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The effects of an integrated behavioral health initiative on the behavior of providers in an Ob/ Gyn primary care clinic

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ABSTRACT

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Initiative on the Behavior of Providers in an Ob/Gyn Primary Care Clinic

by

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M.S., St. Cloud State University, 1992
B.A., St. Cloud State University, 1989

Dissertation Submitted in Partial Fulfillment of the
Requirements for the Degree of
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ABSTRACT

The separation between behavioral services and traditional medicine is increasingly being seen as counterproductive on personal and societal levels. Despite this, there has been little research examining how integrated models blending mental and physical health services could be implemented. The literature revealed that behavioral interventions have been incorporated into traditional medical treatments, but this often has been piecemeal in nature and has yielded equivocal results. This study examined the assertion that effective integration between behavioral and medical services will increase the standard of care for the patient. Integration in this study was accomplished by colocating a psychologist on the primary care unit, implementing formal behavioral screening, and ongoing consultations between primary care and psychological/psychiatric providers. Data obtained from 15 medical providers pre and post implementation examined if there would be an increase in the number of behavioral discussions between patients and providers, and the number of behavioral referrals generated. Also, data was examined to determine if there would be a drop in the number of emergency room and psychiatric admissions related to these provider's patients. A repeated measures ANOVA showed a significant increase in mental health discussions and referrals by providers for their patients post intervention. With integrated services, positive social change for patients could be realized in decreased stigma associated with mental health issues, less personal distress, and the ability to better manage daily demands. There will be positive societal results with increased productivity in the workplace and relief from the burdens of increased healthcare utilization associated with comorbid behavioral and medical issues.

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CHAPTER 1: INTRODUCTION TO THE STUDY

The aim of this study was to measure the effects of integrating behavioral health services into an Ob/Gyn primary care medical clinic. These effects were measured in four areas including the number of mental health dialogues taking place between patient and provider, referrals offered to address behavioral concerns, and a measure of utilization costs for behaviorally related emergency room visits and acute psychiatric hospitalizations.

The theory and practice of Integrated Behavioral Health (IBH) is relatively new and does not have a clearly standardized identity in the literature. Original references and explanations of integration were furthered by Selden and Pavel (1998). Groundbreaking work connecting IBH with primary care has been offered in recent years (James, 2006; Magas, 2007; Zoberi, Niemek, & Margolis, 2008). Both these recent and past studies supported evidence and validity of improved outcomes and system improvements that have prompted studies looking at more specific applications. Despite this, searches in popular research databases only begin to reveal IBH references in the late 1990s. Therefore, the general constructs of IBH are discussed to provide a backdrop of its underlying principles. A working definition of what IBH means specifically for this study will be explored in detail in the methods section found in chapter 3.

Background

IBH is the seamless combination of primary medical care and behavioral health services. These services coexist within the patient's regular primary care (PC) health setting in an attempt to consider the patient's healthcare needs as whole (Selden and

Pavel, 1998). Specifically for this study three components were identified as making up IBH. They include formalized behavioral screening, a colocated mental health professional within the medical clinic, and ongoing psychiatric consultations. This definition addresses and corrects for an assumption within healthcare settings that fosters a belief that the mental healthcare system is fundamentally different and separate from the physical healthcare system that currently exists in Western medicine (Selden et al., 1994).

Deary (2005) traced the history of the philosophical debate between mind and body interaction to the early Greek philosophers. Discussions regarding this issue continued into the 1600s with philosopher Descartes' foray into mind-body dualism. It is here that Deary suggested the groundwork was set for the dualistic choice of whether an illness is "psychological or real" (p. 215) Psychologists at times have also advocated a mind-body split. An example is found in the 1950s when Watson furthered his behavioral psychology views contenting that inner mental states were irrelevant to the behavior and functioning of the individual (Bargh & Ferguson, 2000). It could be argued the most influential set of events contributing to dualism took place in the mid 20th century with what has been referred to as the *golden age of medicine* (Fritz, 2000). Fritz explained that during this period, several medical breakthroughs took place including the development of antibiotics, vaccinations, the use of insulin, and effective anesthesia procedures. Groundbreaking medical discoveries continue today which tend to diminish

the importance of mental and emotional factors as they relate to physical health thus reducing a persons overall health (Fritz, 2000).

Despite this history of events, there has been increasing acknowledgement that emotional and behavioral issues play a part in health outcomes. The biopsychosocial model, which recognizes that sound mental health plays a large role in the development and recovery from disease, is being taught in medical schools throughout the country (Levant & Heldring, 2007). This model exists within a contemplative stage. In other words, one could contend that few medical professionals would deny that emotional and mental health issues are relevant to patient care, but actual programming to implement combined services into a medical care system are rarely seen (Levant & Helfring, 2007).

Those skeptical for the need to incorporate mental and physical health programming may ask the question of why formal integration is important. There is already longstanding evidenced-based support for the effectiveness of Western medicine (Malhi & Lagopoulos, 2008). Malhi and Lagopoulous further state current research and technology is effective in identifying and treating physical disease and trauma. It is not only medicine that benefits from this research and technology, but the disciplines of psychiatry and psychology also benefit from technical advancements and utilize them in their practice (Malhi & Lagopoulos, 2008). Given that these specialties both utilize current advancements, why cannot there exist a physically based health treatment system and a mental health treatment system that are separate but equal in the delivery of services to individuals needing treatment?

Statement of the Problem

The core problem under investigation is the lack of integration between mental health and physical health services. This lack of integration creates a separated mental and physical health system which leads to an epidemic of untreated mental health issues. The resulting consequences have a negative impact not only the overall health of the individual, but also radiate throughout the institutions of society (U.S. Department of Health and Human Services, 1999). The mechanism by which this separation originated, the factors that maintain the separation, and the resulting consequences are outlined in chapter 2. In addition, the results of various attempts at integrated models will be reviewed and utilized to identify gaps in the current literature.

Purpose of the Study

The purpose of this study was to quantitatively examine if the initiation of an IBH system into a PC clinic will generate a new standard of practice in which mental health issues will be considered and discussed as a part of an the overall health assessment conducted during routine visits. With emotional/behavioral issues identified, the effectiveness and practical applications related to referrals and interventions were examined through the use of an IBH system. Additionally, the IBH system was examined for cost effectiveness to the healthcare system through analysis of the financial consequences of behaviorally related emergency room visits and psychiatric admissions.

Hypotheses

Hypothesis One:

Null Hypothesis (HO1): There will be no change in the number of discussions between patients and providers related to mental health issues following the implementation of an Integrated Behavioral Health program in an Ob/Gyn primary care clinic. Discussions were measured by a chart audit specifically looking for a mention of issues as identified by the Patient Health Questionnaire screening tool that included the following: Somatic complaints, depression, eating disorders, anxiety, panic attacks, and alcohol abuse.

Hypothesis (Ha1): There will be a significant increase in the number of discussions between patients and providers related to mental health issues following the implementation of an Integrated Behavioral Health program in an Ob/Gyn primary care clinic. Discussions were measured by a chart audit specifically looking for a mention of issues as identified by the Patient Health Questionnaire screening tool that includes the following: Somatic complaints, depression, eating disorders, anxiety, panic attacks, and alcohol abuse.

Hypothesis Two:

Null Hypothesis (H02): There will be no change in the number of patient referrals to mental health services by primary care providers as measured pre and post implementation of an Integrated Behavioral Health program.

Hypothesis (Ha2): There will be a significant increase in the number of patient referrals to mental health services by primary care providers following the implementation of an Integrated Behavioral Health Program. It is hypothesized that the number of referrals will significantly increase following the implementation of an Integrated Behavioral Health program.

Hypothesis Three:

Null Hypothesis (HO3): There will be no change in the number of behaviorally related emergency room visits for the population of Ob/Gyn primary care clinic patients following the implementation of an Integrated Behavioral Health Program. The outcome measure is the utilization costs generated by these patients related to emergency room visits.

Hypothesis (Ha3): There will be a significant decrease in behaviorally related emergency room visits for the population of Ob/Gyn primary care clinic patients following the implementation of an Integrated Behavioral Health program. It is hypothesized that utilization costs generated by these patients will decrease related to emergency room visits.

Hypothesis Four:

Null Hypothesis (HO4): There will be no change in the number of psychiatric inpatient admissions for the population of Ob/Gyn primary care clinic patients following the implementation of an Integrated Behavioral Health Program. The outcome measure is

the utilization costs generated by these patients related to inpatient psychiatric admissions.

Hypothesis (Ha4): There will be a significant decrease in psychiatric inpatient admissions for the population of Ob/Gyn primary care clinic patients following the implementation of an Integrated Behavioral Health program. It is hypothesized that utilization costs generated by these patients will decrease related to inpatient psychiatric admissions.

Definition of Terms

Integrated Behavioral Health (IBH): is a system in which primary care providers collaborate with mental health professionals concurrently in providing a continuum of physical and mental health services to patients (Carney et al., 1999).

Obstetrician-Gynecologist (Ob/Gyn): is a physician that typically completes a four year specialization residency including both obstetrics and gynecology. Obstetric training includes areas of prenatal care, pregnancy, labor, childbirth, and genetic counseling. Gynecology training includes issues related to a woman's reproductive organs, breasts, and sexual functioning. The Ob/Gyn also may address general health issues for women and routinely conducts various surgical procedures related to obstetric and gynecological issues (American College of Obstetricians & Gynecologists, 2008).

Pre and Post: The terms *pre* and *post* in this study have a specific distinction. *Pre* refers to the clinic conditions prior to the IBH programming taking effect. Once the IBH condition is in effect subsequent reporting will referred to as the *post* condition. The

providers, who are the participants in the study, are consistent between both the *pre* and *post* phase. The patients as seen by the providers in the *pre* phase are not the same patients as seen by the providers in the *post* phase.

Primary Care (PC): refers to clinicians who are responsible for much of the patient's care including prevention, maintenance, managing illnesses, and referrals to specialists. *PCP (PCP)* will be the abbreviation used for primary care provider (Davis, 1997).

Provider: is the term used to describe the medical health professional conducting the examination on the patient. This term may include several different levels of professionals including a medical doctor, advanced practice nurse practitioner, physician assistant, or licensed nurse midwife (Davis, 1997).

Utilization costs: in this study refer to the dollar amount accrued as the patient is treated including admission, services, length of stay, and discharge planning (Simon et al., 2001).

Well Visit: refers to a routine scheduled health exam (Davis, 1997).

Significance

This study will contribute in the development of research as it relates to an integrated model in primary care treatment. The benefits gained from this information will have wide ranging effects. From a clinical standpoint, the philosophy of addressing behavioral issues as a standard part of overall health treatment will serve to identify

mental health issues when previously they were unidentified and thus untreated (Mumford, Schlesinger, Glass, Patrick, & Cuerdon, 1984). Mumford et al. further relate that the potential for an increase in quality of life for those afflicted with mental health issues will be greater as early identification and treatment will address behavioral issues before they become complicated and difficult to treat. From a system perspective, this research will add to a growing hypothesis that effective mental health programming throughout the entire health system actually decreases overall health utilization This in turn relieves financial burdens and strain on the current healthcare system allowing the potential for reduced costs to consumers across the board (Mumford et al.). While these ideas appear to have obvious positive implications, the literature yet has to determine the most effective strategies related to implementing integrated programming. The literature reported has been fragmented in the sense that one or two interventions have been placed into the primary care system with mixed results. This study aimed to examine the results of a comprehensive approach that utilizes screening, colocated mental health professionals and psychiatric support all working together. The question of interest is whether a carefully integrated program can produce overall results that are greater than the sum of the parts.

There are barriers found in practical and administrative perspectives as well as personal belief and practice styles among medical professionals. The collection of further information will be critical in finding the most effective manner to convince systems and individuals of the utility of implementing integrated behavioral strategies.

Assumptions

It is assumed that the Patient Health Questionnaire (PHQ) screening is an appropriate tool to detect issues of concern related to recognizing somatoform issues, depression, panic, anxiety, eating disorders, and alcohol abuse concerns related to patients. With regards to the measure of a chart review examining dialogue between provider and patient, it is assumed that discussions of a psychological nature are consistently and accurately recorded in the medical record of the patient. Finally, the premise of this study is based on the fundamental assumption that the current health system does in fact treat medical and psychological issues separately in terms of philosophy and administrative practice.

Limitations

While this study used a primary care background as found in an Ob/Gyn unit, the subjects were made up of female populations who had chosen to see an Ob/Gyn provider for their primary care needs. According to demographic data collected from this clinic, the ages of patients seen generally ranged between later adolescence to patients in their 50s. The ability to generalize to other primary care settings that include male patients or females outside this age range is a limitation. The use of an Ob/Gyn unit as a primary care model could be argued as a limitation. Many women use their Ob/Gyn provider for their general physicals and health care (American College of Obstetricians and Gynecologists, 2008).

However, The American College of Obstetricians and Gynecologists acknowledge that within the medical field Ob/Gyn providers are considered as a sub-specialty as they relate to specific obstetric and gynecologic issues. The rationale for using this unit in the study is examined further within the methods section.

It is possible that individuals seen within this clinic already had established mental health treatment relationships outside of the identified health system and therefore were not interested in taking part in programming as offered. Also, the results would be valid only if the patient choose to complete the screens and endorses items on the screen accurately. This study is based from a secondary analysis design and was subject to the assumptions and limitations regarding statistical interpretations inherent within this method.

The aim of this study was to examine how the interventions implemented will drive an increase in discussions of a mental health nature between patient and provider, result in increased opportunity for referrals, and briefly look at health utilization issues. It did not look at patient or provider satisfaction, nor did it measure clinical outcomes. The study as designed is necessary to set the stage for follow up studies that examine the important information regarding clinical success.

Summary

Throughout history the belief in the mind-body connection has ebbed and flowed. Currently, the Western medicine paradigm separates the function of assessing and treating the mind and body (Scheper-Hughes & Lock, 1987). Sheper-Hughes and Lock

maintain there are several circumstances that have contributed to this state and others that serve to maintain this separation. They further suggest that new data is emerging suggesting that treating mental and physical health issues concurrently may have significant benefits for the individual and society. The first step on this road to merging these disciplines is most logically done in the primary care health system considering this is where most people go for their overall health needs (Leon et al., 1995).

To date, few attempts at integration have progressed to practical application. Those that have been initiated rarely have used a wide variety of interventions (James, 2006). This study addressed this deficit by examining what happens when mental health screening, co-located mental health professionals, and consultative services between various levels of professionals are formally put into place in a PC clinic. It is speculated that the social change implications fostered through a collaborative system as described will be substantial. They would include improved mental health for individuals that would enable people to be more effective in their personal and professional lives. This success could also have positive effects on reducing longstanding stigmas directed at individuals while at the same time reducing health care costs to society in general.

Chapter 2 presents a more in depth review of the background literature framing the problem. The most recent attempts at incorporating behavioral health services into the mainstream medical models were reviewed. Important related topics such as psychoneuroimmunology (PNI) and stress research, as they relate to medical models are examined. Also, the importance of cost issues and infrastructure affecting integration are

addressed. Chapter 3 outlines the methods used for the study, the research questions devised, the subject population, ethical concerns, measures, and statistical analysis. Chapter 4 will address the statistical analysis generated from the data gathered. Chapter 5 will discuss the results and implications of the research as a whole.

CHAPTER 2: LITERATURE REVIEW

Introduction

This literature review describes the evolution of a separated mental health and physical health system. It establishes a need for continued investigations into the effects that an integrated system, in which medical and psychological services exist side by side, would contribute to an effective holistic healthcare model. The prospective value of an integrated system was assessed by reviewing evidence showing the negative consequences resulting from the separation of mental and physical health services and the positive consequences observed when effective collaborations are established.

The healthcare community has begun focusing on what interventions may be implemented in efforts to achieve an integrated system, but the literature has not yet identified the variables that are most critical to affect positive change. The design of this study, as outlined in later chapters, addresses and adds to past results furthering the knowledge base.

The idea that mental and physical health have a bidirectional relationship contributing to a persons overall health is the theoretical framework for this dissertation. This framework also assumes that treating mental and physical health issues as fundamentally different is detrimental to achieving an optimal level of overall health.

The definition of health used as a working model for the remainder of this study will be summarized by Fiona (2007). Key aspects include the belief that health is more than the absence of disease or physical problems. Mental, social, and environmental aspects are also considered in defining the overall health of an individual.

There is a large amount of literature in both the fields of physical medicine and behavioral health. However, there is sparse amount of literature investigating attempts to view these fields as convergent in addressing patient needs. Despite this, Conrad et al. (2007) describes recent movements recognizing the value of merging both mental and physical health concerns as one overall unit. This philosophy is manifesting itself in practice as seen with the acceptance of new frameworks such as health psychology and biopsychosocial models (Levant & Heldring, 2007). However, because of the divergence of mind and body has informed and shaped the current healthcare system, it will help build perspective to outline the circumstances that have led to this current culture before examining investigations into integrative care models.

This chapter reviews the historical systems that contributed to and serve to maintain the current separated relationship between psychological and medical systems. The review then bridges into studies that examine the consequences of a dualistic system of assessment and treatment. Finally, the efforts to integrate medical and behavioral services using a primary care model is discussed and used to frame the explanation of methods used in Chapter three.

Literature searches for this study were conducted through a number of electronic sources including MEDLINE, CINAHL, Academic Search Premier, PsychINFO, PsycARTICLES, and the CentraCare Health System medical library database that included many traditionally existing print versions of journal articles. Key terms used in

the search included *integrated behavioral health*, *shared care*, *integrated care, behavioral medicine*, *health psychology*, and *primary care*.

Foundations

Implicit in an integrated behavioral health (IBH) philosophy is the assumption of a cognitive level of awareness, often referred to as the mind, which is recognized in addition to physical functioning. Throughout history there has been intense debate related to what the mind is, whether the mind is actually a physical function, the potential of spiritual or religious factors in cognition, and the diverging schools of thoughts between dualistic and monistic theories (Velmans, 2008). Mind-body theory was not the central focus of this literature review, but to avoid abstraction, an explanation of what *mind* or *behavioral* will refer to in this review is in order. Fischbach (1992) provided a concise explanation that was adopted as the philosophical viewpoint in what is to follow. First, he acknowledged that the mind is generally associated with the actions of the brain. These specifically include the ability to reason and think, the generation of moods, and the behavior of an individual as a result of reasoning and mood. The term behavioral as used in mental health literature refers to the observable actions that result from cognitive origins.

Descartes (1596-1650) is the most notable individual that influenced the mind-body debate. Descartes is credited with the first attempt at a comprehensive examination of the mind-body relationship (Lolordo, 2005). Descartes' writings on the subject spawned discussions and theories that continue to generate debate. Descartes advocated a

dualism between mind and body claiming the mind is nonphysical in its nature and fundamentally a different substance separate from the brain (Smith, 2005).The Descartes philosophy does however, allow for the recognition of consciousness thus leading to self-awareness (Treanor, 2006). This is the genesis of the Descartes quote, "Cogito ergo sum" which translated means "I think therefore I am" (Albuquerque, Deshauer, & Grof, 2003). The legacy of Descartes' work influenced the tone of mind-body discussions for hundreds of years from philosophical, religious, and medical standpoints. Albuquerque et al. do caution that it would be a mistake to oversimplify the extensive writings of Descartes and the mind-body issue. While it is true that Descartes believed that mind and body are of a wholly different substance, he also did offer that there is a bidirectional relationship between these substances (Smith, 2005). Smith contends it is here where fine points of philosophical debate emerge over the nature of a mechanism that allows two apparently different substances to interact.

While much intellectual debate was generated from Descartes' works, the practical result was that a door opened enabling research to take place in the biological arena. For example, one could consider the influence the Catholic Church had in sanctioning all biological and medical research in the 17th century (Pannenberg, 2006). Pannenberg explains that by accepting the idea that mind and body were separate, conflict was avoided in that the Catholic Church maintained its authority over the *soul* and deferred to science the investigations into the physical body. This acceptance, coming out of the Descartes philosophy, created the building blocks that led to the

zeitgeist perpetuating mind-body separation. This would become known as the biomedical model (Hewla & Hetherington, 1995).

Biomedical Model

The underlying basis for the biomedical model is found in the philosophy that the human body is essentially a machine. As with any machine, there will eventually be a breakdown in its function that necessitates the need for repair. This repair is the domain of the physician that intervenes with physical or chemical manipulation (Hewla & Hetherington, 1995; Wade & Halligan, 2004). The paradigm in which the practitioner of the biomedical model operates is referred to as *reductionism* and is the practice of looking at the physics of the body (Pilgrim, 2002). For example, in the early days of medicine attention was focused on specific organs and organ systems. As new technologies developed researchers were able to look more narrowly into the individual cells within the organ system. The modern biomedical approach utilizes the ability to look all the way down to the molecular structure of biological organisms (Conway, 1992).

It is easy to understand the popularity of the biomedical model and the tremendous momentum that it generated when the practical applications are considered. Take for example the work of Pasteur (1882-1895). Pasteur is credited with developing the germ model as it relates to disease (Mendelsohn, 2002). Mendelsohn outlined the consequences of Pasteur's' work explaining that through the biomedical model he discovered the relationship between germs, bacteria, and the development of disease and

function of the immune system. He was able to implement strategies of inoculation in which preventative microscopic formulas were used to protect against deadly and debilitating diseases. Mendelsohn further added that subsequent developments stemming from Pasture's work led to leaps in medical technology such as the ability to sterilize medical equipment, use anesthesia effectively, increase the safety and efficacy of surgery, and bore even deeper into molecular areas that were once hidden from view.

Smith (2005) argued this philosophy coming out of the biomedical model is an example of how the scientific method, that continues to be the gold standard in modern research practices, catapulted great advancements for society. However, this method was not a good fit with those attempting to further research into psychologically related issues during these earlier times. Smith explained that the tight control of variables, use of replication strategies, standardized measures, and specific medical instruments could rarely be applied to emotional/behavioral studies during this era.

Given how these circumstances developed, cognitive, emotional, and behavioral issues were not able to ride the same wave of advancements as seen in biology and chemistry. Add to this the human tendency to bring fear and superstitions into areas that are not fully understood (Ward & Beaubrun, 1980), and the stage is set for a culture that supported the separation of mind and body.

Separating factors

Fear and lack of understanding provided the fuel that fanned the flames of ignorance and the stigma associated with mental illness. The U.S. Surgeon General

(1998) described the effect that stigma has on those contemplating treatment for mental health issues:

> Most often, reluctance to seek care is an unfortunate outcome of very real barriers. Foremost among these is the stigma that many in our society attach to mental illness. Stigma erodes confidence that mental disorders are valid, treatable health conditions. (Chapter 1, Para. 5)

This stigma is felt not only by of those suffering from mental health problems, but it is reinforced by the attitudes of others. This includes health professionals and others in positions of power such as landlords, employers, and the criminal justice system, that have influence over the services and treatment these individuals receive (Corrigan, 2004). Lewis (2001) commented on interviews with afflicted individuals that consistently reflect a feeling of underlying shame. These individuals believe their mental health issues are looked at by others, including medical professionals, as an inherent weakness in personality or character. Lewis also contended that a lack of attention to mental health concerns in PC settings contributes to the implicit idea that mental health issues are not part of standard health care nor are they a recognized disease process.

The majority of people seek help for their mental health concerns, not through psychiatry or psychology services, but through their primary care provider (PCP) (Leon et al., 1995). In the medical community, the primary care setting is often referred to as the de facto mental health system for our country (Corrigan, 2004).

If a person gets past initial fears related to the stigma of mental health issues and hopes to discuss mental health concerns during their physical appointment they will

likely find another set of barriers. The first barrier may be a lack of appropriate screening or assessment tools for emotional and behavioral issues (Leon et al., 1995). A nationally representative survey conducted by Horgan, Garnick, Merrick, and Hoyt (2007) asked major health insurance providers if their product required mental health screening during routine visits. The results showed that 34% of these companies required behavioral screening. Patients hesitate to broach this subject (Lewis, 2001). The responsibility for identification is then left for the PCP. The comfort level and training to complete this task likely does not exist for the PCP. Leigh, Stewart, and Mallios, (2006) spoke to this issue as they reported on anonymous surveys administered to over 1300 directors of PC residency programs. The survey asked the respondents to assess the adequacy of psychiatric training in their respective departments. Results showed that in the opinion of the department heads, training was minimal or suboptimal. A specific breakdown found this to be true for 71% of the Internal Medicine residencies, 85% of the Pediatric residencies, and most pertinent to this study, 92% of the Ob/Gyn residencies.

These preceding examples have touched on the separation of physical and mental health form the perspective of attitudes, beliefs, and training. Not only does this separation exist, but it has woven itself into the practical and administrative fabric of our health system. An example of this is identified by Strum (1999) using the term of *behavioral carve out* plans. These plans treat behavioral health services as a separate benefit from the person's physical health coverage. It is not uncommon for individuals to opt out of any behavioral coverage in order to save money (Sturm, 1999). Some would

argue this lowers costs to those seeking behavioral treatments (Busch, Frank, & Lehman, 2004). However, that belief ignores the evidence previously noted that most people go to their primary care provider for mental health services (Leon et al., 1995). A complication may be realized when one considers many types of insurances may not allow the PCPs to charge for behavioral health services such as medications, assessments, or therapeutic services (Moore, 2004). This results in far fewer people receiving assessment and treatment for mental health issues. Additionally, this type of arrangement puts case management decisions into the patient's hands. People in the midst of a mental health problem often have difficulty in dealing with complicated referral issues and may simply give up attempts to receive treatment thus contributing to the prevalence of untreated mental health problems (Anthony, Cohen, Farkas, & Cohen, B., 2000).

Consequences

From the perspective of the individual, untreated mental illness has been shown to drastically decrease quality of life. Mental Health Weekly (2003) reported the major consequences traced to lack of treatment to include homelessness, unemployment, incarceration, unnecessary disability, and suicide. These issues affecting the individual also have effects on their family members, friends, and children.

A second major consequence is associated with costs. This impact is found in several areas of society. Hersch and Lazar (1999) went as far to estimate costs associated with untreated depression may be as high as a billion dollars per year. They based this on the large amounts of lost productivity in the workplace due to disability costs, frequent

personnel changes, and absenteeism. An even greater drain on financial resources is found in the health sector. Health resource issues have been scrutinized and researched. The term *medically unexplained symptoms* has been coined to describe those patients that present to PCPs with complaints that demand much attention and diagnostic testing (Smith et al., 2006). Smith et al. further explained the dynamics that occur with these patients. They estimated that up to 10% of outpatients slots are filled by those with vague complaints such as headaches, backaches, and fatigue. Because ongoing diagnostic procedures show no signs of an organic disease, relationships often become strained between patients and providers. The area of personal or psychological distress as a potential cause of these symptoms is often overlooked by both patient and medical provider. In addition to the strain and frustration from a clinical standpoint, the costs associated with fruitless diagnostics and decreased spots for other appointments are ultimately passed on to all patients (Smith et al., 2003).

The topic of unexplained medical symptoms serves as a link to one of the newest avenues influencing the importance of integrating medical and psychological services. This is found in the developing research related to psychoneuroimmunology (PNI). PNI research is offering evidence based results that show connections between emotional states and the development of or recovery from physical illness (McCain, Gray, Walter, & Robins, 2005). The reductionist model described earlier was used as a negative example of how mind and body became split. With the new attention to PNI, this same reductionism, as evidenced by how emotional states may affect molecular physical

functioning, may ironically be driving the trend of researchers paying attention to emotional/behavioral issues in physical disease investigations.

An example demonstrating this point with a subject pool relevant to this study is found in a work focusing on the psychoneuroimmunology of pregnancy by Coussons-Reid, Okun, and Simms (2003). The authors outlined the various immunological functions that are affected by the activation of the stress response. They related how through a series of cause and effect actions involving several body systems, a systematic down regulation of the immune system increases plasma cortisol levels that are associated with preterm birth. Additionally, infants born to mothers with prolonged stress responses during pregnancy are more vulnerable to disease and exhibit more temperamental behavioral traits. Coussons-Reid et al. cautioned these results are not entirely conclusive as other studies have not consistently shown the same results. Despite this, these authors offer that the evidenced-based research related to emotional states, stress response, and immune functioning is gaining widespread attention and credibility within the scientific medical community.

IBH approaches/Studies

Considering the findings previously discussed by Leigh, Stewart, and Mallios (2006) showing that psychiatric training in primary care residency programs are insufficient, and the 2007 survey by Horgan, Garnick, Merrick, and Hoyt revealing that only 34% of insurance companies require behavioral screens, it is evident that a void exists in effective screening for mental health issues in the PC setting. This realization

has prompted the first wave of efforts at integration. These efforts are found in formalized screening procedures.

Screenings

At first glance it appears that simple screening would be effective and easy to incorporate into a clinic setting. As first attempts at screening began, it was not long before complications were found in the details. McAlpine and Wilson (2004) were among the first to report on the practical considerations. From the PCPs view, a large practical concern is found in the time it takes for the patient to fill out a screen, and the time it takes the provider to look at and interpret the result. If the result is positive a significant additional amount of time will likely be needed. Glotschalk and Flocke (2005) outlined that in a 2003 report from the National Ambulatory Medical Care Survey that an average length of a well visit appointment is 18 minutes. Addressing all the patient and provider concerns for the physical exam in addition to time devoted to a screening tool and positive result would be challenging. Additional areas of interest discussed by McAlpine and Wilson included selection of the appropriate screening tool. Examples of these concerns were found in the sensitivity of the tools and whether they were able to avoid false positives or negatives. Also, cost effectiveness was at issue and how would this cost be effectively measured. Finally, questions arose related to if tools actually serve to identify more mental health issues than the provider was already finding at a baseline level.

That final question is a core issue regarding the philosophy of screening and was specifically investigated by Carney, Dietrich, Eliassen, Owen, and Badger (1999). The study looked at the diagnostic practices of 149 primary care physicians spread throughout 3 different states. Two sets of actors presented to the physicians. One group exhibited a symptom profile matching the DSM-III-R criteria for major depression. The other group presented with symptoms including somatic complaints and criteria for a lesser level of depression. The results showed that 100% of the physicians recognized and diagnosed depression for the actors portraying the major depressive symptoms. Approximately 49% of the physicians recognized depression in the other group of actors showing depressive symptoms at a lesser severity. Rishel et al., (2006) expanded upon this point arguing that medical providers are doing an adequate job with recognizing and treating the worst cases. In these instances screening would not be worth its corresponding complications. On the other hand, catching less severe depression before it becomes problematic makes treatment easier and diminishes the high utilization of resources produced by chronic mental health patients.

An example related to a screening program was reported by Hile (2003). In this case the author attempted to address some of the problems previously outlined. The Hile study used an automated tool for the screening. In this case the patients would use an electronic tablet to complete the screening tool prior to being roomed by the nurse. This of course was considered an improvement over problems associated with time spent during the appointment going through responses to the screening items. The design called

for the screen to be attached to the patient chart so the provider could review the results prior to entering the exam room. An analysis of the results included 89 patients included in the trial. This particular screen also included substance abuse issues. Of the 89 subjects 31 scored positively for either a mental health or substance problem. Despite this, the program was discontinued. Hile reported two major reasons for the termination of the project. First, the staff reported that because they had to set the patients up with the screening tool and enter appropriate demographic data, it had a large negative impact on the patient flow in the reception area. Secondly, because this was a rural setting the patients were less inclined to complete the screen as they were very concerned over issues of privacy. Hile suggested that stigma continues to be an underlying issue especially in smaller or rural clinics where patients believe they have less anonymity.

The first step in treating mental health issues across the population starts by identifying mental health issues. Despite agreement that screening is an effective manner in which this identification occurs, there remains debate over the most effective way to initiate this process. Areas of concern exist in screening selection, costs, patient flow, stigma, and provider time investment.

Collaborative Mental Health Professionals

Assuming that screenings serve their intent and identify more people with behavioral health issues, researchers have to consider the next step. Historically, there have been limited options. The primary care provider could make a referral for counseling services, start the person on medication (hopefully with monitored follow up),

or refer to a psychiatrist (Borins, Hozapfel, Tudiver & Badger, 2007). These options tend to work against a sense of a collaborative continuation in addressing the identified problem. The evaluation of how the treatment plan is working is absent (Borins et al.). It is expected that when a PCP makes a referral to a specialty such as orthopedics or cardiology they will get a report back on the results of the visit and recommendations for ongoing treatment for their patient. This is not generally how things have worked when a referral is made from a PCP for counseling or a psychiatric appointment for their patient (Griswold et al., 2008). Griswold and colleagues take this a step further and discuss the results of their study showing greatly improved patient satisfaction when a care manager is involved in a case. It was also shown that the intervention group with a care manager had better health outcomes than a control group without case management involvement.

This is just one example of what IBH has concluded is important in an integrated model. Because the PCP can not deal with all the relevant aspects in managing behaviorally related issues, there must be an intermediary or collaborative person involved in a team approach. There are several different models that exist within the current IBH literature that will be noted.

Canada's version of IBH is referred to as the *Shared Care* model. Haslam, Haggarty, McAuley, Lehto, and Takhar (2006) explained the Transition into Primary Care Psychiatry (TIPP) program. A position within this model was described as a facilitator and liaison between psychiatry and primary care. This position is staffed by a nurse with a mental health background. The function of this TIPP nurse is to follow a

patient from psychiatry as they transition back to their PCP. This nurse will complete assessments of the person's level of functioning and facilitate the appropriate level of services needed for the individual. In addition to periodically being present in the primary care clinic for consultative services, they also meet with the primary care providers every three months and the psychiatrist every three to six months to gauge progress and alter treatment plans for individual clients.

An example coming from a different perspective is found in a model used in the Air Force Medical Service (AFMS). Unlike the TIPP model, the Air Force model attempts to intervene at an earlier stage in the PC clinic rather than after a person is already identified in psychiatry. Runyan, Fonseca, Meyer, Oordt, and Talcott (2003) acknowledged that mental health problems contribute to 15% of all diseases seen in the U.S. Thus, greater attention in the primary care setting is needed. They report on a system in which a Behavioral Health Consultant (BHC) serves directly on the primary care unit. At the request of the medical provider they do additional assessments, engage in brief therapy with patients, and provide education. On occasion they may sit in on the initial appointment with patient and medical provider. Pilot study results showed that 97% of patients were either *satisfied* or *highly satisfied* with this service while 100% of the primary care providers were *satisfied* with the BHC services and recommend services as performed by the BHC (p. 184). The authors of this study note that typical patients within this setting are young, in good physical condition, and have previously been screened for

mental health issues prior to acceptance into the Air Force. Satisfaction levels may differ in a typical PC setting in a community clinic.

One collaborative position that requires less expertise and financial commitment is found when individuals in an *education* position recommend material designed to inform patients of their specific condition. This individual would have limited contact with the patients to discuss the educational material after it was reviewed by the patient (Macdonald, Mead, Bauer, Richards, and Lovell, 2007). The philosophy behind this approach comes out of difficulties with obtaining more specialized appointments due to high demand. Macdonald et al. explained that rather than a professional therapist, a patient is provided with written materials, or DVD's specific to their identified diagnosis. This approach has generated skepticism among mental health treatment advocates. Macdonald et al. cautioned that if an issue is at a level to be noticed as a potential problem, it may not be appropriate to depend on the patient to gain insight without additional professional guidance. This concern was borne out in patient satisfaction surveys. Macdonald et al. found that expectations of patients were not meet with this approach. The biggest complaint of patients was the material only spoke to minimizing the symptoms of their disorder. The patients (N=24) in this qualitative study, were much more interested in examining the cause of their disorders. This education position as created was not designed to provide that level of service.

A model providing a collaborative position involved in triage and assessment is explained by Oslin et al. (2005). The Health Technician (HT) is a part of a larger

behavioral service within the VA Medical Center in Philadelphia. The PC department does initial evaluations regarding mental health issues on all their patients. If a screening is found to be positive the PC clinician utilizes the HT to gather additional background information and to administer a larger battery of assessments with the patient. This takes place via a telephone based clinical assessment service. The screenings are wide ranging and can be tailored to the PCPs request including but not limited to neuropsychological, depression, and PTSD assessments. The HT administers the screens that are scored by a computer. Recommendations are generated by a type of algorithm that covers various treatment options. The positive results of this program were found in that 78% of patient's chosen for further assessment ultimately completed the additional screenings. Of those screened significant comorbidities were identified in addition to the original mental health concern.

While there may be several different levels of competence, training, and responsibilities for these collaborative mental health positions, the basic function is similar. They serve to help primary care providers identify mental health clinical concerns, provide immediate assessment or referral, and facilitate an ongoing link between the primary care provider and mental health professionals involved in the individual case. In most cases, this type of position is not responsible for longer term therapy or specialized psychiatric services (Haggarty et al., 2006; Macdonald et al., 2007; Oslin et al., 2005 & Runyan et al., 2003).

Referrals and Consultation

"I see the value in doing these screenings, but do we have the resources to deal with what we uncover? Is it responsible for us to identify these issues and then be unable to provide appropriate follow up services?" (J.K. Regan, M.D., personal communication, February 11, 2008). Regan expressed a point that is difficult to find supported in the formal literature, but is routinely expressed in informal conversations with PCPs. These concerns are expanded upon in an Executive Summary report form the Bazelon Center for Mental Health Law (n.d.):

> Primary care providers are reluctant to refer patients if there are long waiting lists for services and if they have been unable in the past to secure mental health specialty services for their patients. When primary care providers cannot make needed referrals and are not told why, they presume that effective collaboration is not feasible. (para. 7)

Murphy, James, and Lloyd (2002) described what happened to referral rates when PC providers have adequate support. They report on a creation of a Primary Care Liaison Team (PCLT.) This team combined mental health professionals from the PC clinic side and affiliated therapists in the community mental health centers. Ongoing consultations took place between each discipline with coordination liaison duties performed by a psychiatric nurse. On a scheduled basis the community mental health professionals would meet with PC providers to exchange educational opportunities as well as staffing of individual cases. If the PC physician deemed it necessary for a patient to have more intensive treatment in the outpatient setting, the team was well prepared to accept the client. The specific study was a retrospective cohort study. Data was collected for the 12

months prior to the development of the PCLT team. It measured referrals from PC providers to outpatient therapy, psychiatric services, and emergency admissions. The same data was collected for the 12 months following the PCLT implementation. The results were significant showing an increase in referrals from PC providers to the community mental health system. In the year prior to the PCLT there were 34 referrals from PC physicians made to community mental health providers. The year after implementation showed 114 referrals made to these same community health resources. Both referrals to psychiatry and emergency admissions increased as well, but not at significant levels. From a qualitative standpoint the PC providers indicated they were very satisfied with the PCLT arrangement. They specifically were positive about saved time when referrals were made. In the past they were required to complete detailed referral letters to the community mental health therapists in order to frame and introduce the patient and patient needs. They no longer felt this necessary due to the ongoing consultation. In addition, they were more comfortable with the quality of the community therapists as they felt confident in those therapist abilities as the ongoing education component demonstrated their competencies.

The authors did discuss the strain this program created related to the workload increase for the community therapists. This theme not only applies in this study, but for all successful integrated programs. Murphy et al. (2002) commented that if these programs are successful they run the risk of recreating long term waiting times for timely treatment.

They understood this was potentially frustrating for all parties considering this wait is what prompted the initiation of these programs in the first place.

P*sychiatric Consultation*

The day when psychiatrists and other medical doctors lived in separated worlds that rarely crossed paths is no longer a reality. Stoudemire, Bronheim, and Wise (1998) support this point and reported that for several reasons ongoing consultation between psychiatry and practitioners of general medicine is a necessity. They reflect on study after study showing that psychiatric issues contribute greatly to comorbid disease states ultimately costing society countless dollars. Add to this the hesitation of health plans to support specialty referrals to psychiatry and an obvious problem exists of how to properly manage medical patients with complicating psychiatric conditions (Lewis, 2001). Stoudemire et al. outlined attempts made to have nurses, social workers, and other mental health professionals take the lead in diagnostic and treatment issues. Despite this, the quality of services suffers when the most specialized experts, the psychiatrists themselves, are not involved in a psychiatrically involved medical case. It is for this reason that Stoudemire et al. reported on a new specialty in psychiatric training. This new fellowship is referred to as *Consultation-Liaison Psychiatry*. To summarize the philosophy and aims of the consultation-liaison psychiatry program, Gitlin et al. (1996) covered several key points. First, special attention is paid to the fact this patient has presented in the medical setting. Thus, part of the consultation will revolve around the special skill set the psychiatrist can bring in the areas of neurodiagnostic testing, mental

status examinations, and pharmacologic considerations within the context of already coexisting medical problems. Shorter term therapies may be recommended specifically to treat chronic or acute physical conditions. Additionally, Gitlin et al. acknowledges the consultation-liaison specialist will acknowledge the importance of using the biopsychosocial model of assessment to consider the person's family and social environment. Finally, this type of consultative arrangement may benefit all parties in how to manage ethical, supervisory, and research issues.

Apart from the philosophical approaches for the consultative model, several differing investigations have produced results in the clinical setting. Van der Feltz-Cornelis, van Oppen, Ader, and van Dyck (2006) looked at a group of patients determined to have medically unexplained symptoms. It was established by the authors that these types of patients often reject psychiatric origins for their somatic complaints. Therefore, an attempt to treat them through the general practitioner (GP) was investigated as an alternative intervention. The patients (N=81) came form a variety of general practices. The design of the study compared two variables. First was a condition in which the GPs had psychiatric training in how to address patient issues and formal on site consultations with the psychiatrists. The second condition also had training for the GP's with the usual care (UC) protocols without the on site consultations with the psychiatrists. Results showed that the condition that included in person psychiatric consultations resulted in a 58% drop in the reported severity of symptoms with the patients, an increase in their social functioning, and these patients had less overall utilization of health care

services in general. Additional findings suggested that the improvements likely came due to controlling depression and anxiety issues.

Additional studies show similar results when close working relationships are established between PCP's and psychiatry (Bodlund, Andersson, & Mallon, 1998; Conrad et al., 2007) have examined several different levels of combinations of independent variables. The results are clear in showing that no matter what additional variables may be added, such as psychoeducational groups or cognitive behavioral therapy, the strongest factor associated with clinical success is found when the psychiatrist and PCP relationship is in effect. To be fair to the range of literature on this topic, there are indications that this relationship is not unanimously believed to be so strong. In a review of several generations of programming which implemented the use of consulting liaison psychiatrists, Katon and Gonzales (1994) agree these programs have been successful in identifying mental health issues, and generating strategies that PCP's can use in treating their patients. However, their data shows that actual patient outcomes do not always show the same level of success. This study drives home a point that in setting up a study or initiating service, the ultimate goals must be considered in several terms including identification of concerns, treatment protocols, and outcome measures.

Outcome measures often refer to clinical outcomes or how well the patient has done with treatment. In the investigations of IBH programs, outcome measures may also refer to how cost effective an IBH program is for the respective health system. This has always been a challenge unique to the behavioral units associated within a traditionally

medically based health system. This stems from reimbursements for mental health services not having parity with medical coverage, yet overhead and staffing requirements for behavioral units are high within these systems (Leonatti, 2007).

Cost Analysis of Integrated Programming

One way of measuring the economic utility of collaborative care was explained by Simon et al. (2001). Patients seen in the PC clinic who had started treatment with an antidepressant were surveyed approximately eight weeks later. Those found to be having significant ongoing depressive issues were then split into two groups. The collaborative group condition included patient education, an initial visit with a psychiatrist, ongoing consultations between psychiatrist and the PC provider, and monitoring of compliance with medication regimens. The other group continued with usual care and did not include any of the conditions of group one except periodic follow ups with the prescribing PC provider. The outcome data was collected in a blinded manner at 1, 3, and 6 months. Economic data was collected by examining the health claims made by these groups of patients. The results showed that the collaborative care group reduced the mean number of days in which they considered themselves depressed by approximately 17 days per 6-months. The authors concluded this was a significant increase in clinical effectiveness. The cost result showed that for each one of these additional depression free days the cost was $21.44. The cost was generated by additional prescriptions and outpatient visits for monitoring. This additional cost was judged to be moderate by Simon and colleagues. They framed the results as being comparable to other medical interventions that cost

money to complete but show clear clinical improvements. They noted they did not attempt to calculate reduction in costs that may have occurred in other arenas such as more work productivity for the individual and their respective employers.

Lou, Goddeeris, Gardiner, and Smith (2007) included some types of collateral costs that Simon et al., (2001) did not investigate. Lou et al. identified patients showing a pattern of medically unexplained symptoms dividing them into randomized control groups (N=206). The treatment condition emphasized cognitive-behavioral therapy with an increased relationship with the PC provider. Pharmacological treatments were also recorded. The patient's health maintenance organization provided results as taken from their databases. In addition the patients were interviewed regarding the amount of productive work days and out of pocket expenses that may not have been realized in the health maintenance database. The results showed that the treatment group used less medical care and missed less work than the usual care group, but the results were not shown to be statistical significant. This was true even though the treatment group had significantly more use of antidepressants.

While multiple studies reported on depression or somatic complaints, Wayne et al., (2006) focused on patients diagnosed with panic disorder. In a study of 232 patients from several different clinics, a usual care group and a treatment group were selected randomly. The treatment group received cognitive behavioral therapy (CBT) in conjunction with pharmacotherapy. The CBT was delivered within the PC setting with six sessions completed within 12 weeks. The outcome variables included total outpatient

costs, anxiety-free days (AFDs), and quality adjusted life-years (QALYs). (The QALYs measurement assesses the burden of disease including the quality and quantity of life relative to the benefit of a medical intervention). The clinical results showed significant improvements for the intervention group in the number of AFDs and in QALYs over a 12 month period. The authors referred to the improvements as "robust". (p.353) From a cost effectiveness standpoint, the authors made an interesting comparison to common medical conditions such as hypertension and the corresponding use of statin drugs. Their conclusion was that the increased costs associated with psychotropic drugs used for the panic disorder was moderate and well in line with costs commonly seen in studies done with hypertension.

Other studies supported the conclusion showing that collaborative or integrated behavioral services within PC setting lead to significant improvements with clinical symptoms with only moderate increases in overall costs (Katzelnick, 2000; Schulberg, 1997; & Simon, 2001). This is true across various populations such as those with depression, panic disorders, and somatic complaints as a primary mental health diagnosis.

One area that has received little attention is effects of an integrated system on those patients historically presenting to the emergency room or those admitted to an inpatient psychiatric hospitalization. Beren, Santiago, Zent, and Carbore (1999) found in their investigations that Medicaid enrollees with serious mental illness had a much different profile of health utilization than enrollees without mental illness. The first group used urgent care settings and ambulance services at much higher level. Speculation

coming from this study suggested those with significant mental health issues often do not have supportive systems, are inconsistent with a specific PC provider, and rarely have the ability to get to outpatient appointments. They utilized expensive emergency care for general medical and mental health needs. This cost likely is absorbed by the system as these individuals are uninsured or underinsured. The authors concluded from these findings that a coordinated effort to coordinate care between mental health and PC providers will produce more incentive for the patients to shift their preference to the outpatient setting where care can be more efficient and appropriate to their needs.

Summary

The literature review began by framing the set of circumstances that led to a separated system between physical and mental health. This chain of events contributed undesirable patterns that negatively affected the overall health and well being of individuals. New developments in the scientific and medical arena have highlighted an increasing belief there is a significant connection between emotional and behavioral states as they relate to physical health. This has guided new strategies to understand and implement integrated systems.

The integrated behavioral health paradigm is relatively new and such is ripe for various investigations on how to make effective interventions. A common staring point is the use of screens in the PC system to identify existing mental health issues. How these screens should be used, their sensitivity, and how they are implemented in already busy systems are being evaluated. Additional positions, such as those of the collaborative

mental health manager now exist to support the PCPs and mental health providers. New referral patterns will need to be developed including education to providers on the appropriateness of referrals that address not only clinical issues, but also administrative issues such as insurance networks available to individual patients. Also, protocols will need to be established between referrer and accepting agencies/individuals in order to foster appropriate communication and follow up. Finally, individual health systems will need to be confident that additional resources needed for IBH programming will be both clinically and financially viable.

The research in all of these components is new and developing. It is an exciting time for those examining the challenges and benefits of collaborative care and integrated behavioral health.

Chapter 3 will address the rationale, methods, instruments, samples, and analysis of the proposed study which is aimed at adding to the body of literature focused on the integration of mental health and primary care services. Chapter 4 will address the statistical analysis from the data gathered and chapter 5 will discuss the results and implications of the research as a whole.

CHAPTER 3: RESEARCH METHOD

Introduction

The latest Surgeon General's Report on Mental Health showed the burden that untreated behavioral health issues have both for individuals and society (U.S. Department of Health and Human Services, 1999). The report further discussed that cost to individuals is found in personal distress, difficulty in managing daily demands, and strained interpersonal relationships. From a societal perspective lost productivity in the workplace and increased healthcare utilization by those with comorbid behavioral and medical issues is staggering. For these reasons, the effective integration between traditional health care and mental health services is an overall public health priority.

This chapter includes an explanation and rationale related to the definition of IBH and the methods used in data collection. The study's design, sample characteristics, and instrumentation are discussed. Finally, ethical considerations and data analysis are addressed.

Purpose of the Study

The purpose of this study was to assess the relationship between the initiation of an IBH system and the corresponding effects as seen in a primary care medical clinic. The effects of change were hypothesized to be observed in the ability for providers to identify previously unidentified mental health issues, react effectively to these issues through referral processes, and measure rates of emergency room and inpatient psychiatric admissions from a health utilization perspective.

Research Design and Approach

The aim and approach of this study investigated how the implementation of an IBH system would impact a primary care clinic which previously had no formal mental health screening tools, protocols for assessment, or consultation resources. A secondary data archival approach using a pre–post design within providers was utilized. Harris et al. (2006) comments on the substantial use of the nonrandomized pre-post collection design in both medical and social research arenas. In a true experiment the random assignment of subjects adds great strength to the integrity of the experiment. However, as is the case in many retrospective medical studies, randomization or traditional control groups are not possible for several reasons (Harris et al. 2006) First, once the training, resources, and screening opportunities were put in place for the medical professionals it is not possible to remove this knowledge from these providers. Additionally, because efficacy has been demonstrated related to positive outcomes through the use of screens and consultations with psychiatric specialists, the clinic administration in the case of this study believed it unethical to remove these services in order to set up a traditional control group. Instead, as described by Harris et al., a "control period" (p.22) can be utilized by taking measures on the dependent variables with groups from time periods before implementations. This was accomplished in this study by collecting data from providers and their corresponding patient charts (N=324) prior to IBH implementation.

Threats to internal validity and establishing causality are always challenges to be considered when using a secondary analysis approach. In this study design, these

concerns were addressed by the use of repeated measures ANOVA at the provider level. Related to the patients there existed two independent groups. One group was associated with the pre condition prior to IBH implementation. The next group of patients was related to the post provider measures after the IBH implementation. In order to assess and compare these group characteristics on demographic levels specific tests were conducted. With regard to patient age an independent *t* test was conducted. The remaining categories including race, insurance status, and medication status, were assessed by the use of chi-square analysis. The pre group of patients was taken from a period of four months prior to the IBH implementation while the post group was generated from 4 months following the IBH implementation.

Rational for Clinic Selection

The selection of an Ob/Gyn clinic for an investigation of IBH and primary care is uncommon in the reported literature. A rationale for using a specialty clinic in this investigation will be explained. First, there has been a recognized trend in the number of women who identify their Ob/Gyn provider for their primary care needs. Cassidy, Boyle, and Lawrence (2003), reported that many women, especially those in their reproductive years, often see their Ob/Gyn exclusively for their medical concerns.

The DSM-IV-TR(2000) reported that women suffer much higher rates of reported mental illness than men as evidenced by a two times greater risk of major depression, and a three times greater risk for generalized anxiety disorders and panic disorders. In

addition, women have been found to exhibit these illnesses in somatic manners as they present to their PCP.

Despite the evidence that women use their Ob/Gyn provider for their general health needs, a problem exists in the ability to address the estimated 33% to 79% of unrecognized mental health issues for these women (Higgins, 1994). As remarked earlier in Leigh, Stewart, and Mallios (2006), only 8% of residency coordinators in obstetrics and gynecology training programs believed that psychiatric issues were covered adequately. Williams et al. (1999) reported on surveys with actual practicing primary care providers as divided by specialty. These providers were asked how confident they were in both diagnosing and treating depression in their practice. Results as gathered from family physicians showed they were "very confident" 35% of the time and "mostly confident" 48% of the time. For the internists, 15% reported they were "very confident" with "mostly confident" endorsed at 48%. Those practicing in the Ob/Gyn field reported feeling "very confident only 3% of the time and "mostly confident at a 31% result. (p. 63)

More and more women use their Ob/Gyn provider for all health concerns including mental health. However, because of inadequate training and poor support systems, these Ob/Gyn providers are less than confident in identifying and treating mental health issues (Williams et al. 1999). The implication of these circumstances is that a large segment of women who see their Ob/Gyn provider for general health purposes will have their mental health needs underserved possibly leading to even greater problems with their overall health, social, occupational, and familial functioning.

Venue

The Ob/Gyn unit selected for this study is a part of the CentraCare Health System based in St. Cloud Minnesota. The clinic is housed in a large facility that also provides primary care clinics such as family medicine and internal medicine. The CentraCare Health System is located in the central region of Minnesota. According to demographic information as reported by the CentraCare Health System, over 12 neighboring counties receive services through the health system. This translates into a pool of patients approximately 400,000 in number. Demographic information as taken from a 2003 United States Census Bureau report showed that 90% of the population in the counties served by the CentraCare Health System is classified as White. Black or African Americans are shown to represent 2.5% of the population with Asians at 3%, Hispanics at 2%, and the remaining percentage classified as other.

Specific to the Ob/Gyn clinic there are 20 providers. Of these providers, 11 are medical doctors, 7 are advanced practice nurses, and 2 are certified nurse midwifes. Ninety-nine percent of the patients seen in the clinic are 16 to 59 years of age.

The annual number of well visits for the Ob/Gyn providers in this clinic totals approximately 10,000 per year. This reflects a potential population size of approximately 800 patients per month from which to draw a sample. Given this high volume of visits and the potential for identifying important behavioral health issues for women, the rationale for using an Ob/Gyn clinic in this investigation is offered as appropriate.

Procedures

IBH definition

There are several components that define the IBH intervention as a whole. They consist of the following:

1. Formalized behavioral health screening of Ob/Gyn patients during routine well visit checks. The screening tool utilized is the Patient Health Questionnaire (PHQ).
2. A colocated licensed mental health professional is assigned specifically to the Ob/Gyn unit. The responsibilities of this Diagnostic and Referral Triage Therapist (DARTT), is to conduct diagnostic assessments, facilitate referrals for additional services, and facilitate communication between the primary care and psychiatric providers.
3. Consultation services as provided by psychiatry are established. This includes formalized procedures for consultations related to patient care. Also, regularly scheduled education components are delivered to Ob/Gyn providers from consulting psychiatrists.

Providers

There were 20 providers practicing on the Ob/Gyn unit during the study period. In order to perform a repeated measures design related to these providers it was necessary to only include those providers that were seeing patients over the 4 month periods pre and post IBH implementation. The net result is that 15 providers and the data generated from

their services were included in the study. Data were gathered from information recorded during well visits associated with patients seen by these specific providers. As a result, a specific explanation of how these patients were chosen is offered.

Patient Sample

A random selection procedure was used to identify the data retrieved for analysis. An existing protocol already being used by the CentraCare Clinic was utilized. The CentraCare system periodically conducts quality checks and other related studies using random selection techniques. For the purpose of this study, the desired number of medical record numbers were entered into a computer generated random number selector. The results directly related to existing medical record numbers linked to the selected providers. These results automatically produced a simple patient number not connected to any identifiers which aids in the eventual de-identification of the data.

Because not all providers saw an equal amount of patients throughout the time periods selected for review, the random selection generated different proportions of patient charts depending on the number of patients seen by an individual provider. The result for the pre IBH phase totaled 324 patient medical records covering a 4 month time frame from May through August 2007. No information was collected during September 2007 as this was the time when the implementation of the IBH protocols took place. Once all providers were trained in utilization of the IBH system the collection of data continued for the post IBH condition. Another 4 month time period from October 2007 through January 2008 was used to collect records for the post IBH condition. Based off the results

of the pre phase, the same amounts of random charts were selected for use corresponding to each individual provider in the post phase. For example, provider number 1 had 24 associated patient charts randomly selected in the pre IBH phase. In the post IBH phase a procedure was utilized in which patient medical records were randomly reviewed. As charts were found to be associated with provider 1 they were included in the data collection for the post phase. This continued until 24 charts were identified. Thus, provider 1 had an equal amount of charts for inclusion in both the pre and post IBH phase. This procedure was continued for the remaining 14 providers.

Prior to collection, a target sample of 80 patient charts was identified as being an adequate sample of patient charts in a one month period. It was determined this was a better procedure than taking large samples from only a 1 or 2 month period as a more dispersed sampling period could potentially control for unwanted confounding variables. The ultimate result was that 324 patient charts pre IBH and 324 patient charts post IBH were used in the analysis.

A power analysis was used based on the 15 providers. While this provider number is a relatively small number, the repeated measure design and attention to the demographics contributed to a result showing adequate power and effect potential.

Measurement

Hypothesis #1 concerned the number of discussions related to mental health issues that took place between patient and provider. The operational definition of what a discussion will be for hypothesis #1 was guided by following information. Any mention

of a discussion between provider and patient that mentions issues of depression, eating disorders concerns, anxiety, feelings of panic, chemical abuse/dependence or other related mental health concerns was coded as a mental health discussion. This discussion could have been initiated by either the patient or provider. If discussions of somatic complaints occurred they were only coded as a mental health discussion if corresponding mental health symptoms were also mentioned directly related to the somatic complaints.

It was insufficient to qualify as a discussion if the provider placed a statement such as *no psychiatric or psychological concerns noted*, in the medical record. This procedure was put in place to guard against template type entries considered to be actual discussions.

Hypothesis #2 examined the number of mental health referrals offered by providers. If a provider noted an offer of a referral it was coded as a referral. This is regardless of whether the patient accepted or declined the referral offer.

Hypothesis # 3 examined the number of patients that were seen in the emergency room as measured pre and post IBH implementation. A chart audit was completed and all emergency room visits coded as a behavioral/mental health visit were recorded for the randomly selected charts. The relative costs associated with these ER visits were compared against pre and post IBH implementation groups. The period of review included a 10 month period prior to the pre implementation phase and another 10 month period following the post implementation phase.

Hypothesis #4 examined the number of patients that were admitted for an inpatient admission as measured pre and post IBH implementation. A chart audit was completed and all inpatient psychiatric admissions were recorded for those randomly selected charts. The relative costs associated with these inpatient admissions were compared against pre and post IBH implementation groups. The period of review will include a 10 month period prior to the pre implementation phase and another 10 month period following the post implementation phase.

Instrumentation

PHQ

The Patient Health Questionnaire (PHQ) is a screening tool that has evolved from an original instrument called the PRIME-MD (Primary Care Evaluation of Mental Disorders) as developed by Spitzer, Williams, and Kroenke (1994). This original screening was widely used in clinical research, but it became evident that the time needed to incorporate this tool by providers in the primary care setting (approximately 8 minutes) took too much time. Therefore, the PHQ was developed from the PRIME-MD by these same authors as a tool that is fully self-administered by the patient. The following descriptions and validity measures are taken from Spitzer, Kroenke, and Williams (1999).

The PHQ, used as the formal mental health screening for this study, presents results that may identify eight disorders. The depression scale has sub categories of major depressive disorder and depressive syndrome. The depression scale is also the only scale in which the results can be reflected be means of severity. This scale is sometimes

referred to as the PHQ-9 as there are nine items assessing the level of depression in an individual. A score of 10 or above on this scale alerts the provider of significant depressive symptoms. As the score increases so does the intensity of recommended treatments. A panic scale exists that may also trigger a diagnosis of anxiety depending on the endorsed severity of symptoms. An eating disorder scale determines bulimia nervosa or possibly binge eating. Another scale assesses the patient for alcohol abuse. An additional scale measures somatic complaints. A *yes* for this category should be carefully assessed by the provider as it is common for patients within the primary care setting to have legitimate complaints related to physical issues that may not have a corresponding mental health issue. See Appendix A showing an example report of the PHQ in the same format as seen by providers in this study.

Spitzer et al. (1999) examined the validity of the PHQ as compared to the original PRIME-MD screening. Over 3000 patients at 8 different primary care sites were included in the results. The design called for a comparison of what diagnoses were found from the self-administered PHQ as compared to individual face to face interviews as administered by mental health professionals after the application of the PHQ. The Spitzer results showed good agreement between the PHQ and mental health professionals for diagnosis agreement, $k = 0.65$; for overall accuracy, 85%; sensitivity, 75%; and specificity, 90%; Additional outcomes were judged as significant in that the total time to review the results were less than 3 minutes on average as compared to a previous time of 8 minutes. Finally a comparison of those found to have a PHQ diagnosis showed more

functional impairment, lost work days, and health care utilization that patients who showed no diagnosis on the PHQ.

Electronic delivery platform

The PHQ as seen in Appendix A is an electronic version that can be used for screening purposes. The manner in which the patients and providers in this study experienced the PHQ will be from an electronic platform. CentraCare Clinic contracted with Patient Tools Incorporated, based out of Littleton Colorado, who provided a platform from which to deliver and score the PHQ screenings. The advantages realized by using this electronic platform included computer scoring that accurately and immediately printed results after the patient completed the survey. Additionally, a database that recorded all screens with corresponding MRN's was created that aids in monitoring results.

The general procedure for an application of the PHQ as used in this study is as follows: The patient arrived for their well visit and approached the registration desk. A registration person processed the patient for their appointment and asked the patient to complete the PHQ screening. A hand held computer was given to the patient. They read the screening items and respond by pressing the appropriate button according to their desired response. The patient then returned the hand held device to the receptionist who placed it on a docking station. The results automatically printed. This PHQ (as seen in appendix A) was then placed with the medical chart that the provider took into the well

visit. This enabled the provider to scan the results prior to entering the well visit exam room.

A use agreement was negotiated between Patient Tools, the license holders of the PHQ, and CentraCare Clinics for use of the PHQ as a part of the IBH clinical program. However, the author of this study also contacted the license holder of the PHQ in order to clarify the permission status for the PHQ to be reported upon in the study. Appendix B shows a personal email communication between the author of this study and the corporate counsel representing the PHQ. Appendix C is a general use statement that outlines the public domain status of the PHQ and the conditions for the use of this screening.

Preliminary/Descriptive Analysis

Data was entered into SPSS 16.0 for Windows. Means and standard deviations were reported for all continuous variables including ages, number of discussions, number of referrals offered, number of emergency room visits, and number of inpatient hospitalizations. Frequencies were collected for categorical data. A zero order correlation was conducted on all study variables. The main analysis was conducted by the use of a repeated measure ANOVA related to the participating medical providers. Demographic characteristics of the two groups of subjects seen by these providers were assessed through a dependent *t*-test and chi-square analysis.

Main/Inferential Analyses

Null Hypothesis (HO1):

There will be no change in the number of discussions between patients and providers related to mental health issues following the implementation of an Integrated Behavioral Health program in an Ob/Gyn primary care clinic. Discussions were measured by a chart audit specifically looking for a mention of issues as identified by the Patient Health Questionnaire screening tool that includes the following: Somatic complaints, depression, eating disorders, anxiety, panic attacks, and alcohol abuse.

Hypothesis (Ha1): There will be a significant increase in the number of discussions between patients and providers related to mental health issues following the implementation of an Integrated Behavioral Health program in an Ob/Gyn primary care clinic. Discussions will be measured by a chart audit specifically looking for a mention of issues as identified by the Patient Health Questionnaire screening tool that includes the following: Somatic complaints, depression, eating disorders, anxiety, panic attacks, and alcohol abuse.

To examine hypothesis 1—differences in the number of discussions of mental health discussions between patient and provider—by program implementation (pre vs. post), a repeated measures ANOVA, controlling for demographic variables will be conducted. The assumptions of ANOVA—normality and homogeneity of variance will be assessed for both pre and post groups (Wildt & Ahtola, 1978).

Null Hypothesis (H02): There will be no change in the number of patient referrals to mental health services, as offered from primary care providers, as measured pre and post implementation of an Integrated Behavioral Health program.

Hypothesis (Ha2): There will be a significant increase in the number of patient referrals to mental health services, as offered by primary care providers, following the implementation of an Integrated Behavioral Health Program. It is hypothesized that the number of referrals will significantly increase following the implementation of an Integrated Behavioral Health program.

To examine hypothesis 2— differences on the number of patient referrals to mental health services—by program implementation (pre vs. post), a repeated measures ANOVA, controlling for demographic variables will be conducted. The assumptions of ANOVA—normality and homogeneity of variance will be assessed for both pre and post groups (Wildt & Ahtola, 1978).

Null Hypothesis (HO3): There will be no change in the number of behaviorally related emergency room visits for the sample of Ob/Gyn primary care clinic patients following the implementation of an Integrated Behavioral Health Program. The outcome measure is the utilization costs generated by these patients related to emergency room visits.

Hypothesis (Ha3): There will be a significant decrease in behaviorally related emergency room visits for the sample of Ob/Gyn primary care clinic patients following the implementation of an Integrated Behavioral Health program. It is hypothesized that

utilization costs generated by these patients will decrease related to emergency room visits.

To examine hypothesis 3— differences on the number of emergency room visits utilization costs —by program implementation (pre vs. post), a repeated measures ANOVA, controlling for demographic variables will be conducted. The assumptions of ANOVA—normality and homogeneity of variance will be assessed for both pre and post groups (Wildt & Ahtola, 1978).

Null Hypothesis (HO4): There will be no change in the number of psychiatric inpatient admissions for the sample of Ob/Gyn primary care clinic patients following the implementation of an Integrated Behavioral Health Program. The outcome measure is the utilization costs generated by these patients related to inpatient psychiatric admissions.

Hypothesis (Ha4): There will be a significant decrease in psychiatric inpatient admissions for the sample of Ob/Gyn primary care clinic patients following the implementation of an Integrated Behavioral Health program. It is hypothesized that utilization costs generated by these patients will decrease related to inpatient psychiatric admissions.

To examine hypothesis 4— differences on the impatient psychiatric admissions utilization costs —by program implementation (pre vs. post), a repeated measures ANOVA, controlling for demographic variables will be conducted. The assumptions of ANOVA—normality and homogeneity of variance will be assessed for both pre and post groups (Wildt & Ahtola, 1978).

Ethical Considerations

Because the information collected in this study was part of an existing clinical program and the collection is archival in nature, it is presumed that informed consent was not required. This was addressed and approved via IRB review as done by both Walden University (approval number 11-10-08-0300358) and the CentraCare Health System IRB committee. The clinical program will be ongoing after the collection and analysis of the data is complete. The data gathered for analysis was retrieved from a health care clinic that is obligated to follow the Health Insurance Portability and Accountability Act (HIPAA). HIPAA has guidelines under its *Research Depositories, Databases, and the HIPAA Privacy Rule* (U.S. Department of Health and Human Services – National Institutes of Health, 2005) as it relates to archival research. The author of this study, by nature of employment within CentraCare clinic, was previously authorized to examine patient records prior to the study for performance improvement purposes. The Protected Health Information (PHI) that exists within the original participant records was de-identified prior to inclusion into the study results. In addition, the results were displayed as averages and frequencies further ensuring that individual participants will not be associated with results. This information will be secured for at least five years following the study either in the computer system of the CentraCare Clinic, or if existing in paper form, it will double locked within the confines of the Clinic.

Regarding potential influences of the investigator related to the data, it should be noted that despite the author's employment in the clinic, the author has no contact with

any patients. Also, the author was not involved in entering or determining any of the data as entered in the patient records that were later used in the analysis. Nor were the results evident to the author prior to the outcome analysis.

CHAPTER 4: RESULTS

Introduction

The purpose of this study was to quantitatively record the effects of an integrated behavioral health system (IBH) as implemented in a primary care medical unit. An IBH philosophy is a system in which primary care providers have the resources, tools, and referral systems in place to adequately address and react to mental health or behavioral needs of their patients in the primary care setting (Selden & Pavel, 1998). This includes formal liaisons with psychiatric professionals for the purposes of consultation, referral, and combined case management.

This study examined the historical problem of lack of adequate behavioral assessment and referral services within a primary care setting (Horgan, Garnick, Merrick, & Hoy, 2007). Specifically, this study examined the following research questions:

1. Will there be a significant increase in the number of discussions between patients and providers related to mental health issues following the implementation of an Integrated Behavioral Health program on an Ob/Gyn primary care clinic?
2. Will there be a significant increase in the number of patient referrals to mental health services, as offered by primary care providers, following the implementation of an Integrated Behavioral Health Program?
3. Will there be a significant decrease in behaviorally related emergency room visits for Ob/Gyn primary care clinic patients following the implementation of an Integrated Behavioral Health program?

4. Will there be a significant decrease in psychiatric inpatient admissions for Ob/Gyn primary care clinic patients following the implementation of an Integrated Behavioral Health program?

Four main directional hypotheses were considered and statistically analyzed. The data collected to test these hypotheses were generated using a pre and post measure for 15 medical providers. For the data, the number of mental health discussions between patient and provider, the number of referrals generated for the patients, the number of behaviorally related emergency room visits by patients from this primary care unit, and the number of psychiatric inpatient hospitalizations generated by a patient sample from this unit. This data were collected based on the interactions and chart reviews associated specifically with the individual providers included in this study. These 4 dependent variables were assessed prior to the implementation of the IBH system and again after the IBH condition was in effect.

The remainder of this chapter reveals the results of these analyses and presents other descriptive information gathered during the investigation. These results are reported in sections including background information on the medical providers, statistical analysis of the demographics of the independent patient groups, main effects analysis results, and a summary of the conclusions.

Provider Background

This study examined the results of interactions between a group of 15 medical providers and the patients they saw as a part of routine physicals referred to as *well visit*

appointments. Of these providers, 10 were medical doctors and 5 were advanced practice nurses. Random samples of data associated with the providers' patients were gathered from records collected over 4 months both pre and post IBH implementation. A one month period between the pre and post collection where no data were collected was utilized. This allowed for the implementation and training phase to be completed with all providers. The number of providers selected for inclusion in this study equaled 15. A pre analysis determined this would provide adequate power and effect sizes. The overall number of provider patients included for the comparisons equaled 324 in both the providers pre and the providers post phase. The result was a total of 648 patient charts reviewed. While this did not factor into the formal power analysis, the 648 data points represented approximately 30% of the population from which the data was drawn and determined adequate for the analysis.

Also, an analysis was conducted within providers as it related to physician providers versus nurse providers. While the tasks performed by both types of providers were identical for the purposes of this study, it was determined reasonable to assess if there were inherent differences in outcomes based solely on provider category (physician versus nurse). The low N generated if these groups were separated precluded an inferential analysis, but proportional analysis showed that both groups increased the amounts of discussions and referrals generated in nearly equal proportions. It was determined this would not be a confounding variable in the inferential analysis.

The use of the terms pre and post are only valid at the provider level as the dependent measures are repeated within providers pre and post. In the following demographic tables and throughout the remainder of this chapter, the patients will be referred to as Group A (corresponding to provider pre phase), and Group B (corresponding to provider post phase). This is necessary as the patients from provider pre to provider post are independent groups. The groups of patients seen by the providers in the pre IBH phase are not the same patients who were seen by the providers in the post IBH phase. This type of design was selected for practical and methodological reasons. From a practical standpoint, individuals rarely present to their medical provider more than once a year for a well visit. In fact, many individual do not schedule well visits even on a yearly basis (Laine, 2002). Attempting to measure the dependent variables on the same patients would be prohibitive. The basic philosophy of IBH is sensitive to discovery of behavioral concerns not identified previously. The placement of IBH protocols in well visit settings allows for first screenings of individuals to take place (Pigone et al., 2002). If issues are discovered of concern then an additional set of treatment protocols can be initiated. A remeasure of an individual at this subsequent time using original screening procedures would inject confounding variables from an IBH perspective.

Preliminary Statistical Analysis

Table one reflects the descriptive characteristics of the patients utilized in both the pre and post IBH conditions. The purpose of this analysis was to assess the levels of homogeneity between these groups. This is important as the design of this study utilized

data generated from two differing groups of patients as a backdrop for repeated measures of the providers' outcomes in the pre and post phase. If it was determined that the ages, ethnicity, insurance status, and medication history differed greatly at baseline levels between the two patient groups the ability to generalize results pre and post for the providers would be negatively affected. As reflected in the outcomes, all but the category of age were statistically shown to be homogeneous in nature between group A patients and group B patients. Group A was shown to be significantly older than group B, however an explanation as to why this may not be practically significant is offered under the age category following Table 1. Comparisons on each individual descriptive are offered along with the results of the specific analysis tool utilized following Table 1.

Table 1

Means and Standard Deviations for Group A and Group B by Age. Categorical Frequencies for Ethnicity, Insurance Status, and Medication Status.

	(Group A)	(Group B)	Total
Age: *M*	42.44 *	40.26	
Age: *SD*	13.33	12.39	
Ethnicity			
White	321	318	639
African American	0	2	2
Hispanic	0	2	2
Asian	3	2	5
Insurance Status			
Private	304	300	604
Government Assisted	22	16	38
No Insurance	2	4	6
Medication Status			
Not on Psych. Med.	280	279	559
No Change in Med.	24	29	53
Dose Change	6	7	13
New Medication	14	9	23

Note: * $p < .05$

Age

To assess any difference in Age by groups A or B, an independent sample *t*-test with Age as the dependent variable for Groups (A vs. B) as the grouping variable was conducted. The *t*-test was statistically significant, $t\ (646) = 2.159$, $p < .05$. Those in Group A (M=42.44, SD=13.33) were statistically older than those in Group B (M=40.26, SD=12.39). While this result is statistically significant it is noted that the partial eta squared result was .007 reflecting a small effect. Hojat and Xu (2004) address this topic specifically. They contend that the growing trend in the literature to report effect sizes in cases where sample sizes are large is appropriate. Their main point is that effect size is independent of sample size and thus gives a clearer picture as to whether a difference in means in practically significant. In the case of this study a 2.18 difference in age across 648 patients is observed. It is the contention of this author that this difference is not substantial considering the N involved and actually is positive in showing no practical significance between groups by age.

Ethnicity

A chi-square was conducted to examine the differences in Ethnicity (White, AA, Hispanic, and Asian) between Groups (A and B). The chi-square was not statistically significant, $X\ (3) = 4.241$, $p = .239$. Table 1 showed that most providers in groups A and B had similar proportions of White patients with only a variation of 2 AA patients, 2 Hispanic patients, and 1 Asian patient result between groups.

Insurance

A chi-square was conducted to examine the relationship of Insurance (Private, Government assisted, No insurance) for Groups (A and B). The chi-square was not statistically significant, $X(2) = 1.641$, $p = .440$.

Medication Status

A chi-square was conducted to examine the differences in Medication Status (Dose change, New med, No change, Not on Psychotropic medications) of Groups (A and B). The chi-square was not statistically significant, $X(3) = 1.637$, $p = .651$. Table 1 reveals that groups A and B providers had similar proportions of patients in each medication condition. This data are relevant in addressing the homogeneity between groups. For example, if one group had a significantly larger number of patients on psychotropic medications, it may follow that they would consequently have more discussions about mental health issues than the other group. This could potentially impact the hypothesis that the IBH condition was the reason for increased discussions when in fact is may have been related to past psychiatric diagnosis and medication management being more prevalent in one of the groups.

The following Spearman zero order correlations as seen in Table 2 reflect the one to one relationships for patients in group A (pre). These were conducted to assess for correlations that may have necessitated the need for additional control procedures to be utilized. As seen in Table 2 there were no significant correlations noted in the variables of Age, Ethnicity, or Insurance for group A (pre). There was an expected moderate positive

correlation observed between discussions and referrals, and discussions and medication. This correlation was expected considering that given an increase in medication or referral activities there would likely be an increase in discussions.

Table 2

Intercorrelations Among Study Variables for Group A (Pre)

Variable	1	2	3	4	5	6
1. Discussions		.327**	-.011	.047	-.011	.505**
2. Referrals			-.062	.015	.045	.059
3. Age				.062	-.022	-.050
4. Ethnicity					-.027	.038
5. Insurance						-.020
6. Medication						

** $p < .01$

Table 3 displays the zero order correlations for group B patients (post). Moderate positive correlations were noted between the discussion and referral variables and the discussion and medication variables. This is consistent with that observed in Table 1 comparisons. Additionally small correlations were noted between referrals and age and referrals and medication.

Table 3
Intercorrelations Among Study Variables for Group B (Post)

Variable	1	2	3	4	5	6
1. Discussions		.420**	.083	.000	-.094	.370**
2. Referrals			.133*	-.043	-.062	.214**
3. Age				-.036	-.103	-.023
4. Ethnicity					.065	.055
5. Insurance						-.006
6. Medication						

** $p < .01$
* $p < .05$

Inferential Statistical Analysis

This first hypothesis predicted that after the implementation of an integrated behavioral health protocol was established the providers would utilize the services, techniques, and screens, associated with this implementation. The expected result was that the number of discussions related to behavioral issues including depression, anxiety, eating disorders, panic symptoms, and alcohol abuse, would increase in the post IBH phase as compared to the amount of discussions as measured in the pre IBH phase.

To test this hypothesis a repeated-measures ANOVA addressing the Discussion condition by provider was conducted. The repeated-measures ANOVA was significant (Table 4). Examination of the means indicate that more discussions occurred in the provider post measure (Group B patient related), (M=7.13, SD=4.42) compared to the

provider pre measure (Group A, patient related), (M=4.13, SD=3.54). The actual numbers of discussions as measured by providers increased from 62 in the pre condition to 107 in the post condition.

Table 4

Repeated-measures ANOVA on Discussion by Provider (Pre, Group A; Post, Group B)

Source	df	F	Sig.	Eta	Power
Factor	1	7.810	.014	.358	.739
Error (factor1)	14	(8.643)			

Note. Number in parenthesis represents Mean Square Error.

Hypothesis 2

The second hypothesis predicted that after an implementation of an integrated behavioral health protocol was established the providers would utilize the services, techniques, and screens, associated with this implementation. The expected result was that the number of referrals for behavioral services would increase in the post IBH phase as compared to the amount of discussions as measured in the pre IBH phase.

To test this hypothesis a repeated-measures ANOVA addressing the Referral condition was conducted. The repeated-measures ANOVA was significant (Table 5). Examination of the means indicated that more referrals occurred in the provider post measure (Group B patient related), (M=1.73, SD=1.53), compared to the provider pre measure (Group A patient related), (M=0.53, SD=0.83). The actual numbers of referrals

as measured by providers increased from 8 in the pre condition to 26 in the post condition.

Table 5

Repeated-measures ANOVA on Referral by Provider (Pre, Group A; Post, Group B)

Source	df	F	Sig.	Eta	Power
Factor	1	12.393	.003	.470	.905
Error (factor1)	14	(.871)			

Note. Number in parenthesis represents Mean Square Error.

Hypothesis 3, the number of emergency room visits of a behavioral nature and hypothesis 4, the number of inpatient psychiatric admissions, were not able to be analyzed. There was only 1 ER visit and 1 inpatient admission in group A, (Pre). Group B, (Post) revealed only1 ER visit. An analysis could not be meaningfully conducted as a result of this data. Further discussion related to these variables is found in chapter 5.

Summary

The statistical analyses related to hypothesis 1 and 2 supported the conclusion that the implementation of the IBH programming resulted in significantly more discussions taking place related to behavioral/mental health issues between providers and patients, and that providers made significantly more referrals for behavioral/mental health services to their patients after the IBH programming was implemented. Chapter 5 will summarize and present further conclusions regarding the findings. It will also address the limitations

of the study, social change implications, and recommendations for additional research related to integrated care.

CHAPTER 5: DISCUSSION

Introduction

This study was conducted in order to quantify the results of an integrated program that merged behavioral and medical issues in a primary care clinic. Specifically, an Integrated Behavioral Health (IBH) model consisting of three main components was put into effect. First, formalized behavioral screening was conducted on all patients that presented for a well visit. Secondly, a licensed psychologist was assigned specifically to a primary care unit to address the behavioral needs of the patients and support the primary care providers. Finally, formalized consultation and training with psychiatric services was initiated. This included dedicated consultation times set aside enabling clinic providers to consult with a psychiatrist and trainings conducted by the psychiatry department related to medication management and diagnostic issues.

The literature supported the need to integrate mental health and physical health services. The Surgeon General's Report on Mental Health (1999) concluded that untreated mental health issues have wide ranging negative impacts on various levels in society and for individuals. The basis for the current study grew out of a realization that an increasing and substantial number of women are utilizing their Ob/Gyn providers as primary care providers, not only for their medical care, but also for their mental health needs (Cassidy, Boyle, & Lawrence, 2003). Despite this, there is strong evidence showing that primary care medical providers do not have the tools, confidence, or support to adequately assess and respond to behaviorally related issues (Williams et al., 1999).

The venue of this study was an Ob/Gyn clinic in which providers see approximately 10,000 patients annually for well visits. The design of the study was based on pre and post data taken from patient visits of 15 identified providers practicing within the Ob/Gyn clinic. Measures taken in the pre phase were used as a baseline and included the numbers of mental health discussions taking place between patient and provider and the number of referrals made for theses patients by the providers. Also, the number of emergency room visits and inpatient psychiatric hospitalizations of patients associated with the selected providers was recorded. These same measures were collected after the components of the IBH program listed above were implemented in the Ob/Gyn unit. The IBH programming was the treatment variable in this secondary analysis design. Fifteen providers were selected for inclusion in the study, and the data generated from their practice, based on patients seen, was collected and analyzed by the use of repeated measures ANOVA.

This study examined a total of four research questions. The first two questions studied addressed whether the IBH programming would generate more discussions related to mental health issues between provider and patient and whether additional referrals aimed at more in depth assessment and/or treatment would occur. The questions were assessed against the information collected in the pre IBH condition. The results showed that there was a significant increase in both the number of discussions between providers and patients and referrals generated by providers for additional services for their patients. The remaining two questions studied addressed whether patients would be

seen in the emergency room for behaviorally related issues or be admitted in the inpatient psychiatric unit in fewer numbers after the implementation of the IBH program. The results related to these questions were not analyzed due to insufficient data in both the pre and post conditions. The results for all dependent measures will be expanded upon in the following section.

Interpretations of Analyses

The literature review presented data from several different interventions designed to integrate mental health services into mainstream medicine. The results showed that efforts at integration are often piecemeal in nature with equivocal results. For example, McAlpine and Wilson (2004) discussed outcomes when screenings alone were implemented. The identified problem was that providers were reluctant to use screenings as they are uncomfortable in identifying issues in which they have little confidence and tools to treat. Other reviews looked at how effective the usual method of referring patients to psychiatric resources was working (Leigh, Stewart, & Mallios, 2006). Referrals alone were deemed problematic because of huge backlogs in the ability of mental health professionals to see patients in a timely manner. In addition, a lack of communication between the behavioral and primary care providers was shown to be problematic and a barrier in achieving the best care for the patient.

As researchers in the IBH field recognized gaps and shortcomings in the delivery of IBH services new strategies developed. One such strategy was found in a new type of position that would serve to create as a liaison between the primary care and

psychiatric/mental health specialties (Griswold et al., 2008). The literature generated related to liaison type positions was wide ranging. The qualifications and experience levels of these collaborative positions were inconsistent when considering experience, licensing requirements, and duties. For example, in a study presented by Macdonald, Mead, Bauer, Richards, and Lovell (2007) a model was discussed where a person was assigned to provide basic information to a patient describing the diagnosis they had received. The responsibility largely fell on this patient to take this information and determine what course of action would be appropriate. A different approach related to the liaison collaborative position was reported by Haslam, Haggarty, McAuley, Lehto, and Takhar (2006). They reported a collaborative position that required a licensed nurse with years of practice in the mental health field. This nurse would follow the patient for months periodically conducting assessments and determining the level of care needed for the patient. Duties included meeting with both the psychiatrist and primary care provider on a regular basis to update and report on patient progress. As a result of the wide ranging philosophies of these collaborative liaison positions the most effective approach has yet to be determined.

This study was in contrast to the efforts that have been the history of the IBH model. Several of the individual strategies used in past studies such as screening, referrals, liaison positions, and psychiatry involvement were combined in this program in an attempt to address the concerns and practical roadblocks that had been found to reduce effectiveness in past individual interventions. Within the Ob/Gyn clinic, formal

behavioral screening tools were implemented. A co-located licensed psychologist was made available for these providers to address the concern over having no referral or immediate consultative options. This psychologist also served the role of providing triage services and liaison duties. Additionally, a formal relationship was established with the psychiatry department to provide co-management opportunities for complicated cases and medication management.

Hypothesis 1

It was hypothesized that once the IBH implementation was in effect there would be more discussions of a mental health nature taking place between primary care (PC) providers and patients. The results were significant showing this was the case. In raw numbers the number of discussions between PC providers and patients totaled 62 in the pre IBH phase. In the post IBH condition 107 discussions were observed.

A strength of this study was the methodology of combining several different interventions to make the whole of the IBH program. This method does create a challenge however when the results of a specific question are put to interpretation. In the case of the increased amount of discussions, it is not clear what prompted this increase. It is offered that the increase was in fact due to the IBH intervention. However, caution must be used in attempting to pinpoint which specific part of the IBH model may have contributed more than any other part in the results. It is here that a connection to the literature may aid in interpretation. Corrigan (2004) outlined how those suffering from mental health issues feel a great weight associated with the stigma of mental illness. As a

result, they often are reluctant to mention their illness or symptoms even to their medical provider. This combined with findings by Williams et al. (1999) showing very low confidence levels in addressing mental health issues by Ob/Gyn primary care providers, indicates why few discussions may take place in the well visit setting. Given this set of circumstances it is plausible to believe that a factor in the increase of discussions was related to the initiation of the formal screening tool as done via the Patient Health Questionnaire (PHQ).

A significant change took place between pre and post assessment, with more discussions at post assessment. It is not clear what dynamic took place in the exam room regarding these discussions. It is possible that patients felt more empowered to discuss their mental health issues after the prompting of the screen. It may have been that providers with screen in hand felt better equipped to investigate their patients' behavioral concerns. Perhaps it was a combination of both. A recommendation for further research would be to conduct a parallel qualitative design addressing the factors that contributed to increased discussions.

Hypothesis 2

It was hypothesized that once the IBH conditions were in effect there would be more referrals made by the Ob/Gyn providers for their patients to receive additional assessment or treatment for mental health related issues. The results showed this did occur. Prior to the IBH implementation the identified group of providers made 8 referrals

for patients. Following the IBH implementation referrals increased by more than three times totaling 26 referrals.

As indicated earlier the results of this specific hypothesis need to be assessed using the perspective of the whole of the IBH system. It is likely that because of the added consultative and referral sources along with the screening, the providers were more comfortable in making referrals for their patients. This is borne out in the results of a zero order correlation completed on the individual variables. A positive relationship was observed showing a correlation between the variables of *Discussions* and *Referrals* in both the pre and post IBH phase. This result supports the basis that in order for additional attention to be paid to mental health issues, there first must be an avenue to start this discussion. Also of note was the relatively small positive correlation between *Referrals* and *Medication* in the post IBH phase. This weaker correlation can be viewed as a success as it relates to one of the overall aims of the IBH system within the clinic. This suggests that when the Ob/Gyn providers had a discussion about psychotropic medications with their patient they did not automatically refer the patient to an outside specialist for medication management. Instead it supports the theory that with the partnering from psychiatry and other mental health professionals, primary care providers can manage the psychotropic medication needs of their patients. This ultimately reduces the fragmented treatment planning between different providers and specialty clinics that have been prevalent in the past.

Hypothesis 3 and 4

As there were insufficient data in both the emergency room admission data and the inpatient psychiatric admission data to conduct a meaningful analysis. Specifically, only 2 ER admissions and 1 inpatient admission were observed across both patient groups. Despite this result there is room for discussion regarding this hypothesis.

The basis for including these hypotheses in this study came from the literature showing that a lack of adequate mental health care in primary care settings leads to more acute conditions for patients. This in turn leads to higher numbers of emergency room visits and inpatient psychiatric hospitalizations (Bergen, Santiago, Zent, & Carbore, 1999). The authors further suggested this leads to much higher costs as relatively standard care takes place in the expensive emergency care setting.

Because this current study is specific in looking at primary care and mental health issues with women as seen in an Ob/Gyn unit, it limits the ability to generalize out of this demographic. This fact may have contributed to the lack of instances in which behavioral emergency room or inpatient admissions were observed. A demographic snapshot of the female subjects seen by providers showed they were 98.6% white, 92% had private insurance, which is consistent with a slightly higher than average economic status of the region, and 86% of the subjects were not on any psychotropic medications at the time data was collected. In addition, it could be argued these particular patients were generally in good physical health without chronic debilitating psychiatric or medical conditions. This is based on the belief that it would be more likely that a patient with a complicated

medical history would be seeing a specialist for their medical management needs for non Ob/Gyn related issues.

There is literature to support the connection between certain demographic classifications and increased psychiatric admissions. Equede (2007) reported that individual sufferings from chronic medical disorders such as hypertension, diabetes, coronary heart disease, and congestive heart failure, also have higher incidences of major depression. This combination does lead to increased emergency room visits and potential admissions that in part are due to mental health issues. Also, race and socioeconomic status has shown to be a factor in high levels of utilization and psychiatric admissions (Lawson, Helper, Holliday, & Cuffel, 1994). The authors related how moderate to higher income white people are seen less in the emergency room and are admitted less to inpatient mental health facilities. The women in this study did align with that demographic.

If in fact the circumstances and demographic make up of this study did not present an opportunity to assess more acute psychiatric conditions, it should still be noted that the ability to identify and treat developing behavioral issues in their early stages is of great importance and one of the general tenants of any IBH program.

Validity Considerations

The setting of this study was that of a medically based clinic. Harris et al. (2006), comments that studies coming out of medical based sites often are rarely true experiments in nature. This is a result of the inability to randomize patients that are

coming for medical treatments. Additionally, when new programming or interventions are implemented control groups are not always feasible. This prompts researchers to use groups of patients not exposed to a treatment modality as a control group. This study fits into several factors described by Harris et al. (2006). Specifically, this design is based on a pre post measure as it relates to the IBH program pre and post implementation. The participants, who are the providers, are consistent pre to post. However, the patients seen by the providers pre are not the same patients as seen by the providers post. Therefore, the different groups of patients may be thought of in the sense Harris describes when he discusses one group of patients not being exposed to a treatment modality (in this case the IBH program) as compared to the post group of patients who were exposed under the IBH programming. Given these sets of factors, a closer examination of possible internal validity threats related to this study is examined using issues as presented by Eckert (2000).

Eckert (2000) provided a guide from which to assess internal validity issues in studies of this design. He stated that some experimental designs, while not true experiments in nature, may still be considered sound if the threats he outlines are not plausible considering the nature of the study conditions. The following are his 7 examples of potential threats with assessments of how they fit into this current study:

1. Eckert (2000) described a category called *history* that sometimes impacts the validity of a study. More specifically he related this to a change producing effect that may alter the way in which subjects learn or respond between the pre and

post collection period. For example, if trainings had been taking place during the terrorist attacks of September 11th, the post measures could have been affected as subjects may have been distracted less inclined to answer or respond in the same frame of mind as they did during the pre phase measure. No such events or circumstances took place during the time period of this study.

2. *Maturation* is another identified factor by Eckert (2000). This can be critical when the subjects may physically or emotionally mature over time. An example would be children measured on developmental or physical development criteria. Any significant changes during the time of collection could skew the results. Also, maturation may refer to the subjects becoming bored with the intervention. In this study there is no reason to believe that any physical or emotional issues were relevant to the change in programming. From a fatigue perspective it is unlikely any effect took place considering that the interaction specific to IBH issues would be conducted as a part of the usual proceedings of the well visit and not different in kind than a usual provider patient visit.

3. A third validity consideration is that of *testing*. Testing effects are those were a pre test given as a means to later measure learning. No such pre test was used in the design of this study.

4. An important factor in assessing outcomes in a design is related to the *instrumentation* used to measure results. This can be an issue if there is an inherent difference or inequality in the instrument used to measure results pre and

post. In this case the pre and post measures were carefully defined and used for both pre and post measures. There was no mechanical nature in the data collection that could have skewed results as the collection was a manual review of outcomes.

5. *Regression* toward the mean has sometimes been identified as a confounding factor in pre post designs. If extreme scores are chosen in either the pre or post c condition a natural progression toward the mean may obscure true treatment effects. This would most likely happen with a small sample size or data taken f from a very narrow time frame. This particular study sampled data from over an 8 month period and nearly 650 individual patient results. Therefore, it is highly unlikely that regression issues would have affected the validity of the study.

6. In this current study the most likely internal validity threat is found in what Eckert would term *selection* bias. This is true because while this study does use a repeated measure design with providers, it also utilized patients associated with these providers that are independent in nature across the pre and post conditions. Theoretically, if these groups were very different in nature on demographic or other such variables the comparisons on the dependent variables for the providers, as based from their patients, could threaten internal validity. With this in mind, several statistical analyses were performed to assess the homogeneity between patient groups. As described in the analysis section it was determined that these

groups were similar in make up and therefore it was appropriate to use them in the pre and post analysis.

7. The final threat as touched on by Eckert (2000) is that of participant *mortality.* By mortality he is referring to group members dropping out of the study for various reasons. Sometimes this drop out is not random but based on certain characteristics that would have a direct effect on the validity of the outcome measure. The current study was designed so that only the providers that were consistent between pre and post groups were included.

One issue not touched on by Eckert (2000) that should be addressed for this study is that of potential validity threats by the use of incentives. For example, in clinic settings there are occasions where individuals or group incentives are put into effect. Often times these have to do with a unit's quality improvement plans or individual performance goals. It should be noted that in the case of this study there were no incentives for the providers related to increasing the number of discussions or referrals related to behavioral issues. In fact, there was no direct feedback given to any of the providers as the IBH program was implemented concerning outcomes of the dependent variables. Providers simply used the IBH program as they felt it was clinically appropriate.

Related to the issue of provider feedback and knowledge of results, is the idea of how the individual characteristics of the providers may have impacted the results of this study. While this study specifically looked at patient demographics and how homogeneous the two patients groups were, it conspicuously did not include provider

demographics such as gender, length of time in practice, age, race, or where they received training. The use of these provider variables was excluded for two main reasons. First, the clinic site was that of a busy community clinic. There had been no precedent for conducting academic research protocols within this setting previously. After some initial exploration by this author, it was determined that the providers were not universally open to providing the information needed to add provider characteristics to the analysis. It was feared that pressing this issue may result in providers declining to provide the requested information for the study thus reducing an already minimal provider number.

A second reason for excluding provider demographics was that related to potential observer effect. By explaining to the providers' that their individual results would be monitored it was deemed possible they would behave in a different manner possibly inflating results. As noted by Risinger, Saks, Thompson, and Rosenthal, (2002) observer effects related to the expectations of the professional delivering services have been shown to have a "dramatic effect" (p. 1) on outcomes. Given the intent was to measure how IBH would work in the daily activity of clinic operations, it was determined that a lower profile would lesson possible confounding variables.

Recommendations for Further Actions and Study

The recommendations for further actions and study present themselves by looking at some of the limitations of this current study. There is literature suggesting that demographic variables such as race and gender play an important role in who is identified accurately as having mental health issues. Borowsky et al., (2001) related the findings

regarding detection rates of mental health screens. Their results showed that African American, Hispanic, and males, are often under identified despite having significant mental health issues. Also, it was evident that physician attitudes toward counseling affected the likelihood of detecting depression issues. This current study was not able to touch on these issues because of a lack of diversity among ethnicity and gender and no information on provider attitudes. It is recommended that the fundamentals of this study should be expanded to more diverse populations.

Expansion of this study should also be considered not only on demographic levels but also levels of medical condition and age. By expanding the IBH programming to older individuals it will introduce a new set of coexisting medical concerns. Equede (2007) cited earlier in this chapter spoke to how chronic medical conditions are often correlated with mental health concerns.

The results of this study and others that have examined IBH programming should be disseminated in several different areas. First, the training programs for medical providers should include the evidence based results showing how the integration of mental health and traditional medicine is beneficial to both individuals and health systems. This has begun as commented on by Levant and Heldring (2007), yet recent reviews of insurance plans show only about 35% of plans require any mental health screening as a part of their protocols (Horgan, Garnick, Merrick, & Hoyt, 2007).

For the already established practitioner or health system, a need exists for administration or individual champions of integration models to present information and establish working models that can be implemented into existing clinic and hospital settings.

Implications for Social Change

The historical separation between physical and mental health has become outdated and counterproductive to the health of individuals and society. For a long time the connection between physical and emotional health was invisible. Increasing technologies and research are now showing that emotional and physical states are intertwined to make up the overall health of an individual.

The implications for social change when integration becomes fundamental to our health systems are anticipated to be wide ranging. The normalization and removal of the stigma associated with mental health issues can gain momentum when behavioral issues become a part of any standard health assessment. The stigma of character flaws may be replaced by current neuropsychiatric research explaining the origin or contributory factors of certain mental illnesses. Early detection of anxiety, depression, eating disorders, and other such issues as discovered in medical well visits will provide for a much better chance at treatment before catastrophic conditions develop. These positive effects will not only be seen for the individuals but also radiate to family, friends, children, and others. The impact on community systems will also likely see positive results. As early recognition and treatment occurs strain can be reduced in care facilities and disability programming.

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APPENDIX A

PATIENT HEATLH QUESTIONNAIRE EXAMPLE

PHQ

Name: Jane Doe **Reviewed by:**

ID Number: 123456 **Age:** 30

Gender: Female **Education:** Some college or technical school

Relation: single **Race:** White

Date:

PHQ Summary

Somatoform Disorder	**No**
Major Depressive Syndrome	**Yes**
Other Depressive Syndrome	**No**
PHQ9 Score	**15**
Panic Syndrome	**No**
Other Anxiety Syndrome	**Yes**
Bulimia Nervosa	**No**
Binge Eating Disorder	**No**
Alcohol abuse	**Yes**

PHQ **ID Number:**

Somatic Section

During the last 4 weeks...

1a.	Stomach pain	Not bothered at all
1b.	Back pain	Not bothered at all
1c.	Pain in your arms, legs, or joints (knees, hips, etc.)	Bothered a little
1d.	Menstrual cramps or other problems with your period	Not bothered at all
1e.	Pain or problems during sexual intercourse	**Bothered a lot**
1f.	Headaches	Not bothered at all
1g.	Chest pain	Not bothered at all
1h.	Dizziness	Not bothered at all
1i.	Fainting spells	Not bothered at all
1j.	Feeling your heart pound or race	Bothered a little
1k.	Shortness of breath	Bothered a little
1l.	Constipation, loose bowels, or diarrhea	Not bothered at all
1m.	Nausea, gas, or indigestion	Not bothered at all

Depression Section

Over the past 2 weeks...

2.1.	Little interest or pleasure in doing things	**More than half the days**
2.2.	Feeling down, depressed, or hopeless	Nearly every day
2.3.	Trouble falling or staying asleep, or sleeping too much	Nearly every day

2.4. Feeling tired or having little energy **More than half the days**

2.5. Poor appetite or overeating Several days

2.6. Feeling bad about yourself--or that you are a failure or have let yourself or your family down Several days

2.7. Trouble concentrating on things, such as reading the newspaper or watching television **More than half the days**

2.8. Moving or speaking so slowly that other people could have noticed. Or the opposite-- being so fidgety or restless that you have been moving around a lot more than usual several days

2.9. Thoughts that you would be better off dead, or hurting yourself in some way Not at all

PHQ

Anxiety Section

3a. In the last 4 weeks, have you had an anxiety attack - suddenly feeling fear or panic? **Yes**

3b. Has this ever happened before? **Yes**

3c. Do some of these attacks come suddenly out of the blue - that is, in situations where you don't expect to be nervous or uncomfortable? No

3d. Do these attacks bother you a lot or are you worried about having another attack? No

Anxiety Attack

Think about you last bad anxiety attack.

4a. Were you short of breath? No

4b. Did your heart race, pound, or skip? **Yes**

4c. Did you have chest pain or pressure? No

4d. Did you sweat? No

4e. Did you feel as if you were choking? No

4f. Did you have hot flashes or chills? No

4g. Did you have nausea or an upset stomach, or the feeling that you were going to have diarrhea? No

4h. Did you feel dizzy, unsteady, or faint? **Yes**

4i. Did you have tingling or numbness in parts of your body? No

4j. Did you tremble or shake? **Yes**

4k. Were you afraid you were dying? No

Other Anxiety Syndrome

Over the past 4 weeks, how often have you been bothered by ...

5a. Feeling nervous, anxious, on edge, or worrying a lot about different things **More than half the days**

5b. Feeling restless so that it is hard to sit still **More than half the days**

5c. Getting tired very easily **More than half the days**

5d. Muscle tension, aches, or soreness Not at all

5e. Trouble falling asleep or staying asleep **More than half the days**

5f. Trouble concentrating on things, such as reading a book, watching TV **More than half the days**

5g. Becoming easily annoyed or irritable **More than half the days**

PHQ

Eating

6a. Do you often feel that you can't control what or how much you eat? No

Alcohol

9. Do you ever drink alcohol (including beer or wine)? **Yes**

Has the following happened to you more than once in the last 6 months?

10a. You drank alcohol even though your doctor suggested that you stop drinking because of a problem with your health No

10b. You drank alcohol, were high from alcohol, or hung over while you were working, going to school, or taking care of children or other responsibilities No

10c. You missed or were late for work, school, or other activities because you were drinking or hung over	**Yes**
10d. You had a problem getting along with other people while you were drinking	No
10e. You drove a car after having several drinks or after drinking too much	No

Impact on Life/Work

11. If you checked any problems on this questionnaire, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people? **Somewhat difficult**

Intimate Relationships/Health

During the last 4 weeks, how often have you been bothered by ...

12a. Worrying about your health	Not bothered at all
12b. Your weight or how you look	Not bothered at all
12c. Little or no sexual desire or pleasure during sex	**Bothered a little**
12d. Difficulties with husband/wife, partner/lover or boyfriend/girlfriend	**Bothered a lot**
12e. The stress of taking care of children, parents or other family members	Not bothered at all
12f. Stress at work or outside of the home or at school	**Bothered a little**
12g. Financial problems or worries	**Bothered a little**
12h. Having no one to turn to when you have a problem	**Bothered a little**
12i. Something bad that happened recently	**Bothered a lot**
12j. Thinking or dreaming about something terrible that happened to you in the past - like your house being destroyed, a severe accident, being hit or assaulted, or being forced to commit a sexual act	**Bothered a little**
13. In the last year, have you been hit, slapped, kicked or otherwise physically hurt by someone, or has anyone forced you to have an unwanted sexual act?	No

Stressful

14. What is the most stressful thing in your life right now? _____

_____

_____

Medicine

15. Are you taking any medicine for anxiety, depression or stress?	No

Menstruation, pregnancy and childbirth.

16a. Which best describes your menstrual periods?	Periods are unchanged
16b. During the week before your period starts; do you have a serious problem with your mood - like depression, anxiety, irritability anger or mood?	No
16c. Have you given birth within the last 6 months?	No
16d. Have you had a miscarriage within the last 6 months?	No
16e. Are you having difficulty getting pregnant?	No

APPENDIX B

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Dear Mr. Moritz,

Thank you for your request. Please review the conditions of use at phqscreeners.com, which should enable you to use PHQ for research purposes without further permission from Pfizer. Please contact me with any questions.

Regards,

Chris

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APPENDIX C

TERMS OF PATIENT HEALTH QUESTIONNAIRE USE

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Since the questionnaire relies on patient self-report, all responses should be verified by the clinician and a definitive diagnosis made on clinical grounds, taking into account how well the patient understood the questionnaire, as well as other relevant information from the patient. Diagnoses of Major Depressive Disorder or Other Depressive Disorder also require impairment of social, occupational, or other important areas of functioning (Question #10) and ruling out normal bereavement, a history of a Manic Episode (Bipolar Disorder), and a physical disorder, medication, or other drug as the biological cause of the depressive symptoms.

Dean J. Moritz, M.S.
Curriculum Vitae

e-mail: djm@warpdriveonline.com

ACADEMIC EXPERIENCE

2005-Present Candidate for Doctor of Philosophy – Health Psychology, **Walden University**, Minneapolis, Minnesota

1990-1992 Master of Science – Applied Behavior Analysis, **St. Cloud State University,** St. Cloud, Minnesota

1985-1989 Bachelor of Science – Psychology, **St. Cloud State University,** St. Cloud, Minnesota. International student, Alnwick, England 1987

RELEVANT PROFESSIONAL EXPERIENCE

2007-Present **Integrated Behavioral Health Coordinator**
Centracare Health System

Responsible for integrating mental health and primary care services throughout clinic system; selection and training of behavioral tools; monitoring statistics and service trends; maintain electronic platforms used for screenings; represent organization and provide outreach services.

1995-2000 **Counseling Manager/Psychotherapist**
St. Joseph Hospital – Health East Care System

Provided diagnostic assessments and individual/group therapy on adolescent dual diagnosis unit; system wide trainer for crisis response; managed a staff of 30 professionals; directed staffing and budgetary planning.

1992-1995 **Residential and In-Home Family Therapist**
St. Cloud Children's Home

Developed behavioral treatment planning for patients and families; conducted chemical dependency assessments and consulted on scholastic individual treatment plans; completed placement assessments for county and state agencies.

ASSOCIATED PROFESSIONAL EXPERIENCE

1991-1992 **Graduate Instructor**
St. Cloud State University, St. Cloud, Minnesota

Responsible for teaching the laboratory section of "Principles of Behavior" to undergraduate students in the School of Psychology.

1998-1999 ***Guest Lecturer***
St. Paul Technical College

Provided presentations and lectures for technical college students enrolled in EMT-paramedic classes related to assessing and managing patients with mental health disorders while in the field.

COMMUNITY SERVICE EXPERIENCE

2004 **Board Member of Tri-County Crime Stoppers**
Sartell, Minnesota

Voting member on the Board with the mission of alerting the public to crime related activities, collaboration with local law enforcement and media outlets; providing rewards for help in solving crimes; education on safety awareness and security issues.

RESEARCH AND CLINICAL INTERESTS

Psychoneuroimmunology related to primary care; integration of behavioral health into the mainstream medical setting; PTSD specifically in military and police settings; performance improvement strategies for athletes.

REFERENCES

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