	-0.187	-0.183	0.191	-0.181	-0.175	-0.140	-0.199	0.344	0.550	0.394	0.300	1.000
A6	-0.167	-0.100	0.027	-0.186	-0.091	-0.250	-0.202	0.197	0.232	0.218	0.175	0.177
A7	-0.194	-0.157	0.132	-0.173	-0.177	-0.186	-0.182	0.304	0.496	0.338	0.190	0.413
A8	-0.222	-0.130	0.084	-0.164	-0.225	-0.342	-0.255	0.200	0.239	0.183	0.135	0.179
A9	-0.154	-0.118	-0.014	-0.131	-0.165	-0.271	-0.203	0.226	0.286	0.238	0.085	0.285
A10	0.165	0.124	-0.142	0.291	0.266	0.191	0.233	-0.278	-0.274	-0.242	-0.281	-0.308
A11	0.189	0.126	-0.146	0.254	0.274	0.154	0.218	-0.304	-0.276	-0.234	-0.267	-0.311
A12	0.165	0.148	-0.119	0.241	0.209	0.186	0.197	-0.292	-0.324	-0.297	-0.311	-0.339
A13	0.150	0.095	-0.075	0.222	0.177	0.160	0.199	-0.256	-0.273	-0.229	-0.282	-0.294
A14	0.146	0.123	-0.093	0.227	0.209	0.180	0.212	-0.271	-0.269	-0.241	-0.288	-0.315
A15	0.210	0.110	-0.120	0.281	0.181	0.221	0.242	-0.227	-0.261	-0.265	-0.292	-0.266
A16	0.172	0.130	-0.133	0.241	0.216	0.195	0.171	-0.267	-0.281	-0.231	-0.334	-0.270

	A6	A7	A8	A9	A10	A11	A12	A13	A14	A15	A16
DR1	-0.007	0.018	-0.037	-0.074	0.060	0.101	0.101	0.090	0.075	0.112	0.108
DR2	-0.154	-0.136	-0.128	-0.164	0.246	0.257	0.269	0.190	0.219	0.247	0.173
DR3	-0.002	-0.098	-0.053	-0.026	0.084	0.121	0.100	0.049	0.069	0.102	0.073
DR4	-0.096	-0.073	-0.022	-0.109	0.230	0.229	0.200	0.192	0.209	0.171	0.150
DR5	-0.093	-0.112	-0.038	-0.147	0.149	0.155	0.171	0.177	0.190	0.204	0.167
DR6	-0.036	-0.091	-0.087	-0.049	0.165	0.126	0.104	0.108	0.107	0.103	0.133
DR7	-0.120	-0.131	-0.048	-0.082	0.222	0.169	0.163	0.136	0.174	0.152	0.150
DR8	-0.110	-0.117	-0.065	-0.112	0.204	0.181	0.127	0.106	0.169	0.138	0.116
RFK1	-0.017	0.001	0.022	-0.075	0.001	0.013	0.033	0.015	0.037	0.032	0.028
RFK2	0.042	0.089	0.021	-0.004	-0.059	-0.059	-0.060	-0.003	-0.010	-0.022	-0.023
STK1	-0.089	-0.089	-0.079	-0.119	0.108	0.090	0.088	0.047	0.069	0.030	0.053
STK2	0.046	0.047	0.034	0.030	-0.203	-0.187	-0.200	-0.139	-0.170	-0.182	-0.150
APH1	-0.167	-0.194	-0.222	-0.154	0.165	0.189	0.165	0.150	0.146	0.210	0.172
APH2	-0.100	-0.157	-0.130	-0.118	0.124	0.126	0.148	0.095	0.123	0.110	0.130
APH3	0.027	0.132	0.084	-0.014	-0.142	-0.146	-0.119	-0.075	-0.093	-0.120	-0.133
ISK1	-0.186	-0.173	-0.164	-0.131	0.291	0.254	0.241	0.222	0.227	0.281	0.241
ISK2	-0.091	-0.177	-0.225	-0.165	0.266	0.274	0.209	0.177	0.209	0.181	0.216
ISK3	-0.250	-0.186	-0.342	-0.271	0.191	0.154	0.186	0.160	0.180	0.221	0.195
ISK4	-0.202	-0.182	-0.255	-0.203	0.233	0.218	0.197	0.199	0.212	0.242	0.171
A1	0.197	0.304	0.200	0.226	-0.278	-0.304	-0.292	-0.256	-0.271	-0.227	-0.267
A2	0.232	0.496	0.239	0.286	-0.274	-0.276	-0.324	-0.273	-0.269	-0.261	-0.281
A3	0.218	0.338	0.183	0.238	-0.242	-0.234	-0.297	-0.229	-0.241	-0.265	-0.231
A4	0.175	0.190	0.135	0.085	-0.281	-0.267	-0.311	-0.282	-0.288	-0.292	-0.334
A5	0.177	0.413	0.179	0.285	-0.308	-0.311	-0.339	-0.294	-0.315	-0.266	-0.270
A6	1.000	0.271	0.380	0.272	-0.191	-0.175	-0.226	-0.215	-0.241	-0.230	-0.220
A7	0.271	1.000	0.308	0.335	-0.212	-0.203	-0.225	-0.169	-0.194	-0.189	-0.182
A8	0.380	0.308	1.000	0.337	-0.155	-0.139	-0.129	-0.083	-0.127	-0.118	-0.124
A9	0.272	0.335	0.337	1.000	-0.167	-0.177	-0.196	-0.195	-0.187	-0.212	-0.223
A10	-0.191	-0.212	-0.155	-0.167	1.000	0.828	0.704	0.601	0.552	0.530	0.566
A11	-0.175	-0.203	-0.139	-0.177	0.828	1.000	0.742	0.695	0.594	0.574	0.608
A12	-0.226	-0.225	-0.129	-0.196	0.704	0.742	1.000	0.751	0.719	0.624	0.655
A13	-0.215	-0.169	-0.083	-0.195	0.601	0.695	0.751	1.000	0.751	0.644	0.729
A14	-0.241	-0.194	-0.127	-0.187	0.552	0.594	0.719	0.751	1.000	0.661	0.721
A15	-0.230	-0.189	-0.118	-0.212	0.530	0.574	0.624	0.644	0.661	1.000	0.759
A16	-0.220	-0.182	-0.124	-0.223	0.566	0.608	0.655	0.729	0.721	0.759	1.000

APPENDIX E

MHLS RELIABILITY STATISTICAL TESTS

Table E1
Disorder Recognition Inter-Item Correlation Matrix

	DR1	DR2	DR3	DR4	DR5	DR6	DR7	DR8
DR1	1.00	0.413	0.343	0.133	0.193	0.165	0.150	0.198
DR2	0.413	1.00	0.359	0.234	0.286	0.195	0.254	0.287
DR3	0.343	0.359	1.000	0.067	0.186	0.148	0.117	0.168
DR4	0.133	0.234	0.067	1.00	0.468	0.240	0.333	0.294
DR5	0.193	0.286	0.186	0.468	1.00	0.371	0.370	0.356
DR6	0.165	0.195	0.148	0.240	0.371	1.000	0.336	0.309
DR7	0.150	0.254	0.117	0.333	0.370	0.336	1.000	0.426
DR8	0.198	0.287	0.168	0.294	0.356	0.309	0.426	1.000

Table E2
Disorder Recognition Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
DR1	24.68	6.081	0.379	0.223	0.711
DR2	24.19	6.068	0.491	0.288	0.687
DR3	24.55	6.202	0.327	0.186	0.723
DR4	24.06	6.191	0.396	0.264	0.706
DR5	24.03	5.971	0.527	0.345	0.679
DR6	24.20	6.010	0.398	0.205	0.707
DR7	23.79	6.622	0.459	0.281	0.700
DR8	23.88	6.367	0.469	0.268	0.694

Table E3
Risk Factor Knowledge Inter-Item Correlation Matrix

	RFK1	RFK2
RFK1	1.000	0.033
RFK2	0.033	1.000

Table E4
Risk Factor Knowledge Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
RFK1	2.19	0.385	0.033	0.001	
RFK2	2.68	0.644	0.033	0.001	

Table E5
Self-Treatment Knowledge Inter-Item Correlation Matrix

	STK1	STK2
STK1	1.000	-0.024
STK2	-0.024	1.000

Table E6
Self-Treatment Knowledge Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
STK1	2.14	0.498	-0.024	0.001	
STK2	3.64	0.290	-0.024	0.001	

Table E7
Available Professional Help Inter-Item Correlation Matrix

	APH1	APH2	APH3
APH1	1.000	0.136	-0.139
APH2	0.136	1.000	-0.139
APH3	-0.139	-0.139	1.000

Table E8
Available Professional Help Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
APH1	5.54	0.649	-0.071	0.033	-.244
APH2	5.09	0.796	-0.033	0.033	-.307
APH3	7.33	0.519	-0.182	0.034	0.221

Table E9
Information-Seeking Knowledge Inter-Item Correlation Matrix

	ISK1	ISK2	ISK3	ISK4
ISK1	1.000	0.573	0.528	0.593
ISK2	0.573	1.000	0.490	0.546
ISK3	0.528	0.490	1.000	0.554
ISK4	0.593	0.546	0.554	1.000

Table E10
Information-Seeking Knowledge Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
ISK1	12.98	4.021	0.677	0.468	0.760
ISK2	12.79	4.436	0.636	0.413	0.780
ISK3	12.94	3.995	0.618	0.389	0.794
ISK4	12.66	4.701	0.681	0.465	0.769

Table E11

Attitudes Inter-Item Correlation Matrix

	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11
A1	1.000	0.520	0.479	0.245	0.349	0.195	0.298	0.180	0.243	-0.278	-0.304
A2	0.520	1.000	0.673	0.269	0.528	0.245	0.492	0.232	0.298	-0.274	-0.276
A3	0.479	0.673	1.000	0.235	0.465	0.214	0.382	0.188	0.280	-0.242	-0.234
A4	0.245	0.269	0.235	1.000	0.297	0.176	0.181	0.121	0.106	-0.281	-0.267
A5	0.349	0.528	0.465	0.297	1.000	0.194	0.413	0.171	0.305	-0.308	-0.311
A6	0.195	0.245	0.214	0.176	0.194	1.000	0.297	0.370	0.289	-0.191	-0.175
A7	0.298	0.492	0.382	0.181	0.413	0.297	1.000	0.296	0.354	-0.212	-0.203
A8	0.180	0.232	0.188	0.121	0.171	0.370	0.296	1.000	0.350	-0.155	-0.139
A9	0.243	0.298	0.280	0.106	0.305	0.289	0.354	0.350	1.000	-0.167	-0.177
A10	-0.278	-0.274	-0.242	-0.281	-0.308	-0.191	-0.212	-0.155	-0.167	1.000	0.828
A11	-0.304	-0.276	-0.234	-0.267	-0.311	-0.175	-0.203	-0.139	-0.177	0.828	1.000
A12	-0.292	-0.324	-0.297	-0.311	-0.339	-0.226	-0.225	-0.129	-0.196	0.704	0.742
A13	-0.256	-0.273	-0.229	-0.282	-0.294	-0.215	-0.169	-0.083	-0.195	0.601	0.695
A14	-0.271	-0.269	-0.241	-0.288	-0.315	-0.241	-0.194	-0.127	-0.187	0.552	0.594
A15	-0.227	-0.261	-0.265	-0.292	-0.266	-0.230	-0.189	-0.118	-0.212	0.530	0.574
A16	-0.267	-0.281	-0.231	-0.334	-0.270	-0.220	-0.182	-0.124	-0.223	0.566	0.608

	A12	A13	A14	A15	A16
A1	-0.292	-0.256	-0.271	-0.227	-0.267
A2	-0.324	-0.273	-0.269	-0.261	-0.281
A3	-0.297	-0.229	-0.241	-0.265	-0.231
A4	-0.311	-0.282	-0.288	-0.292	-0.334
A5	-0.339	-0.294	-0.315	-0.266	-0.270
A6	-0.226	-0.215	-0.241	-0.230	-0.220
A7	-0.225	-0.169	-0.194	-0.189	-0.182
A8	-0.129	-0.083	-0.127	-0.118	-0.124
A9	-0.196	-0.195	-0.187	-0.212	-0.223
A10	0.704	0.601	0.552	0.530	0.566
A11	0.742	0.695	0.594	0.574	0.608
A12	1.000	0.751	0.719	0.624	0.655
A13	0.751	1.000	0.751	0.644	0.729
A14	0.719	0.751	1.000	0.661	0.721
A15	0.624	0.644	0.661	1.000	0.759
A16	0.655	0.729	0.721	0.759	1.000

Table E12
Attitudes Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
A1	40.90	24.051	-0.026	0.338	0.628
A2	41.01	23.749	0.063	0.583	0.616
A3	41.04	23.823	0.060	0.501	0.615
A4	39.93	25.007	-0.173	0.185	0.663
A5	41.02	24.164	-0.023	0.381	0.622
A6	40.00	23.373	-0.007	0.225	0.642
A7	40.94	23.345	0.117	0.338	0.611
A8	40.62	22.438	0.113	0.230	0.619
A9	40.62	23.124	0.043	0.251	0.629
A10	37.87	20.460	0.447	0.711	0.563
A11	37.83	20.210	0.515	0.763	0.554
A12	37.97	19.571	0.504	0.716	0.549
A13	38.01	19.300	0.558	0.717	0.539
A14	38.18	19.138	0.487	0.674	0.547
A15	38.59	18.780	0.440	0.624	0.553
A16	38.24	19.445	0.504	0.705	0.547

Table E13
Attitudes Sub-Scale 1 Inter-Item Correlation Matrix

	A1	A2	A3	A4	A5	A6	A7	A8	A9
A1	1.000	0.524	0.402	0.261	0.344	0.197	0.304	0.200	0.226
A2	0.524	1.000	0.565	0.287	0.550	0.232	0.496	0.239	0.286
A3	0.402	0.565	1.000	0.217	0.394	0.218	0.338	0.183	0.238
A4	0.261	0.287	0.217	1.000	0.300	0.175	0.190	0.135	0.085
A5	0.344	0.550	0.394	0.300	1.000	0.177	0.413	0.179	0.285
A6	0.197	0.232	0.218	0.175	0.177	1.000	0.271	0.380	0.272
A7	0.304	0.496	0.338	0.190	0.413	0.271	1.000	0.308	0.335
A8	0.200	0.239	0.183	0.135	0.179	0.380	0.308	1.000	0.337
A9	0.226	0.286	0.238	0.085	0.285	0.272	0.335	0.337	1.000

Table E14
Attitudes Sub-Scale 1 Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
A1	12.32	11.480	0.463	0.311	0.713
A2	12.43	11.565	0.605	0.548	0.702
A3	12.44	11.867	0.479	0.351	0.715
A4	11.35	11.161	0.300	0.138	0.745
A5	12.44	12.051	0.503	0.364	0.716
A6	11.41	10.267	0.407	0.201	0.727
A7	12.37	11.527	0.524	0.332	0.708
A8	12.03	10.461	0.421	0.230	0.721
A9	12.03	10.548	0.413	0.215	0.722

Table E15
Attitudes Sub-Scale 2 Inter-Item Correlation Matrix

	A10	A11	A12	A13	A14	A15	A16
A10	1.000	0.828	0.703	0.601	0.552	0.520	0.556
A11	0.828	1.000	0.742	0.695	0.594	0.574	0.608
A12	0.704	0.742	1.000	0.751	0.719	0.624	0.655
A13	0.601	0.695	0.751	1.000	0.751	0.644	0.729
A14	0.552	0.594	0.719	0.751	1.000	0.661	0.721
A15	0.530	0.574	0.624	0.644	0.661	1.000	0.759
A16	0.566	0.608	0.655	0.729	0.721	0.759	1.000

Table E16
Attitudes Sub-Scale 2 Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
A10	24.29	22.106	0.723	0.708	0.924
A11	24.25	21.987	0.782	0.759	0.920
A12	24.39	20.717	0.823	0.710	0.914
A13	24.44	20.857	0.824	0.713	0.915
A14	24.60	20.195	0.789	0.668	0.918
A15	25.02	19.540	0.742	0.617	0.926
A16	24.66	20.679	0.804	0.697	0.916

APPENDIX F

EDUCATION-MODIFIED MHLS STATISTICAL TESTS

Table F1
EMV Correlation Matrix

	DR1	DR2	DR3	DR4	DR5	DR6	DR7	DR8	RFK1	RFK2	STK1	STK2
DR1	1.000	0.413	0.343	0.133	0.193	0.165	0.150	0.198	0.172	-0.005	0.130	0.017
DR2	0.413	1.000	0.359	0.234	0.286	0.195	0.254	0.287	0.157	-0.035	0.204	-0.104
DR3	0.343	0.359	1.000	0.067	0.186	0.148	0.117	0.168	0.149	0.038	0.094	-0.046
DR4	0.133	0.234	0.067	1.000	0.468	0.240	0.333	0.294	0.065	-0.041	0.152	-0.043
DR5	0.193	0.286	0.186	0.468	1.000	0.371	0.370	0.356	0.096	-0.071	0.152	-0.032
DR6	0.165	0.195	0.148	0.240	0.371	1.000	0.336	0.309	0.051	-0.001	0.109	0.053
DR7	0.150	0.254	0.117	0.333	0.370	0.336	1.000	0.426	0.093	-0.082	0.132	-0.011
DR8	0.198	0.287	0.168	0.294	0.356	0.309	0.426	1.000	0.071	-0.050	0.145	0.003
RFK1	0.172	0.157	0.149	0.065	0.096	0.051	0.093	0.071	1.000	0.033	0.114	0.066
RFK2	-0.005	-0.035	0.038	-0.041	-0.071	-0.001	-0.082	-0.050	0.033	1.000	-0.036	0.133
STK1	0.130	0.204	0.094	0.152	0.152	0.109	0.132	0.145	0.114	-0.036	1.000	-0.024
STK2	0.017	-0.104	-0.046	-0.043	-0.032	0.053	-0.011	0.003	0.066	0.133	-0.024	1.000
APH1	0.187	0.295	0.125	0.212	0.284	0.215	0.186	0.217	0.064	-0.046	0.256	-0.059
APH2	0.030	0.118	0.066	0.104	0.141	0.086	0.115	0.151	-0.045	-0.081	0.222	-0.090
APH3	-0.100	-0.125	-0.009	-0.133	-0.111	-0.034	-0.105	-0.106	0.049	0.058	-0.048	0.103
ISK1	0.119	0.186	0.175	0.164	0.239	0.220	0.265	0.175	0.030	-0.082	0.136	-0.137
ISK2	0.074	0.156	0.153	0.160	0.130	0.139	0.129	0.122	-0.021	-0.033	0.159	-0.104
ISK3	0.134	0.204	0.112	0.069	0.163	0.119	0.103	0.112	-0.028	0.003	0.160	-0.054
ISK4	0.114	0.214	0.168	0.113	0.151	0.148	0.191	0.132	-0.023	-0.036	0.148	-0.116
A1	-0.069	-0.247	-0.149	-0.118	-0.177	-0.122	-0.173	-0.125	-0.067	0.034	-0.170	0.057
A2	-0.067	-0.229	-0.116	-0.140	-0.160	-0.131	-0.170	-0.122	-0.017	0.084	-0.170	0.098
A3	-0.057	-0.228	-0.077	-0.171	-0.209	-0.088	-0.144	-0.149	0.023	0.078	-0.075	0.138
A4	-0.082	-0.169	-0.052	-0.109	-0.105	-0.057	-0.105	-0.086	-0.002	0.054	-0.051	0.093
A5	-0.076	-0.217	-0.108	-0.179	-0.190	-0.132	-0.190	-0.171	-0.009	0.083	-0.106	0.123
A6	-0.007	-0.154	-0.002	-0.096	-0.093	-0.036	-0.120	-0.110	-0.017	0.042	-0.089	0.046
A7	0.018	-0.136	-0.098	-0.073	-0.112	-0.091	-0.131	-0.117	0.001	0.089	-0.089	0.047
A8	-0.037	-0.128	-0.053	-0.022	-0.038	-0.087	-0.048	-0.065	0.022	0.021	-0.079	0.034
A9	-0.074	-0.164	-0.026	-0.109	-0.147	-0.049	-0.082	-0.112	-0.075	-0.004	-0.119	0.030
EMV1	-0.141	0.050	0.025	0.066	0.235	0.058	0.225	0.057	0.145	0.000	0.143	0.039
EMV2	-0.010	0.044	0.143	0.035	0.293	0.011	0.291	0.076	0.191	0.057	0.141	0.098
EMV3	0.190	0.090	0.203	0.043	0.431	0.133	0.258	0.136	0.062	-0.148	0.042	0.056
EMV4	0.176	0.082	0.113	0.124	0.406	0.162	0.277	0.021	0.145	-0.088	0.142	0.012
EMV5	0.077	0.239	0.135	0.077	0.356	0.175	0.193	0.202	0.122	-0.066	0.174	-0.067
EMV6	-0.027	0.242	0.194	0.137	0.512	0.105	0.208	0.083	0.118	0.119	0.153	-0.052
EMV7	0.072	0.348	0.149	-0.013	0.265	0.158	0.191	-0.038	0.002	0.114	0.069	-0.181

	APH1	APH2	APH3	ISK1	ISK2	ISK3	ISK4	A1	A2	A3	A4	A5
DR1	0.187	0.030	-0.100	0.119	0.074	0.134	0.114	-0.069	-0.067	-0.057	-0.082	-0.076
DR2	0.295	0.118	-0.125	0.186	0.156	0.204	0.214	-0.247	-0.229	-0.228	-0.169	-0.217
DR3	0.125	0.066	-0.009	0.175	0.153	0.112	0.168	-0.149	-0.116	-0.077	-0.052	-0.108
DR4	0.212	0.104	-0.133	0.164	0.160	0.069	0.113	-0.118	-0.140	-0.171	-0.109	-0.179
DR5	0.284	0.141	-0.111	0.239	0.130	0.163	0.151	-0.177	-0.160	-0.209	-0.105	-0.190
DR6	0.215	0.086	-0.034	0.220	0.139	0.119	0.148	-0.122	-0.131	-0.088	-0.057	-0.132
DR7	0.186	0.115	-0.105	0.265	0.129	0.103	0.191	-0.173	-0.170	-0.144	-0.105	-0.190
DR8	0.217	0.151	-0.106	0.175	0.122	0.112	0.132	-0.125	-0.122	-0.149	-0.086	-0.171
RFK1	0.064	-0.045	0.049	0.030	-0.021	-0.028	-0.023	-0.067	-0.017	0.023	-0.002	-0.009
RFK2	-0.046	-0.081	0.058	-0.082	-0.033	0.003	-0.036	0.034	0.084	0.078	0.054	0.083
STK1	0.256	0.222	-0.048	0.136	0.159	0.160	0.148	-0.170	-0.170	-0.075	-0.051	-0.106
STK2	-0.059	-0.090	0.103	-0.137	-0.104	-0.054	-0.116	0.057	0.098	0.138	0.093	0.123
APH1	1.000	0.136	-0.139	0.245	0.197	0.204	0.200	-0.207	-0.174	-0.147	-0.184	-0.187
APH2	0.136	1.000	-0.139	0.153	0.108	0.107	0.152	-0.166	-0.202	-0.126	-0.043	-0.183
APH3	-0.139	-0.139	1.000	-0.177	-0.189	-0.122	-0.157	0.194	0.177	0.082	0.125	0.191
ISK1	0.245	0.153	-0.177	1.000	0.573	0.528	0.593	-0.186	-0.212	-0.165	-0.153	-0.181
ISK2	0.197	0.108	-0.189	0.573	1.000	0.490	0.546	-0.195	-0.194	-0.129	-0.089	-0.175
ISK3	0.204	0.107	-0.122	0.528	0.490	1.000	0.554	-0.148	-0.204	-0.138	-0.095	-0.140
ISK4	0.200	0.152	-0.157	0.593	0.546	0.554	1.000	-0.189	-0.208	-0.152	-0.056	-0.199
A1	-0.207	-0.166	0.194	-0.186	-0.195	-0.148	-0.189	1.000	0.524	0.402	0.261	0.344
A2	-0.174	-0.202	0.177	-0.212	-0.194	-0.204	-0.208	0.524	1.000	0.565	0.287	0.550
A3	-0.147	-0.126	0.082	-0.165	-0.129	-0.138	-0.152	0.402	0.565	1.000	0.217	0.394
A4	-0.184	-0.043	0.125	-0.153	-0.089	-0.095	-0.056	0.261	0.287	0.217	1.000	0.300
A5	-0.187	-0.183	0.191	-0.181	-0.175	-0.140	-0.199	0.344	0.550	0.394	0.300	1.000
A6	-0.167	-0.100	0.027	-0.186	-0.091	-0.250	-0.202	0.197	0.232	0.218	0.175	0.177
A7	-0.194	-0.157	0.132	-0.173	-0.177	-0.186	-0.182	0.304	0.496	0.338	0.190	0.413
A8	-0.222	-0.130	0.084	-0.164	-0.225	-0.342	-0.255	0.200	0.239	0.183	0.135	0.179
A9	-0.154	-0.118	-0.014	-0.131	-0.165	-0.271	-0.203	0.226	0.286	0.238	0.085	0.285
EV1	0.195	0.114	-0.205	0.167	0.240	-0.005	0.024	-0.251	-0.487	-0.193	-0.313	-0.358
EV2	0.130	0.159	-0.321	0.151	0.116	0.085	-0.016	-0.178	-0.383	-0.247	-0.243	-0.294
EV3	0.189	0.120	-0.244	0.059	0.208	0.139	0.004	-0.223	-0.312	-0.269	-0.308	-0.185
EV4	0.072	0.079	-0.302	0.098	0.173	0.127	-0.055	-0.119	-0.218	-0.163	-0.364	-0.281
EV5	0.245	0.205	-0.345	0.134	0.181	0.024	0.015	-0.192	-0.382	-0.350	-0.217	-0.283
EV6	0.101	0.029	-0.168	0.139	0.162	0.177	0.046	-0.189	-0.215	-0.262	-0.428	-0.129
EV7	0.067	0.041	-0.197	0.052	0.159	0.223	0.035	-0.258	-0.442	-0.394	-0.345	-0.454

	A6	A7	A8	A9	EMV1	EMV2	EMV3	EMV4	EMV5	EMV6	EMV7
DR1	-0.007	0.018	-0.037	-0.074	-0.141	-0.010	0.190	0.176	0.077	-0.027	0.072
DR2	-0.154	-0.136	-0.128	-0.164	0.050	0.044	0.090	0.082	0.239	0.242	0.348
DR3	-0.002	-0.098	-0.053	-0.026	0.025	0.143	0.203	0.113	0.135	0.194	0.149
DR4	-0.096	-0.073	-0.022	-0.109	0.066	0.035	0.043	0.124	0.077	0.137	-0.013
DR5	-0.093	-0.112	-0.038	-0.147	0.235	0.293	0.431	0.406	0.356	0.512	0.265
DR6	-0.036	-0.091	-0.087	-0.049	0.058	0.011	0.133	0.162	0.175	0.105	0.158
DR7	-0.120	-0.131	-0.048	-0.082	0.225	0.291	0.258	0.277	0.193	0.208	0.191
DR8	-0.110	-0.117	-0.065	-0.112	0.057	0.076	0.136	0.021	0.202	0.083	-0.038
RFK1	-0.017	0.001	0.022	-0.075	0.145	0.191	0.062	0.145	0.122	0.118	0.002
RFK2	0.042	0.089	0.021	-0.004	0.000	0.057	-0.148	-0.088	-0.066	0.119	0.114
STK1	-0.089	-0.089	-0.079	-0.119	0.143	0.141	0.042	0.142	0.174	0.153	0.069
STK2	0.046	0.047	0.034	0.030	0.039	0.098	0.056	0.012	-0.067	-0.052	-0.181
APH1	-0.167	-0.194	-0.222	-0.154	0.195	0.130	0.189	0.072	0.245	0.101	0.067
APH2	-0.100	-0.157	-0.130	-0.118	0.114	0.159	0.120	0.079	0.205	0.029	0.041
APH3	0.027	0.132	0.084	-0.014	-0.205	-0.321	-0.244	-0.302	-0.345	-0.168	-0.197
ISK1	-0.186	-0.173	-0.164	-0.131	0.167	0.151	0.059	0.098	0.134	0.139	0.052
ISK2	-0.091	-0.177	-0.225	-0.165	0.240	0.116	0.208	0.173	0.181	0.162	0.159
ISK3	-0.250	-0.186	-0.342	-0.271	-0.005	0.085	0.139	0.127	0.024	0.177	0.223
ISK4	-0.202	-0.182	-0.255	-0.203	0.024	-0.016	0.004	-0.055	0.015	0.046	0.035
A1	0.197	0.304	0.200	0.226	-0.251	-0.178	-0.223	-0.119	-0.192	-0.189	-0.258
A2	0.232	0.496	0.239	0.286	-0.487	-0.383	-0.312	-0.218	-0.382	-0.215	-0.442
A3	0.218	0.338	0.183	0.238	-0.193	-0.247	-0.269	-0.163	-0.350	-0.262	-0.394
A4	0.175	0.190	0.135	0.085	-0.313	-0.243	-0.308	-0.364	-0.217	-0.428	-0.345
A5	0.177	0.413	0.179	0.285	-0.358	-0.294	-0.185	-0.281	-0.283	-0.129	-0.454
A6	1.000	0.271	0.380	0.272	-0.210	-0.263	-0.171	-0.033	-0.136	-0.075	-0.174
A7	0.271	1.000	0.308	0.335	-0.198	-0.219	-0.204	-0.097	-0.217	-0.116	-0.203
A8	0.380	0.308	1.000	0.337	-0.007	-0.043	-0.093	-0.019	-0.049	-0.129	-0.196
A9	0.272	0.335	0.337	1.000	-0.054	-0.122	-0.116	-0.015	-0.206	-0.294	-0.232
EMV1	-0.210	-0.198	-0.007	-0.054	1.000	0.729	0.504	0.560	0.586	0.497	0.560
EMV2	-0.263	-0.219	-0.043	-0.122	0.729	1.000	0.693	0.667	0.627	0.570	0.624
EMV3	-0.171	-0.204	-0.093	-0.116	0.504	0.693	1.000	0.703	0.695	0.586	0.591
EMV4	-0.033	-0.097	-0.019	-0.015	0.560	0.667	0.703	1.000	0.630	0.730	0.696
EMV5	-0.136	-0.217	-0.049	-0.206	0.586	0.627	0.695	0.630	1.000	0.543	0.557
EMV6	-0.075	-0.116	-0.129	-0.294	0.497	0.570	0.586	0.730	0.543	1.000	0.711
EMV7	-0.174	-0.203	-0.196	-0.232	0.560	0.624	0.591	0.696	0.557	0.711	1.000

Table F2
Total Variance Explained

	Initial Eigenvalues			Extraction Loadings			Rotation Loadings
	Total	% Variance	Cum %	Total	% Variance	Cum%	Total
1	7.489	21.398	21.398	7.489	21.398	21.398	5.020
2	3.281	9.375	30.773	3.281	9.375	30.773	3.087
3	2.324	6.639	37.412	2.324	6.639	37.412	2.706
4	1.799	5.141	42.553	1.799	5.141	42.553	2.573
5	1.501	4.289	46.842	1.501	4.289	46.842	1.940
6	1.354	3.869	50.712	1.354	3.869	50.712	1.843
7	1.238	3.538	54.249	1.238	3.538	54.249	1.393
8	1.135	3.242	57.492	1.135	3.242	57.492	1.248
9	1.071	3.060	60.552	1.071	3.060	60.552	1.200
10	1.008	2.880	63.431	1.008	2.880	63.431	1.191

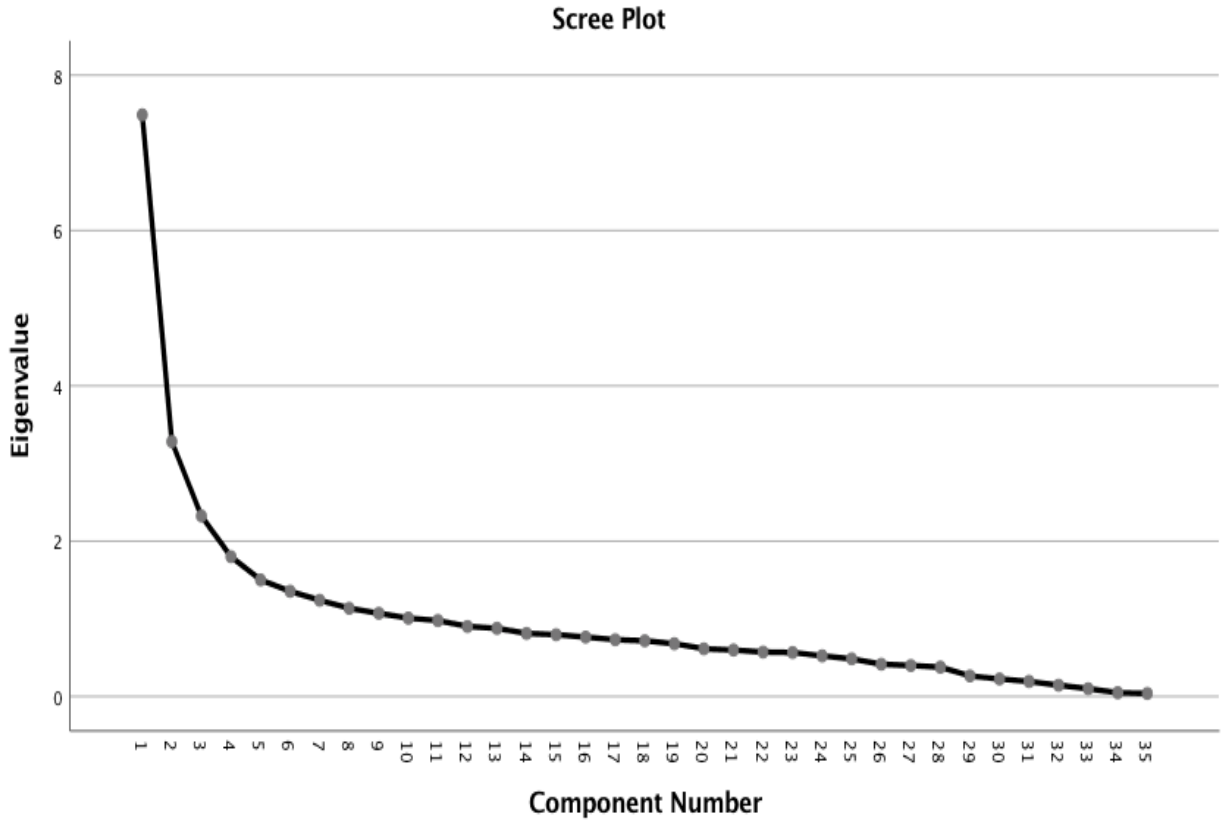

Figure F1. Scree Plot of Education Modified MHLS Factors

Table F3
Education Modified MHLS Rotated Factor Matrix

	1	2	3	4	5	6	7	8	9	10
EMV4	0.890									
EMV3	0.827									
EMV2	0.823									
EMV6	0.790									
EMV7	0.753	-0.331								
EMV5	0.744									
EMV1	0.694	-0.356								
APH3	-0.334						-0.310			
A2		0.817								
A5		0.706								
A3		0.647								
A1		0.644								
A7		0.587			0.355					
ISK1			0.810							
ISK2			0.792							
ISK4			0.791							
ISK3			0.706		-0.384					
DR4				0.691						
DR5	0.378			0.690						
DR7				0.654						
DR8				0.650						
DR6				0.616						
A8					0.724					
A9					0.646					
A6					0.636					
DR1						0.796				
DR3						0.687				
DR2						0.617				
APH2							0.708			
STK1							0.637			0.372
APH1							0.340			
STK2								0.746		
A4	-0.355							0.359		
RFK2									0.836	
RFK1										0.754

APPENDIX G

BETWEEN GROUPS COMPARISONS STATISTICAL TESTS

Table G1
Descriptive Statistics for MHLS Scales x Gender

Scale	Gender	N	Mean	Std. Deviation	Std. Error	95% Confidence Lower	95% Confidence Upper
DR	Male	119	27.0756	2.95778	0.27114	26.5387	27.6126
	Female	557	27.7307	2.74701	0.11639	27.5021	27.9593
	Transgender/Other	4	29.0000	1.41421	0.70711	26.7497	31.2503
	Total	680	27.6235	2.78953	0.10697	27.4135	27.8336
RFK	Male	119	4.8319	1.06818	0.09792	4.6380	5.0258
	Female	557	4.8671	1.02326	0.04336	4.7820	4.9523
	Transgender/Other	4	5.0000	1.15470	0.57735	3.1626	6.8374
	Total	680	4.8618	1.03047	0.03952	4.7842	4.9394
STK	Male	116	5.7069	0.85483	0.07937	5.5497	5.8641
	Female	549	5.8015	0.88309	0.03769	5.7274	5.8755
	Transgender/Other	4	6.0000	0.81650	0.40825	4.7008	7.2992
	Total	669	5.7862	0.87756	0.03393	5.7196	5.8529
APH	Male	115	8.9217	1.00130	0.09337	8.7368	9.1067
	Female	542	8.9982	0.94487	0.04059	8.9184	9.0779
	Transgender/Other	4	8.2500	0.50000	0.25000	7.4544	9.0456
	Total	661	8.9803	0.95405	0.03711	8.9075	9.0532
ISK	Male	115	16.6087	2.82748	0.26366	16.0864	17.1310
	Female	534	17.2322	2.64512	0.11447	17.0074	17.4571
	Transgender/Other	4	17.0000	2.16025	1.08012	13.5626	20.4374
	Total	653	17.1210	2.68244	0.10497	16.9149	17.3271
A	Male	106	42.2453	4.97386	0.48310	41.2874	43.2032
	Female	470	42.1532	4.92394	0.22712	41.7069	42.5995
	Transgender/Other	2	46.0000	0.00000	0.00000	46.0000	46.0000
	Total	578	42.1834	4.92554	0.20488	41.7810	42.5858
A1	Male	115	15.0261	4.51792	0.42130	14.1915	15.8607
	Female	534	13.2996	3.44674	0.14916	13.0066	13.5926
	Transgender/Other	4	13.2500	2.75379	1.37689	8.8681	17.6319
	Total	653	13.6034	3.70795	0.14510	13.3184	13.8883
A2	Male	106	23.0755	4.62848	0.44956	22.1841	23.9669
	Female	470	24.6766	4.49089	0.20715	24.2695	25.0837
	Transgender/Other	2	27.5000	2.12132	1.50000	8.4407	46.5593
	Total	578	24.3927	4.55162	0.18932	24.0209	24.7646
EMV	Male	9	28.7778	6.15991	2.05330	24.0429	33.5127
	Female	58	30.8966	4.65923	0.61179	29.6715	32.1216
	Transgender/Other	2	35.0000	0.00000	0.00000	35.0000	35.0000
	Total	69	30.7391	4.87084	0.58638	29.5690	31.9092

Table G2
Descriptive Statistics for MHLS x Educator Status

Scale	Status	N	Mean	Std. Deviation	Std. Error Mean
DR	SPED	149	27.6443	2.48801	0.20383
	Non SPED	531	27.6177	2.87060	0.12457
RFK	SPED	149	4.8456	0.93523	0.07662
	Non SPED	531	4.8663	1.05643	0.04585
STK	SPED	147	5.7551	0.88047	0.07262
	Non SPED	522	5.7950	0.87738	0.03840
APH	SPED	147	8.9796	0.82320	0.06790
	Non SPED	514	8.9805	0.98903	0.04362
ISK	SPED	144	17.1042	2.68046	0.22337
	Non SPED	509	17.1257	2.68561	0.11904
A	SPED	128	42.4766	5.02430	0.44409
	Non SPED	450	42.1000	4.89955	0.23097
A1	SPED	144	13.3333	3.22577	0.26881
	Non SPED	509	13.6798	3.83283	0.16989
A2	SPED	128	24.8984	4.52437	0.39990
	Non SPED	450	24.2489	4.55409	0.21468
EMV	SPED	15	32.0000	3.11677	0.80475
	Non SPED	54	30.3889	5.22482	0.71101

Table G3
Descriptive Statistics for MHLS x Instructional Level

Scale	Level	N	Mean	Std. Deviation	Std. Error Mean
DR	Elementary	350	27.5371	2.82894	0.15121
	Secondary	330	27.7152	2.74843	0.15130
RFK	Elementary	350	4.9057	1.07843	0.05764
	Secondary	330	4.8152	0.97651	0.05376
STK	Elementary	343	5.8455	0.90290	0.04875
	Secondary	326	5.7239	0.84699	0.04691
APH	Elementary	339	8.9971	0.97452	0.05293
	Secondary	322	8.9627	0.93321	0.05201
ISK	Elementary	334	17.0778	2.72458	0.14908
	Secondary	319	17.1661	2.64111	0.14787
A	Elementary	307	41.8762	5.08210	0.29005
	Secondary	271	42.5314	4.72718	0.28716
A1	Elementary	334	13.4461	3.52789	0.19304
	Secondary	319	13.7680	3.88629	0.21759
A2	Elementary	307	24.2378	4.48805	0.25615
	Secondary	271	24.5683	4.62461	0.28092
EMV	Elementary	23	31.1304	3.93474	0.82045
	Secondary	46	30.5435	5.30705	0.78248

Table G4

Descriptive Statistics for MHLS x Employment Classification

Scale	Status	N	Mean	Std. Deviation	Std. Error Mean
DR	Classified	124	27.0565	2.70892	0.24327
	Certified	556	27.7500	2.79390	0.11849
RFK	Classified	124	5.0000	1.10432	0.09917
	Certified	556	4.8309	1.01174	0.04291
STK	Classified	123	5.6748	0.92768	0.08365
	Certified	546	5.8114	0.86477	0.03701
APH	Classified	120	8.9667	0.99523	0.09085
	Certified	541	8.9834	0.94560	0.04065
ISK	Classified	119	16.8824	2.70648	0.24810
	Certified	534	17.1742	2.67670	0.11583
A	Classified	102	42.1176	5.14213	0.50915
	Certified	476	42.1975	4.88336	0.22383
A1	Classified	119	14.3277	4.15608	0.38099
	Certified	534	13.4419	3.58486	0.15513
A2	Classified	102	23.9216	4.56783	0.45228
	Certified	476	24.4937	4.54660	0.20839
EMV	Classified	15	31.3333	4.89412	1.26366
	Certified	54	30.5741	4.89745	0.66646