

Abstract

Integrated Primary Care: A Systematic Review of Study Design and Program Characteristics

By

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March, 2012

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Integrated primary care (IPC), the integration of medical and behavioral health professionals, is a viable part of the solution for the United States' fragmented health care delivery system. Over the past decade or so, efforts have been made to examine the theory behind and effectiveness of this health care framework. As researchers and program developers continue to examine the impact of IPC on patient populations, it is becoming increasingly important to highlight the study design and program characteristic trends of IPC to ascertain the next steps in research development. This researcher sought to identify those trends by using a systematic review design to examine studies of IPC. Of the two systematic reviews conducted for this dissertation, the first review includes information from 112 articles regarding study design, sampling procedure, patient population characteristics, treatment outcome, geographical setting, and psychosocial measurement. The findings of this review indicate that a majority of researchers examined depression outcomes using experimental designs and that the average participant in such studies was a Caucasian female in her early 50s. Moreover, the researcher found that almost none of the IPC programs were oriented towards family systems. For the second systematic review, the researcher extracted data from 76 of the 112 articles to examine the characteristics of each IPC program including communication practices, models,

interventions, provider type, training and supervision practices, and setting. Findings from this review show that most IPC programs include psychoeducation, medication, follow-up contacts, psychotherapy, and at least one care management strategy as part of treatment but that less than half of researchers are reporting communication between providers and even fewer are reporting collaboration practices. Moreover, the findings indicate that a third of researchers trained and/or supervised behavioral health providers to work in an IPC program, and a fourth recruited nurses as behavioral health providers. Suggestions for future research include more diverse research methods and patient populations as well as a focus on increasing communication and collaboration between providers.

INTEGRATED PRIMARY CARE: A SYSTEMATIC REVIEW OF STUDY DESIGN AND
PROGRAM CHARACTERISTICS

A Dissertation Presented to the
Faculty of the Department of Child Development and Family Relations
East Carolina University

In Partial Fulfillment of the Requirements for the Degree of
Doctor of Philosophy in Medical Family Therapy

by

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March, 2012

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DEDICATION

"It is more important to know what sort of person has a disease than to know what sort of disease a person has." -Hippocrates (460-377 B.C.)

This paper is dedicated to the many clients and patients who have taught me more about living, suffering, healing, recovering, forgiving, loving, and accepting than any library of books ever could.

ACKNOWLEDGEMENTS

Many minds and hands have helped in the development of this dissertation. I would like to acknowledge and thank the members of my committee for the vision and support they have given during this dissertation process. I extend my utmost gratitude to Dr. Mark White for his calm and steady support, especially for treading in waters that were unfamiliar to both of us. I am a better writer and thinker because of him. I also owe many thanks to Dr. Jennifer Hodgson for her inspiration and foresight and to Dr. Angela Lamson for her energy and commitment. Also, I am sincerely grateful to Dr. Irons for his humor and for providing a much needed “real-world” perspective. It is difficult to verbally express the mentorship and inspiration this terrific committee has provided me during this writing process. Thank you all very much!

I would also like to thank Amelia Muse who so quickly volunteered as a second reviewer of my findings. Her effort to validate my findings helped me to sleep better at night.

I would also like to acknowledge the support of Dr. Bill Gunn and Joni Haley, my supervisors at the Family Health Center in Concord, New Hampshire, who allowed me the extra time and space to chip away at this paper in the midst of a busy internship experience. I especially am grateful to Dr. Gunn for reviewing an earlier draft of the second article.

Additionally, I would like to thank my fellow graduate students and other instructors at East Carolina University who challenged and inspired me to reach for new ideas and perspectives. I am also very grateful for my eternal companion and biggest fan, Mica, who always gave me the space and time I needed to work on this paper at home. Thanks for not sending me to the library!

Finally, I give thanks to my Heavenly Father who gave me the mind to think and act for myself and not to be acted upon.

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PREFACE

My first experience in primary care as a medical family therapist began in the Medical Family Therapy (MedFT) doctoral program at East Carolina University. It was from this initial experience that I decided to research Integrated Primary Care (IPC) so that I might better understand the findings and programs of this growing body of research as well as the evidence supporting IPC effectiveness. My original intention for researching IPC was to lay the groundwork for another research project involving the integration of medical family therapy interns into rural primary care centers. Yet, I soon found during a cursory search of IPC literature that there were many answers and, more importantly, many questions still surrounding this innovative health care delivery system. I became fascinated with the growing array of programs and interventions that had been developed in the name of collaborative care and decided that a systemic review of study designs and program characteristics would provide a much needed profile of the research trends. The two systematic reviews in this dissertation represent the fruit of that decision.

The findings of these reviews will hopefully provide a profile that will guide future researchers in addressing some of the questions related to IPC. In regard to this dissertation, though, there are two specific, albeit idiosyncratic, preliminary questions. First, how does MedFT relate to integrated primary care? Second, why should MedFT professionals be involved in IPC? These are valid questions because this is, after all, the first doctoral program in the burgeoning field of MedFT and the work of MedFT students and faculty alike should either directly or indirectly support the development of the expanding MedFT profession. I believe that the answers to these questions are part of the solution to improving the design and practice of integrated primary care as well as part of the refinement process to grow the practice and

profession of MedFT. In this preface I will briefly explore the important relationship between MedFT and the developing research program of integrated primary care. I will begin by briefly describing the history of and conceptual framework behind medical family therapy. Following this, I will attempt to delineate the role that MedFT principles and professionals can play in improving the primary care delivery system through clinical work and research.

The Role of Medical Family Therapy in IPC Research

Brief History of Medical Family Therapy

The relationship between family therapy and medicine is not new. Family therapists have been working in medical settings since at least the 1970s and in family medicine training sites since the 1980s (Doherty, McDaniel, & Hepworth, 1994). Indeed, some of the early pioneers in family therapy were trained as physicians (e.g., Nathan Ackerman, Murray Bowen, and Salvador Minuchin) and many of them did not even conceptualize medical and behavioral health as being separate entities (Anderson, Huff, & Hodgson, 2008). In the early 1990s, the term “Medical Family Therapy” was coined by McDaniel, Hepworth, and Doherty in a primer text that defined MedFT and described some of the underlying principles including agency and communion (1992). The authors of this seminal work were family therapists who were familiar with medical practice and saw a need for injecting family therapy ideas into medicine. Since that inception, at least ten MedFT training opportunities have arisen to prepare family therapists to work with patients in medical settings (Tyndall, Hodgson, Lamson, White, & Knight, 2012). These include two doctoral degrees, one master’s degree with an emphasis in MedFT, and seven certificate or internship programs. It is fair to say that these training programs have perhaps provided the strongest impetus for MedFT development. In addition to clinical training, the research literature of MedFT has also grown. Authors of one study found 82 articles from the period of 1992 to

2011 that included mainly case studies, theoretical conceptualizations, and descriptive studies (Tyndall et al., 2012). To date, there are no efficacy or effectiveness studies of MedFT.

Although the relationship between family therapy and medicine is still growing, it is a fruitful relationship that requires continual support and advocacy especially as MedFT research and training continues in medical settings.

Beyond research and training, MedFT today is a vibrant and growing new profession. There is a MedFT blog within the Collaborative Family Healthcare Association website (CFHA, 2012) and a Facebook page devoted to MedFT that links participants to information and other professionals related to the field. Some academic research journals have devoted entire issues to MedFT (*Families, Systems, & Health; Contemporary Family Therapy*) and there have been a number of conferences promoting the work of practicing MedFTs. In addition, many graduates of MedFT training programs (both certificate and degree) are obtaining positions in academic institutions and working alongside professionals from other disciplines, including those within medical schools. Some may find positions working in primary care clinics while others may be placed in tertiary care settings. These interdisciplinary connections and various placements will certainly advance the ideas of the MedFT field. To be sure, the profession will continue to grow as formal MedFT training programs fill the ranks of other institutions and as research programs are developed to publish the ideas and outcomes of MedFT.

In addition to the enthusiasm of an expanding profession, there are a few challenges related to the professional development and research efforts of MedFT. Tyndall et al. (2012) suggested that MedFT still lacks a core curriculum for training as well as a consistently agreed upon and promoted definition. In regard to the former, many questions linger about the core courses and competencies of MedFT training in addition to speculation about the qualitative

differences between a graduate of a MedFT degree program and a graduate of a MedFT certificate program. As to the former, efforts have been made to create a consensual definition of MedFT (Tyndall, Hodgson, Lamson, Knight, & White, 2010) but it will take time for this definition to translate into consistent training and practice. Undoubtedly, this is an exciting time to be part of and witness to the development of MedFT, which I consider to be a subspecialty of Marriage and Family Therapy (MFT) and an important part of the evolution of the health care delivery system.

Conceptual Framework

McDaniel, Hepworth, and Doherty defined MedFT as the “biopsychosocial treatment of individuals and families who are dealing with medical problems” (1992, p. 2) and identified *agency* and *communion* as being foundational principles of that treatment. Tyndall et al., as a result of an extensive Delphi study, defined MedFT as “an approach to healthcare sourced from a BPS-S [biopsychosocial-spiritual] perspective and marriage and family therapy, but also informed by systems theory” that “spans a variety of clinical settings with a strong focus on the relationships of the patient and the collaboration between and among the healthcare providers and the patient” (2010, pp. 68-69). Moreover, “MedFTs are endorsers of patient agency and facilitators of healthy workplace dynamics” (p. 69).

The word biopsychosocial (BPS) comes from the model developed by George Engel (1977) as an alternative to the medical model. According to the BPS model, an illness affects all levels, such that “each biological problem has psychosocial consequences, and each psychosocial problem has biological correlates” (McDaniel, Campbell, & Seaburn, 1995, p. 117). The BPS model was designed as a direct response to the biomedical model in an effort to view human beings, specifically patients, from a more holistic perspective. The “spiritual” construct was later

added by some researchers to denote the beliefs and meaning connected to a person's health (Anderson et al., 2008; Wright, Watson, & Bell, 1996). MedFTs use this biopsychosocial-spiritual framework to understand the multiple influences that exist within a patient's world and to identify that point at which an intervention may be effective. Moreover, it is within this context that the principles agency and communion become significant and useful.

The first principle, agency, refers to the active involvement of a patient in her healthcare and the personal liberty she retains in making choices regarding her treatment. Agency empowers a patient to act for herself to choose what parts of her health upon which she can focus her energy and attention. It also acts as a buffer from pathologizing and stigmatizing attitudes such that the patient is viewed as a whole person (via a biopsychosocial-spiritual lens), fully capable of receiving adequate care and professional consultation as well as making healthcare decisions. This is directly opposed to the perspective that the patient is "resistant," "unmotivated," and uninterested in improving her quality of life. The acknowledgement and support of agency has an additional side effect in that the medical provider is also at decreased risk for being pathologized by the patient but instead seen as a respecter of choice and dignity.

The second principle, communion, alludes to the emotional bonds that connect a patient with his family members, friends, and medical care team as well as to the negative and positive effects that health states can have on those bonds. In the spirit of communion, a family member or provider can ask "What can I do to help improve your quality of life" or say "We are facing this together." Moreover, communion can help create shared responsibility and diffuse feelings of loneliness and insecurity. Indeed, there is an abundance of research supporting the health implications of strong social support (Kiecolt-Glaser, 1999; Kiecolt-Glaser & Newton, 2001). In practice, both of these principles help MedFTs to empower patients and family members to be

active participants in treatment and to encourage providers to recognize the psychosocial and spiritual elements of the whole patient.

A third principle that is considered foundational in MedFT literature is interdisciplinary collaboration (McDaniel et al., 1995; Ruddy & McDaniel, 2003; Tyndall et al., 2012; Tyndall et al., 2010). This important asset encourages MedFTs to network and build relationships with other providers and medical staff members. Such collaboration can take place through informal meetings (e.g., “curbside” consultations, lunch time), information systems (e.g., electronic medical records), and formal meetings (e.g., team meetings for case review). MedFTs, especially those with an MFT background, are experts in facilitating communication and relationship building whether in a patient system or in a medical staff system. This expertise is a result of systems theory and its clinical application and can become a valuable asset in primary care. MedFTs can capitalize on these skills through formal training programs and through the growing literature of interdisciplinary collaboration competencies (O’Donohue, Cummings, & Cummings, 2009; Patterson, Peek, Heinrich, Bischoff, & Scherger, 2002; Robinson & Reiter, 2007; Strosahl, 2005).

One thing that is clear from these foundational principles is that MedFT has become not just about working with a family system in a medical setting. Rather, it is the purposeful extension of family therapy practices and principles into both the clinical and operational world of modern medicine, whether in primary care or specialty care settings. Perhaps it is within the current evolution of primary care treatment and research (e.g., patient-centered medical home, integrated primary care) that MedFT can continue to refine its principles and practice while also clarifying the parameters of the profession. Indeed, primary care may be the ideal place for MedFT to be cultivated and promoted through both clinical practice and rigorous research. In

regard to the latter application, I believe that MedFT research holds great potential for infusing the integrated primary care field with energy and vision through an emphasis on the principles of agency, communion, and collaboration. In the final section of this chapter, I will describe some ways in which MedFTs can contribute to the growing IPC literature.

Medical Family Therapy and Primary Care

To date, there is a small body of literature by MedFTs that offers a promising start to the impact that MedFTs can have on integrated primary care. A few researchers have begun recognizing and highlighting the skills that MedFTs can bring to primary care settings (Fox, Hodgson, Irons, Knight, Lamson, & White, 2011; Marlowe, Hodgson, Lamson, White, & Irons, 2011). Additionally, one of the primer texts on behavioral health integration and collaboration was spearheaded by family therapists (Patterson et al., 2002). According to Fox et al. (2011), MedFTs are aptly suited for working within the constraints of the clinical, operational, and financial worlds of primary care. Indeed, this Three World View (Peek, 2008) allows MedFTs and other behavioral health providers to integrate themselves successfully in ways that they can implement systemic change that benefits all stakeholders (i.e., physicians, clinic managers, and financiers). Marlowe et al. (2011) offered an integrated primary care model that includes components of introducing behavioral health services, eliciting the patient's perspective on his or her health, a behavioral health intervention, communication between providers, and even conjoint sessions with patient and providers. Research efforts such as these are hopefully part of the beginning contribution of MedFT professionals to primary care. The following additional suggestions are organized by MedFT principles.

Agency. Agency support is the intentional activation of patient choice and is not an end in and of itself; rather, it is a means for connecting a patient with what is important to her.

Primary care providers (both medical and behavioral health) have an obligation to support agency. However, it remains unclear what this kind of support actually looks like in a routine medical appointment. Future MedFT researchers can clarify the operationalization of agency through qualitative research that examines the underlying theoretical framework of this concept as well as the manifestation of its practice. This can be done by eliciting patient and provider perspectives on agency, creating measures of agency based on those perspectives, identifying the psychometric properties of those measures, and then developing interventions and training protocols for enhancing agency. The findings of this dissertation show that IPC research is severely lacking qualitative methods that can help to expand and elucidate key components of collaboration like agency; herein lies an opportune moment for MedFTs. Developing a clear conceptual and operational definition of agency will help to improve the collaboration practices of patients and providers. MedFTs should be a part of that development.

Moreover, MedFTs can be part of the growing development of the Patient-Centered Medical Home (PCMH) model (Peek & Oftedahl, 2010) especially in implementing behavioral health components of this model (Hunter & Goodie, 2010). Peek and Oftedahl (2010) consider patient-centered as being person- and family-centered and define a healing relationship as being valuing (i.e., non-judgmental), appreciating in power (i.e., partnering), and abiding (i.e., accessibility, commitment). These all could be considered components of the agency construct. MedFTs can help to translate these PCMH model components into measurable and teachable primary care practices through excellent research.

Communion. The MedFT principle of communion suggests that patients benefit from improved relations with providers and family members. One major finding of this dissertation is that there is a paucity of family-centered care in IPC programs and research. This may be for a

number of different reasons including training and provider background, financial sustainability, and outcome measurability. However, family-centered primary care is a promising approach to treating patients systemically and holistically (McDaniel, Campbell, Hepworth, & Lorenz, 2005; Rolland & Walsh, 2005). Although it may be difficult to always physically include family members in primary care, some authors argue that “a family orientation has more to do with how one thinks about the patient than it does with how many people are in the exam room” (McDaniel et al., 2005, p. 43). According to the findings of this dissertation, most IPC researchers are not working from a family orientation. MedFTs can help other researchers and providers to think systemically in designing programs that recognize “the importance and pain of all family members and galvanizes their potential as a powerful psychosocial unit in the treatment process” (Rolland & Walsh, 2005, p. 286). Research ideas for enhancing communion include the following: developing protocols for strengthening the patient-provider bond through either consultation or intervention; creating treatment protocols for including family members in primary care; developing clinical training programs for non-MedFT primary care practitioners; and demonstrating the clinical effectiveness of family-centered care. Thus far, it seems that family-centered care is more the exception in IPC research than the norm. MedFTs must consistently advocate for this approach formally (e.g., conferences, research publications) and informally (e.g., professional conversations, consultations).

Collaboration. Collaboration, from a MedFT perspective, is a vital component for delivering systemic and effective health care treatment. Currently, it is difficult to ascertain the best practices of collaboration based on the literature (Hunter & Goodie, 2010), although some models do exist (Robinson & Reiter, 2007; Seaburn, Lorenz, Gunn, Gawinski, & Mauksch, 2003). According to Hunter and Goodie (2010), training protocols and core competencies for

behavioral health providers in IPC are currently lacking in operational definitions. MedFTs can advocate for collaboration through formal and informal encounters with the scientific community. They can also identify and clarify the core competencies of collaboration models through qualitative research and develop training protocols for providers. Additionally, MedFTs, who are relationship experts by training, can highlight the importance and effectiveness of collaboration through the implementation of developed collaboration models in empirical research, especially randomized clinical trials.

Conclusion

Medical family therapists share a unique opportunity in bringing to the IPC field a vision for enhanced patient agency and communion as well as provider collaboration. Considering that IPC is a multi-disciplinary system of care and that multiple frameworks help to capture the complexity of primary care, MedFTs should be intimately involved in IPC research. The conceptual framework of MedFT, the biopsychosocial-spiritual model, is the organizing tool for the findings of this dissertation and provides a perspective for what is currently missing in IPC research as well as ideas for future research.

REFERENCES

- Anderson, R. J., Huff, N. L., & Hodgson, J. L. (2008). Medical family therapy in an inpatient psychiatric setting: A qualitative study. *Families, Systems, & Health, 26*(2), 164-180. doi: 10.1037/1091-7527.26.2.164
- CFHA, 2012. Growing MedFT: The blog of CFHA's medical family therapy work group [Web log]. Retrieved from http://www.cfha.net/members/blog_view.asp?id=753286
- Doherty, W. J., McDaniel, S. H., & Hepworth, J. (1994). Medical family therapy: An emerging arena for family therapy. *Journal of Family Therapy, 16*, 31-46. doi:10.1111/j.1467-6427.1994.00775.x
- Engel, G. L. (1977). The need for a new medical model: A challenge for biomedicine. *Science, 196*(4286), 129-136. doi:10.1126/science.847460
- Fox, M. A., Hodgson, J. L., Irons, T. G., Knight, S. M., Lamson, A. L., & White, M. B. (2011). *The changing healthcare climate: Opportunities for family therapists in primary care*. Unpublished manuscript, Department of Child Development and Family Relations, East Carolina University, Greenville, North Carolina.
- Hunter, C. L., & Goodie, J. L. (2010). Operational and clinical components for integrated-collaborative behavioral healthcare in the patient-centered medical home. *Families, Systems, & Health, 28*(4), 308-321. doi:10.1037/a0021761
- Kiecolt-Glaser, J. K. (1999). Stress, personal relationships, and immune function: Health implications. *Brain, Behavior, and Immunity, 13*, 61-72. doi:10.1006/brbi.1999.0552
- Kiecolt-Glaser, J. K., & Newton, T. L. (2001). Marriage and health: His and hers. *Psychological Bulletin, 127*, 472-503. doi:10.1037/0033-2909.127.4.472

- Marlowe, D. (2011). Bridging conversations: Discussing the intra-professional relationship between medical family therapy and family therapy. *Journal of Family Therapy*. doi:10.1111/j.1467-6427.2011.00553.x
- Marlowe, D. P., Hodgson, J. L., Lamson, A. L., White, M. B., & Irons, T. G. (2011). *Medical family therapy in a primary care setting: A model of integration* (Unpublished doctoral dissertation). East Carolina University, Greenville, NC.
- McDaniel, S. H., Hepworth, J., & Doherty, W. J. (1992). *Medical family therapy: A biopsychosocial approach to families with health problems*. New York, NY: Basic Books.
- McDaniel, S. H., Campbell, T. L., & Seaburn, D. B. (1995). Principles for collaboration between health and mental health providers in primary care. *Families Systems Medicine*, 13,283-298. doi:10.1037/h0089075
- McDaniel, S. H., Campbell, T. L., Hepworth, J., & Lorenz, A. (2005). *Family-oriented primary care*. New York, NY: Springer.
- O'Donohue, W. T. Cummings, N. A., & Cummings, J. L. (2009). The unmet educational agenda in integrated care. *Journal of Clinical Psychology in Medical Settings*, 16(1), 94-100. doi:10.1007/s10880-008-9138-3
- Patterson, J., Peek, C. J., Heinrich, R. L., Bischoff, R. J., & Scherger, J. (2002). *Mental health professionals in medical settings: A primer*. New York, NY: Norton.
- Peek, C. J. (2008). Planning care in the clinical, operational, and financial worlds. In R. Kessler & D. Stafford (Eds.), *Collaborative medicine case studies: Evidence in practice* (pp. 25-38). New York, NY: Springer.

- Peek, C. & Oftedahl, G. (2010). *A consensus operational definition of patient-centered medical home (PCMH)*. Unpublished Manuscript, Institute for Clinical Systems Improvement, University of Minnesota, Minneapolis, MN.
- Robinson, P. J., & Reiter, J. T. (2007). *Behavioral consultation and primary care: A guide to integrating services*. New York, NY: Springer.
- Rolland, J. S., & Walsh, F. W. (2005). Systemic training for healthcare professionals: The Chicago Center for Family Health Approach. *Family Process, 44*, 283–301.
doi:10.1111/j.1545-5300.2005.00060.x
- Ruddy, N. B., & McDaniel, S. H (2003). Medical family therapy. In T. L. Sexton, G. R. Weeks, & M. S. Robbins (Eds.), *Handbook of family therapy: The science and practice of working with families and couples* (pp. 365-379). New York, NY: Brunner-Routledge.
- Seaburn, D. B., Lorenz, A. D., Gunn, W. B., Gawinski, B. A., & Mauksch, L. B. (2003). *Models of collaboration: A guide for mental health professionals working with health care practitioners*. New York: Basic Books.
- Strosahl, K. (2005). Training behavioral health and primary care providers for integrated care: A core competencies approach. In W. T. O'Donohue, M. R. Byrd, N. A. Cummings, & D. A. Henderson, (Eds.), *Behavioral integrative care: Treatments that work in the primary care setting* (pp. 15-52). New York, NY: Brunner-Routledge.
- Tyndall, L. E., Hodgson, J. L., Lamson, A. L., White, M., & Knight, S. M. (2012). Medical family therapy: A theoretical and empirical review. *Contemporary Family Therapy*. Advance online publication. doi:10.1007/s10591-012-9183-9

Tyndall, L., Hodgson, J., Lamson, A., Knight, S., & White, M. (2010). *Operationalizing medical family therapy: Building a case for consensus* (Unpublished doctoral dissertation). East Carolina University, Greenville, NC.

Wright, L. M., Watson, W. L., & Bell, J. M. (1996). *Beliefs: The heart of healing in families and illness*. New York, NY: Basic Books.

CHAPTER ONE: INTRODUCTION

The current health care delivery system in the United States faces a myriad of challenges including provider burnout, patient dissatisfaction, rising health care costs and utilization, untreated mental health conditions, and an increase in chronic illness to name a few (Institute of Medicine [IOM], 2001, 2006; National Center for Health Statistics [NCHS], 2011). Moreover, the present health care delivery systems throughout the country typically include a distinct separation of medical and behavioral health services (IOM 2001, 2005); this separation is perplexing considering the evidence that annual medical expenditures are higher for patients with chronic and mental health conditions than patients with just chronic conditions (Pettersen et al., 2008). In response to these challenges, health care providers and researchers have called for a re-integration of these services (Cummings, 2001; DeGruy, 1996, 2010; Druss & Bornemann, 2010; IOM, 2001, 2005). Integrated Primary Care (IPC) is the coordinated effort of both medical and behavioral health professionals in the treatment of patients with health conditions that affect both the mental and biomedical health of that individual (Blount, 2003). Such integration has become a viable part of the solution to the challenges facing patients and providers today (Blount & Bayona, 1994; Butler et al., 2008; Conis, 2009; Strosahl, 1997). This first chapter will introduce the concept of IPC, provide an overview of the research, and describe the need for a more comprehensive systematic review.

Integrated Primary Care: An Introduction

Broadly speaking, IPC is the “service that unifies medical and mental healthcare in a primary care setting, and the practice of avoiding the dichotomy of ‘physical’ or ‘mental’ in defining the problems brought by a patient” (Blount, 1998, p. xi) [Although mental and behavioral health are sometimes used interchangeably in the literature, I purposefully use the

term behavioral health to denote IPC services that treat a wide variety of conditions including mental health, treatment adherence, substance abuse, relationship conflict, health behavior change]. Indeed, one of the underlying principles of IPC is to help patients and providers to see that all problems have biological, psychological, and social ramifications (McDaniel, 1995; McDaniel, Hepworth, & Doherty, 1992). This holistic perspective is drawn from the biopsychosocial model, which is an alternative perspective to the traditional biomedical model (Engel, 1977). Through this lens, primary care providers can identify and appreciate the multiple systems that exist within a patient's world and, with that perspective, collaborate with behavioral health professionals to address the biopsychosocial needs of that patient. Through this model providers can begin to appreciate the complexity of patients and understand that "each biological problem has psychosocial consequences, and each psychosocial problem has biological correlates" (McDaniel, Campbell, & Seaburn, 1995, p. 117).

Beyond the theoretical framework of IPC, the actual implementation of integrated services seems varied and idiosyncratic (Collins, Hewson, Munger, & Wade, 2010); indeed, there are a growing number of integrated care models, some of which are empirically supported (2010). For Doherty, McDaniel, and Baird (1996), the inclusion of a behavioral health provider in a medical setting in any form was enough to label a care system as integrated. Yet, the differences that distinguish integrated systems include the location of medical and behavioral health providers, degree of service usage, overall mission, case management, record management, and degree of direct communication. According to Doherty et al. (1996), a fully integrated system is one where behavioral and medical health professionals share the same site, the same system of care, and the same vision in treating all patients. This seamless system of biopsychosocial care is a team-effort as each provider works to magnify his or her own important

role. Moreover, each provider has a strong understanding of and appreciation for the work that other team members do.

In 2003, Blount suggested that the differences between systems of integrated care are determined by the type of relationship between the providers; these types include *co-located*, *coordinated*, and *integrated*. As Blount asserted, “by distinguishing between [these relationship types] it is possible to be much clearer about what clinical practices are represented when collaborative programs are discussed” (2003, p. 124). Certainly, distinct definitions provide clarity for describing the level of integration of a particular program although it seems that some programs lack specificity or even transparency, which may be a result of inadequate use of theory (Blount, 2003; Miller, Mendenhall, & Malik, 2009). Theory provides the conceptual framework for developing a program of integrated care; it offers a philosophical foundation that can not only justify the creation of a program but also potentiate explanation and prediction. Yet it remains unclear which programs operate from a model of clearly distinguished concepts and constructs. Nevertheless, clinicians and program developers continue to combine the training and skills of medical and behavioral health providers in an effort to address the holistic needs of patients; and research is an important part of organizing the mounting evidence and determining the next step in the evolution of integrated primary care (Blount, 2003, 2007; Hoff, 2010; Sanchez, Thompson, & Alexander, 2010). Indeed, research is the medium by which invested clinicians and program developers may exchange information in a marketplace of ideas to clarify the concept of IPC as well as the generalizability and implementation of various models. The progression of this new, exciting field will only be limited by the creativity and publicity of those at the forefront.

History of Integrated Primary Care Research

Although behavioral health providers have long been involved in general medicine, efforts to integrate services, whether through consultation or the systematic management of psychosocial issues, have largely appeared within the last 20 years or so (Butler et al., 2011). As researchers, clinicians, and program developers have better understood the behavioral health needs of patients and physicians, the manifestation of integrated care services has evolved in an attempt to meet those needs (Blount & Bayona, 1994; Cumming, 2001; DeGruy, 1996). Often this evolution has progressed at the behest of particular directives, personnel, or circumstances, which have been important components of the drive to determine how behavioral and medical professionals can best complement each other. Indeed, the majority of IPC programs today seem to have been created to fit the specific needs of personnel and patients in a particular setting. In tandem with this pattern of idiosyncratic programs, research continues to be the medium for sharing the knowledge that is generated from these programs including both the successes and challenges of a service. What follows is a brief description of the history of IPC research emphasizing the variability of models and patient populations.

Oxman, Dietrich, and Schulberg (2005) organized the past research on IPC into two main generations. These generations highlight the shortcomings of traditional primary care in addressing the behavioral health needs of patients and the development of the Chronic Care Model (Wagner, Austin, & Von Korff, 1996) and interventions in response to those needs. Wayne Katon, a psychiatrist and researcher from the first generation, recognized that primary care had become the “de facto” behavioral health care system and that treatment in this system typically included psychopharmacology and referrals to specialty behavioral health care professionals (1995). However, Katon contended that this system of care had invariably failed

since patients either stopped taking medications after a short period of time or they did not complete referrals to behavioral health specialists. Katon concluded that improving behavioral health treatment in primary care, specifically with depression, required attention to a multitude of factors including provider (e.g., knowledge, skill, and time), patient (e.g., treatment adherence), and care delivery factors (e.g., inadequate long-term monitoring). In response to some of these concerns, researchers in the first generation of empirical studies integrated primary care providers (PCP) with psychiatrists and developed multifaceted interventions to treat major and minor depression (Katon, 1995; Katon et al., 1996). Researchers showed that the interventions were effective with major but not minor depression.

According to Oxman et al. (2003, 2005), the second generation of researchers addressed the high costs identified in the first generation studies and replaced psychiatrists with “non-specialist physician-extenders” in the role of care managers. Interventions included more patient and provider education and researchers demonstrated that integrated services were superior to usual behavioral health treatment. Most of the researchers who conducted these studies were associated with specific IPC programs that focused on depression and operated from the Chronic Care Model (CCM), which is a care management model (Oxman et al., 2003, 2005). This model emphasized physician education, patient education, patient registries, and care managers supervised by behavioral health specialists (e.g., psychologists or psychiatrists) (Von Korff & Goldberg, 2001; Wagner, Austin, & Von Korff, 1996). The purpose of the CCM model was to increase the frequency of patient contact, provide closer monitoring of outcomes and adherence, and facilitate referrals back to PCPs for patients with adverse outcomes, while the rationale behind the model was that mental health conditions can often be chronic and thus require consistent treatment and management. The role of the care managers was to provide consistent

monitoring of illness symptoms and collaborate with behavioral health specialists and PCPs as needed. Treatment was often systematic, disease-specific, and included evidence-based interventions like cognitive behavioral therapy (CBT). Since Oxman et al.'s review, a multitude of studies utilizing a care management model similar to the CCM have emerged (see Butler et al., 2011). As a care management model is disease- and population-specific, many of the researchers have designed the studies as randomized clinical trials in an effort to demonstrate treatment efficacy for a specific illness.

From the Oxman et al review of IPC research, we learn a few things. First, primary care has become the de facto behavioral health care system that provides treatment for many patients (Katon, 1995; Oxman et al., 2005). Next, the cost of integration is an important component of sustainability (Oxman et al., 2005). The switch from psychiatrists to nursing personnel in IPC reflects a necessary financial decision to create a program that provides a service for a large number of patients. It is easier to provide that service when it is not as costly. Third, the CCM is the underlying framework for several IPC programs. Although helpful in organizing some of the evidence, these generations of studies (Oxman et al., 2005) only reflect a minority of the available IPC research. Other researchers have focused on military populations (Brawer, Martielli, Pye, & Manwaring, 2010; Dobscha, Corson, Leibowitz, Sullivan, & Gerrity, 2008; Engel et al., 2008; Felker et al., 2004), HIV patients (Budin, Boslaugh, Beckett, & Winiarski, 2004), insomniacs (Goodie, Isler, Hunter, & Peterson, 2009), Latino populations (Dwight-Johnson et al., 2010), adolescents (Clarke et al., 2005), and lower SES patients (Mukherjee et al., 2006). Although not the norm, several researchers have developed non-specific IPC programs (Chen et al., 2006; Guck, Guck, Brack, & Frey, 2007; Reiss-Brennan, Briott, Savitz, Cannon, & Staheli, 2010; Speer, Dupree, Vega, Schneider, Hanjian, & Ross, 2004). More recent empirical

investigations of IPC include studies on cost-effectiveness (Blount et al., 2007; Katon et al., 2005; Katon, Fan, Lin, & Unutzer, 2006; Katon & Seelig, 2008; Liu et al., 2003; Reiss-Brennan et al., 2010; Unutzer, Katon, Fan, et al., 2008). This is a significant trend in IPC research since most programs that develop in the process of a research project often cease to exist once the study and funding has ended (Miller et al., 2009; Oxman et al., 2003, 2005).

IPC researchers have focused on a variety of populations and behavioral health conditions. Most researchers have utilized variations of the care management model that focuses on a specific behavioral health condition and/or population. The benefits of this model include the systematic treatment of a specific disease provided by personnel who have been trained to treat that disease and the cost-effectiveness of such a systematic service (Meyer & Smith, 2008). This systematic treatment is reproducible and measurable making it ideal for experimental research. However, since there is more than just one type of behavioral health condition and since many patients present with complex issues (Gunn & Blount, 2009; Peek, Baird, & Coleman, 2009), the care management model may be inadequate for addressing general behavioral health needs in primary care.

In addition to the CCM model, a second, more recent integrated care model is the Primary Care Behavioral Health model (PCBH), which has been used to guide both practice and research (Robinson & Strohsal, 2009; Robinson & Reiter, 2007; Stroshal, 1996, 2001). This method of care reflects the high level of integration described by Doherty et al. (1996) and is characterized by the close collaboration of medical and behavioral health providers over issues that extend beyond specific behavioral health conditions to include more “behavioral” based care. This care may include issues of treatment adherence, substance abuse, relationship dysfunction and more, as well as typical mental health conditions like anxiety and depression.

Although the behavioral health provider (BHP) can certainly diagnose and treat typical mental health conditions, her role as consultant is more focused on enhancing the relationship between the patient and the physician. This consultant model for integrated primary care provides a system of treatment for both acute and chronic conditions. For example, a BHP may be instrumental in addressing the anxiety one patient feels regarding medication as well as managing another patient's depression alongside the PCP. However, despite the inherent advantages of the consultant model in addressing a variety of behavioral and mental health needs in primary care, research examining the value of this model (i.e., effectiveness, efficacy) may be difficult to design and reproduce (DeGruy & Etz, 2010). This is due to the variability in treatment and consultation that a BHP offers a primary care clinic and the vast array of patient problems. Such complexity in care would reciprocally require complexity in examination. This may include research designs like quality improvement methods, mixed methods, and qualitative research approaches as well as "entire new fields of evaluation that will be more sophisticated and powerful than anything now in existence" (DeGruy & Fitz, 2010, p. 305).

Conclusion

In summary, there is a growing effort to integrate medical and behavioral health services and provide holistic treatment for primary care patients. A number of different models have arisen including the Chronic Care Model and Primary Care Behavioral Health Model. There are strengths and shortcomings associated with each model. It seems that most researchers have examined the former model in studies of IPC, although no review of IPC research design currently exists. Moreover, there is no clear consensus about the operationalization of IPC, which makes it difficult for researchers to share a common lexicon and framework. What is needed then is a broad systematic review of IPC research to identify what research methods and

program components have been used thus far. Such a review does not currently exist but will undoubtedly provide some direction for the future development of this promising system of primary care.

The following chapters have been written in an effort to provide a broad systematic review of IPC research. This first chapter serves as an introduction to the varied literature of IPC. The second chapter offers a more detailed justification for IPC citing current health care system challenges and the need for more holistic, contextual treatment of patients. It includes an account of IPC dimensions and models as well as past systematic reviews of IPC literature. The third chapter is a description of the research method used to construct the systematic review, which includes a broad search of articles in which researchers reported medical and behavioral health providers integrated into a co-located system of primary care. The fourth chapter represents the first article that is a product of this review and offers an examination of the research components (e.g., study design, participant characteristics) comprising the sample of identified IPC studies. The fifth chapter represents the second article which is a review of the program characteristics reported by IPC researchers, including service integration, interventions, provider type, program models, supervision and training, and community information. The final chapter is a discussion of the results of the systematic review and includes suggestions for future researchers.

REFERENCES

- Blount, A. (1998). *Integrated primary care: The future of medical and mental health collaboration*. New York, NY: Norton.
- Blount, A. (2003). Integrated primary care: Organizing the evidence. *Families, Systems & Health, 21*(2), 121-133. doi: 10.1037/1091-7527.21.2.121
- Blount, A., & Bayona, J. (1994). Toward a system of integrated primary care. *Family Systems Medicine, 12*(2), 171-182. doi:10.1037/h0089151
- Brawer, P. A., Martielli, R., Pye, P. L., Manwaring, J., & Tierney, A. (2010). St. Louis Initiative for Integrated Care Excellence (SLICE): Integrated-collaborative care on a large scale model. *Families, Systems, & Health, 28*(2), 175-187. doi:10.1037/a0020342
- Budin, J., Boslaugh, S., Beckett, E., & Winiarski, M. G. (2004). Utilization of psychiatric services integrated with primary care by persons of color with HIV in the inner city. *Community Mental Health Journal, 40*(4), 365-378.
doi:10.1023/B:COMH.0000035230.20900.59
- Butler, M., Minnesota Evidence-based Practice Center, & United States, Agency for Healthcare Research and Quality. (2008). *Integration of mental health/substance abuse and primary care*. Rockville, MD: Agency for Healthcare Research and Quality.
- Butler, M., Kane, R. L., McAlpine, D., Kathol, R., Fu, S. S., Hagedorn, H., & Wilt, T. (2011). Does integrated care improve treatment for depression? A systematic review. *The Journal of Ambulatory Care Management, 34*(2), 113-125. doi:10.1097/JAC.0b013e31820ef605

- Chen, H., Coakley, E. H., Cheal, K., Maxwell, J., Costantino, G., Krahn, D. D., . . . Levkoff, S. E. (2006). Satisfaction with mental health services in older primary care patients. *The American Journal of Geriatric Psychiatry, 14*(4), 371-379.
doi:10.1097/01.JGP.0000196632.65375.b9
- Clarke, G., Debar, L., Lynch, F., Powell, J., Gale, J., O'Connor, E., . . . Hertert, S. (2005). A randomized effectiveness trial of brief cognitive-behavioral therapy for depressed adolescents receiving antidepressant medication. *Journal of the American Academy of Child & Adolescent Psychiatry, 44*(9), 888-898. doi:10.1016/S0890-8567(09)62194-8
- Collins, C., Hewson, D. L., Munger, R., & Wade, T. (2010). *Evolving models of behavioral health integration in primary care*. Retrieved from
<http://www.milbank.org/reports/10430EvolvingCare/10430EvolvingCare.html>
- Conis, E. (2009). A model for mental health integration. *Health Policy Monitor*, October.
Retrieved at <http://www.hpm.org/survey/us/a14/4>
- Craven, M. A., & Bland, R. (2006). Better practices in collaborative mental health care: An analysis of the evidence base. *Canadian Journal of Psychiatry, 51*(6), 7S-72S.
- Cummings, N. A. (2001). A new vision of healthcare for America. In N. A. Cummings, W. O'Donohue, S. C. Hayes, & V. Follette (Eds.), *Integrated behavioral healthcare: Positioning mental health practice with medical/surgical practice* (pp. 19-37). San Diego, CA: Academic Press.
- DeGruy, F. (1996). Mental health care in the primary care setting. In M. S. Donaldson, K. D. Yordy, K. N. Lohr & N. A. Vanselow (Eds.), *Primary care: America's health in a new era* (pp. 285-311). Washington, D.C.: Institute of Medicine.

- DeGruy, F. V., & Etz, R. S. (2010). Attending to the whole person in the patient-centered medical home: The case for incorporating mental healthcare, substance abuse care, and health behavior change. *Families, Systems & Health*, 28(4), 298. doi:10.1037/a0022049
- Dobscha, S. K., Corson, K., Leibowitz, R. Q., Sullivan, M. D., & Gerrity, M. S. (2008). Rationale, design, and baseline findings from a randomized trial of collaborative care for chronic musculoskeletal pain in primary care. *Pain Medicine*, 9(8), 1050-1064. doi:10.1111/j.1526-4637.2008.00457.x
- Doherty, W., McDaniel, S., & Baird, M. (1996). Five levels of primary care - behavioral healthcare collaboration. *Behavioral Healthcare Tomorrow*, 5(5), 25-27.
- Druss, B. G., & Bornemann, T. H. (2010). Improving health and health care for persons with serious mental illness: The window for US federal policy change. *JAMA : The Journal of the American Medical Association*, 303(19), 1972-1973. doi:10.1001/jama.2010.615
- Dwight-Johnson, M., Lagomasino, I. T., Hay, J., Zhang, L., Tang, L., Green, J. M., & Duan, N. (2010). Effectiveness of collaborative care in addressing depression treatment preferences among low-income Latinos. *Psychiatric Services*, 61(11), 1112-1118. doi:10.1176/appi.ps.61.11.1112
- Engel, G. L. (1977). The need for a new medical model: A challenge for biomedicine. *Science*, 196(4286), 129-136. doi:10.1126/science.847460

- Engel, C. C., Oxman, T., Yamamoto, C., Gould, D., Barry, S., Stewart, P., . . . Dietrich, A. J. (2008). RESPECT-Mil: Feasibility of a systems-level collaborative care approach to depression and post-traumatic stress disorder in military primary care. *Military Medicine*, *173*(10), 935-940. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&db=psyh&AN=2008-14931-001&site=ehost-live>
- Felker, B. L., Barnes, R. F., Greenberg, D. M., Chancy, E. F., Shores, M. M., Gillespie-Gateley, I., . . . Morton, C. E. (2004). Preliminary outcomes from an integrated mental health primary care team. *Psychiatric Services*, *55*(4), 442-444. doi:10.1176/appi.ps.55.4.442
- Goodie, J. L., Isler, W. C., Hunter, C., & Peterson, A. L. (2009). Using behavioral health consultants to treat insomnia in primary care: A clinical case series. *Journal of Clinical Psychology*, *65*(3), 294-304. doi:10.1002/jclp.20548
- Guck, T. P., Guck, A. J., Brack, A. B., & Frey, D. R. (2007). No-show rates in partially integrated models of behavioral health care in a primary care setting. *Families, Systems, & Health*, *25*(2), 137-146. doi:10.1037/1091-7527.25.2.137
- Gunn, W. B., & Blount, A. (2009). Primary care mental health: A new frontier for psychology. *Journal of Clinical Psychology*, *65*(3), 235-252. doi:10.1002/jclp.20499
- Harkness, E. F., & Bower, P. J. (2009). On-site mental health workers delivering psychological therapy and psychosocial interventions to patients in primary care: Effects on the professional practice of primary care providers. *Cochrane Database of Systematic Reviews* (Online), (Issue 1), No.: CD000532. doi:10.1002/14651858.CD000532.pub2

- Hoff, T. (2010). The patient-centered medical home: What we need to know more about. *Medical Care Research and Review*, 67(4), 383-392. doi:10.1177/1077558710368550
- Institute of Medicine (U.S.). Committee on Quality of Health Care in America. (1996). *Crossing the quality chasm: A new health system for the 21st century*. Washington, D.C: National Academy Press.
- Institute of Medicine (U.S.) Committee on Quality of Health Care in America. (2001). *Crossing the quality chasm: A new health system for the 21st century*. Washington, D.C: National Academy Press. Retrieved from <http://www.iom.edu/~/media/Files/Report%20Files/2001/Crossing-the-Quality-Chasm/Quality%20Chasm%202001%20%20report%20brief.pdf>
- Institute of Medicine (U.S.). Committee on the Future of Rural Health Care. (2005). *Quality through collaboration: The future of rural health*. Washington, D.C: National Academies Press. Retrieved from <http://www.iom.edu/Reports/2004/Quality-Through-Collaboration-The-Future-of-Rural-Health.aspx>
- Institute of Medicine (U.S.). Committee on Crossing the Quality Chasm: Adaptation to Mental Health and Addictive Disorders, & Institute of Medicine. (2006). *Improving the quality of health care for mental and substance-use conditions*. Washington, DC: National Academy Press.
- Katon, W., Robinson, P., Von Korff, M., Lin, E., Bush, T., Ludman, E., . . . Walker, E. (1996). A multifaceted intervention to improve treatment of depression in primary care. *Archives of General Psychiatry*, 53(10), 924-932. doi:10.1001/archpsyc.1996.01830100072009
- Katon, W. (1995). Collaborative care: Patient satisfaction, outcomes, and medical cost-offset. *Family Systems Medicine*, 13(3-4), 351-365. doi:10.1037/h0089387

- Katon, W. J., Fan, M., Lin, E. H. B., & Unützer, J. (2006). Depressive symptom deterioration in a large primary care-based elderly cohort. *The American Journal of Geriatric Psychiatry*, *14*(3), 246-254. doi:10.1097/01.JGP.0000196630.57751.44
- Katon, W. J., Schoenbaum, M., Fan, M., Callahan, C. M., Williams, J., Jr., Hunkeler, E., . . . Unützer, J. (2005). Cost-effectiveness of improving primary care treatment of late-life depression. *Archives of General Psychiatry*, *62*(12), 1313-1320. doi:10.1001/archpsyc.62.12.1313
- Katon, W. J., & Seelig, M. (2008). Population-based care of depression: Team care approaches to improving outcomes. *Journal of Occupational and Environmental Medicine*, *50*(4), 459-467. doi:10.1097/JOM.0b013e318168efb7
- Liu, C., Hedrick, S. C., Chaney, E. F., Heagerty, P., Felker, B., Hasenberg, N., . . . Katon, W. (2003). Cost-effectiveness of collaborative care for depression in a primary care veteran population. *Psychiatric Services*, *54*(5), 698-704. doi:10.1176/appi.ps.54.5.698
- McDaniel, S. H., Hepworth, J., & Doherty, W. J. (1992). *Medical family therapy: A biopsychosocial approach to families with health problems*. New York, NY: Basic Books.
- McDaniel, S. H. (1995). Collaboration between psychologists and family physicians - implementing the biopsychosocial model. *Professional Psychology: Research and Practice*, *26*(2), 117-122. doi:10.1037/0735-7028.26.2.117
- McDaniel, S. H., Campbell, T. L., & Seaburn, D. B. (1995). Principles for collaboration between health and mental health providers in primary care. *Families Systems Medicine*, *13*, 283-298. doi:10.1037/h0089075

- Meyer, J. & Smith, B. M. (2008). Chronic disease management: Evidence of predictable savings. Retrieved from http://www.idph.state.ia.us/hcr_committees/common/pdf/clinicians/savings_report.pdf
- Miller, B. F., Mendenhall, T. J., & Malik, A. D. (2009). Integrated primary care: An inclusive three-world view through process metrics and empirical discrimination. *Journal of Clinical Psychology in Medical Settings, 16*(1), 21-30. doi:10.1007/s10880-008-9137-4
- Mukherjee, S., Sullivan, G., Perry, D., Verdugo, B., Means-Christensen, A., Schraufnagel, T., . . . Roy-Byrne, P. (2006). Adherence to treatment among economically disadvantaged patients with panic disorder. *Psychiatric Services, 57*(12), 1745-1750. doi:10.1176/appi.ps.57.12.1745
- National Center for Health Statistics [NCHS] (2011). Health, United States, 2010: In brief. Hyattsville, MD. Retrieved from <http://www.cdc.gov/nchs/hus.htm>
- Oxman, T. E., Dietrich, A. J., & Schulberg, H. C. (2003). The depression care manager and mental health specialist as collaborators within primary care. *The American Journal of Geriatric Psychiatry, 11*(5), 507-516. doi:10.1097/00019442-200309000-00005
- Oxman, T. E., Dietrich, A. J., & Schulberg, H. C. (2005). Evidence-based models of integrated management of depression in primary care. *The Psychiatric Clinics of North America, 28*(4), 1061-1061. doi:10.1016/j.psc.2005.09.007
- Peek, C. J., Schoenbaum, M., Rollman, B. L., O'Donohue, W., Thomas, M., Blount, A., & Kathol, R. (2007). The economics of behavioral health services in medical settings: A summary of the evidence. *Professional Psychology: Research and Practice, 38*(3), 290-297. doi:10.1037/0735-7028.38.3.290

Peek, C. J., Baird, M. A., & Coleman, E. (2009). Primary care for patient complexity, not only disease. *Families, Systems & Health*, 27(4), 287-302. doi:10.1037/a0018048

Petterson S. M., Phillips R. L., Bazemore A. W., Doodoo M. S., Zhang X., Green L. A. (2008). Why there must be room for mental health in the medical home. *American Family Physician*, 77(6), 757. Retrieved from <http://search.proquest.com.jproxy.lib.ecu.edu/docview/234258259>

Reiss-Brennan, B., Briot, P., Savitz, L., Cannon, W., & Staheli, R. (2010). Cost and quality impact of intermountain's mental health integration program. *Journal of Healthcare Management*, 55(2), 97-113. Retrieved from <http://go.galegroup.com.jproxy.lib.ecu.edu/ps/i.do?id=GALE%7CA224863076&v=2.1&u=gree96177&it=r&p=HRCA&sw=w>

Robinson, P. J., & Reiter, J. T. (2007). *Behavioral consultation and primary care: A guide to integrating services*. New York, NY: Springer

Robinson, P. J., & Strosahl, K. D. (2009). Behavioral health consultation and primary care: Lessons learned. *Journal of Clinical Psychology in Medical Settings*, 16(1), 58-71. doi:10.1007/s10880-009-9145-z

Sanchez, K. (2010). Current strategies and barriers in integrated health care: A survey of publicly funded providers in Texas. *General Hospital Psychiatry*, 32(1), 26-32. doi:10.1016/j.genhosppsy.2009.10.007

- Speer, D. C., Dupree, L. W., Vega, C., Schneider, M. G., Hanjian, J. M., & Ross, K. (2004). Age and mental health status differences in medical service utilization in an integrated primary care setting. *Clinical Gerontologist*, 27(4), 71-82. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&db=rzh&AN=2010364351&site=ehost-live>
- Strosahl, K. (1996). Confessions of a behavior therapist in primary care: The odyssey and the ecstasy. *Cognitive and Behavioral Science*, 3(1), 1-28. doi:10.1016/S1077-7229(96)80028-9
- Strosahl, K. (1997). Building primary care behavioral health systems that work: A compass and a horizon. In N. A. Cummings, J. L. Cummings & J. N. Johnson (Eds.), *Behavioral health in primary care: A guide for clinical integration* (pp. 37-58). Madison, CT: Psychosocial Press.
- Strosahl, K. (2001). The integration of primary care and behavioral health: Type II changes in the era of managed care. In V. Follette (Ed.), *Integrated behavioral healthcare: Positioning mental health practice with medical/surgical practice*. (pp. 45-69). San Diego, CA: Academic Press.
- Unutzer, J., Katon, W. J., Fan, M., Schoenbaum, M. C., Lin, E. H. B., Della Penna, R. D., & Powers, D. (2008). Long-term cost effects of collaborative care for late-life depression. *The American Journal of Managed Care*, 14(2), 95-100. Retrieved from www.cinahl.com/cgi-bin/refsvc?jid=1514&accno=2009814586
- Von Korff, M. & Goldberg, D. (2001). Improving outcomes in depression: The whole process of care needs to be enhanced. *British Medical Journal*, 323, 948-949.

Wagner, E., Austin, B., & Von Korff, M. (1996). Organizing care for patients with chronic illness. *Milbank Quarterly Journal*, 74, 511-544. Retrieved from <http://www.jstor.org/stable/3350391>

Wang, P. S., Lane, M., Olfson, M., Pincus, H. A., Wells, K. B., & Kessler, R. C. (2005). Twelve-month use of mental health services in the United States: Results from the national comorbidity survey replication. *Archives of General Psychiatry*, 62(6), 629-640. doi:10.1001/archpsyc.62.6.629

CHAPTER TWO: REVIEW OF LITERATURE

Introduction

Primary care has become, in effect, the existent behavioral health care system in the United States for many patients (Institute of Medicine [IOM], 1996; Katon, 1995) and includes psychopharmacology and referrals as usual treatment for behavioral health conditions recognized in primary care. This situation presents many challenges for primary care physicians (PCP) who may not have the time or training to adequately assess or treat behavioral health. In response to this challenge to meet the needs of primary care patients, clinics across the country are undertaking efforts to integrate both medical and behavioral health professionals (Butler et al., 2008; Collins, Hewson, Munger, & Wade, 2010). In the first chapter of this dissertation, I introduced the concept of integrated primary care (IPC), reviewed the history of IPC research, and described the two dissertation articles. In this chapter, I will highlight the need and rationale for IPC, describe various components of IPC, and summarize systematic reviews of IPC research.

Health Care Challenges

Although US citizens are enjoying unprecedented health benefits in the 21st century as characterized by increases in longevity and decreases in infant mortality, there are still several reasons for concern (National Center for Health Statistics [NCHS], 2011). Chronic illnesses (e.g., heart disease, hypertension, and diabetes) for patients 18 years of age and over have steadily been increasing during the last decade. US children and adolescents continue to be at increased risk for obesity (NCHS, 2011). Although smoking trends have stabilized (20.6% for people 18 years of age or older), these trends remain at unhealthy levels (NCHS, 2011). Moreover, patients across all ages are becoming less likely to have annual checkups (especially

for patients 65 years and older), despite the fact that emergency room visits and hospitalization rates have increased during the last decade. In addition, access to health care continues to be limited for those over the age of 18 due to lack of insurance or financial resources (NCHS, 2011). Finally, health care costs have almost doubled during the past ten years from \$1.1 (costs in 2000) to 2.0 trillion dollars (costs in 2008) (NCHS, 2011). These trends portray a troubling situation for the health care system in the United States.

In step with these healthcare trends, there is an increase in the need for and use of behavioral health services. Indeed, mental health problems affect all age groups and millions of people in the US each year (Collins, Hewson, Munger, & Wade, 2010; Reeves et al., 2011). In 2010, over 45 million US adults (18 years or older) reported having a mental health condition with much less than half (17.9 million) of those adults receiving mental health services (Substance Abuse and Mental Health Services Administration [SAMHSA], 2012). Over the past 25 years, admissions to mental health facilities have increased significantly for various organizations (e.g., state mental hospitals, private psychiatric hospitals) (NCHS, 2011). These service utilization increases have outpaced population increases. Despite these increases in utilization, mental health conditions continue to be underdiagnosed, which some experts suggest may lead to increased financial and psychosocial costs for society (Baik, Bowers, Oakley, & Susman, 2005; Loeppke, Taitel, Haufle, Parry, Kessler, & Jinnett, 2009; Wang et al., 2005). There is also strong evidence that mental health problems increase the overall medical costs of patients with chronic physical conditions as compared to those patients with only chronic physical conditions (Pettersson et al., 2008).

In addition to the trends of increased costs and health care utilization, there is evidence that primary care is increasingly becoming the “gateway” for patients with both medical and

behavioral health needs (Gunn & Blount, 2009; IOM, 1996; Katon, 1995). It has been reported that up to 70% of primary care visits have a psychosocial component (Fries, Koop, & Beadle, 1993; Gatchel & Oordt, 2003). Primary care clinicians prescribe nearly 70% of the psychotropic medications used in the United States including 80% of all anxiolytics, 65% of all antidepressants, and 20% of all antipsychotic medications (Lieberman, 2003; Miranda, Hohnmann, & Atkinson, 1994). From 1996 to 2001, the total number of psychotropic prescriptions written by primary care physicians increased by 48% (Lieberman, 2003). Moreover, nearly 80% of patients with a diagnosable behavioral health condition will seek care from a primary care provider (PCP), leaving a very small percentage that will seek care from a behavioral health provider (Miranda, Hohnmann, & Atkinson, 1994). Although patients with behavioral health needs will present in primary care settings, it is often difficult for medical providers to properly diagnose because symptoms appear to be only somatic and not psychosocial (Ruddy & McDaniel, 2005). Thus, medical providers, especially PCPs, may be in the difficult situation of diagnosing illnesses that require more time, resources, and training. For example, a PCP may see a patient for hypertension and then learn from the patient's report that he is experiencing panic attacks on a regular basis.

The notion that primary care clinics are “gateways” for treating a variety of patients is nothing new. As described by the Institute of Medicine (1996), primary care is defined as “. . . the provision of *integrated, accessible health care services* by clinicians who are *accountable* for addressing a large *majority of personal health care needs*, developing a *sustained partnership* with *patients*, and practicing in the *context of family and community*” (p. 31) [emphasis in original]. Primary care is the optimal location for general practitioners providing continuous care to patients in a community. PCPs often see patients who present with multifaceted cases

including comorbid symptoms that are both somatic and psychosocial. The complexity of these cases can extend beyond the time and energy of PCPs (Peek, Baird, & Coleman, 2009).

As patient needs become more complex and as health care costs rise, it falls upon both medical and behavioral health providers to adapt to these challenging trends. This adaptation requires an effort that is both creative and useful to all stakeholders. In response to these concerns, clinicians and administrators in various settings across the United States have begun to integrate both medical and behavioral health services, an innovative idea that seems natural. As one innovator stated, “Incorporating behavioral health services into primary medical care would seem so logical as to be almost inevitable” (Blount, 2003, p. 121). Indeed, interest in IPC is growing (Collins, Hewson, Munger, & Wade, 2010) and is currently being conceptually applied to families (National Alliance on Mental Illness, 2011) and underserved populations (Davis, 2011). However, conceptualizations of this type of health care delivery have been varied and sometimes confusing. Recent efforts to streamline this information have been underway including attempts to connect the various overlapping terms (Blount, 2003; Hunter & Goodie, 2010; Miller, Kessler, Peek, & Kallenberg, 2011; Miller, Mendenhall, & Malik, 2009) as well as to determine how integrated care fits into the Patient-Centered Medical Home (Peek & Oftedahl, 2010). What follows is an overview of the rationale and conceptualization of integrated services in primary care.

Integrated Primary Care

Humans in Context

The case for integrating behavioral and medical health makes sense when one considers the contextual nature of human beings. Although the term “integrated care” is currently a buzzword, ancient civilizations have long considered optimal health from a holistic standpoint.

The Greeks believed that the complete wellness of a person depended on the delicate balance of different temperaments (Swatos & Kivisto, 1998). In the United States, Native Americans have for centuries incorporated multiple influences from nature and the spirit world to provide “healing” for the sick and afflicted (Portman & Garrett, 2006). Inherent in both of these examples is the idea that human beings are complex and benefit from a perspective that is contextually-sensitive. This consideration of the whole person and related environmental influences has largely faded during the past two centuries. Today, the principal frame of reference for many medical clinicians and researchers is the biomedical model. This framework has led to many breakthroughs in medicine including anesthesia, major surgery, and immunization. However, it has also led to a conceptual reduction of patients, and their symptoms, into cells and neurotransmitters. Thus, every “disease” and condition may be broken down into physicochemical properties, and conditions that cannot be reduced are deemed unexplainable and thus excluded from consideration (Engel, 1977).

During the last few decades, we have witnessed a concentrated effort to put the patient back into context. In 1979, Uri Bronfenbrenner presented an ecological model for understanding human development. Bronfenbrenner viewed human development as existing within a larger system of multi-layered influences. Each level of influence, or sub-system, impacts a human being in different ways. These levels include micro-, meso-, exo-, macro-, and chrono-systems. Each level increases in complexity and breadth, starting with the micro-system and ending with the chrono-system. The influence between two levels is bi-directional, meaning that as one sub-system influences another sub-system then each level is impacted in return. The ecological model can help explain the various ways that illness can impact an individual as well as the

family, work, and community systems surrounding that individual (e.g., consider the impact of cancer on a patient who is a father, husband, factory manager, and community activist).

Around the same time that the ecological model was developed, George Engel introduced what is known as the biopsychosocial (BPS) model (1977, 1980). Like Bronfenbrenner, Engel considered the many levels of influence surrounding a person; however his model was developed specifically for medicine. According to the BPS model, an illness affects all levels, such that “each biological problem has psychosocial consequences, and each psychosocial problem has biological correlates” (McDaniel, 1995, p. 117). The BPS model was designed as a direct response to the biomedical model in an effort to view human beings, specifically patients, from a more holistic perspective. Since then, it has become a major part of the rationale for integrating behavioral and medical health care into a single service (Blount, 2003; Gunn & Blount, 2009; Strosahl, 1996). A “spiritual” construct was later added to the model by some researchers (i.e., biopsychosocial-spiritual) to denote the beliefs and meaning connected to a person’s health (Anderson et al., 2008; McDaniel, Hepworth, & Doherty, 1992; Wright, Watson, & Bell, 1996).

In tandem with the holistic perspective of the BPS model, integrated primary care (IPC) is a “service that unifies medical and behavioral healthcare in a primary care setting, and the practice of avoiding the dichotomy of ‘physical’ or ‘mental’ in defining the problems brought by a patient” (Blount, 1998, p. xi). The basic structure of IPC is the coordination of services from both behavioral and medical health professionals. However, the actual implementation depends on the patient populations, practitioners, and settings involved (Patterson et al., 2002). Some IPC programs may target specific populations (e.g., diabetic patients) with specific interventions (e.g., cognitive-behavioral therapy), while other programs may have a broader scope of treatment. Currently, the lexicon for integrated care is varied and at times ambiguous (Miller,

Kessler, Peek, & Kallenberg, 2011). Care that may be described as integrated for one location may only be considered coordinated at another. There are efforts being made now to organize the many variables characteristic of IPC programs (see Miller et al., 2009 for list of varied operational definitions; Peek & Oftedahl, 2010). What follows this review of the theoretical framework of IPC is a review of the conceptual components that researchers have compiled to describe the varying levels of integration, which is included to provide the reader with an impression of the variation and diversity that exists for IPC programs. The conceptual components included here comprise two types of integrated care: dynamic and static (Marlowe, Hodgson, Lamson, White, & Irons, 2011). In dynamic integrated care there is forward movement and progression that exist along a continuum of integration. In static integrated care there are specific relationship types describing the level of communication between providers but with no instruction about movement from one type to another. These two types are included to give the reader a general overview of the principal concepts of IPC as well as the variety of levels of IPC. Following the review of conceptual components is a review of two models (i.e., Chronic Care Model and Primary Care Behavioral Health Model) that offer more specificity about the relationship between providers in an IPC program.

Dimensions of Integrated Primary Care

Dynamic Integration

There are a growing number of IPC models as well as evidence supporting the effectiveness of these models (Collins et al., 2010; Conis, 2009). Moreover, several researchers have developed constructs for describing the actual practice of IPC. Doherty et al. (1996) proposed five levels of integration that describe the degree of use, the proximal location of the behavioral health and biomedical providers, overall vision, case management, and degree of

direct communication. This dynamic stratification presupposes that no optimal way of integration is immediately necessary for a clinic. Rather, the integration can be a progression of sorts that is fluid and flexible depending on the needs and resources of a primary care clinic. The first level of integration is “business as usual” or *minimal collaboration* (Doherty et al., 1996). Behavioral and medical health professionals work in separate locations, with separate health record systems, and rarely collaborate on cases. This level of integration may work fine for patients whose needs can be met by receiving separate treatments from behavioral and medical health professionals that do not communicate with each other. However, it is inadequate for those patients who have significant biopsychosocial interplay.

Level Two integration is *basic collaboration at a distance* (Doherty et al., 1996). Although providers still have separate facilities and health records, they engage in periodic communication about patients. Each provider is seen as a resource, albeit with separate cultures and treatment protocols. The collaboration at this level may only exist when one provider recognizes, for example, that depression is affecting the diabetes, or vice versa. Then, providers will make some contact to coordinate care, or at least to keep other professionals abreast of what they are doing separately. Level Three is called *basic collaboration on site* and describes an integration of providers that share a location but not a system of care (Doherty et al., 1996). They engage in regular communication about shared patients that is facilitated by phone, email, or hallway conversations. At this level, providers have a better understanding than the previous two levels of the culture of the other. However, they still do not share a common language or an in-depth understanding of the common practices of each profession. This third level of integration is visible at some Health Maintenance Organizations or rehabilitation centers.

At Level Four integration, *collaboration in a partly integrated system*, behavioral and medical health professionals share a location and several systems of care, such as charting and scheduling (Doherty et al., 1996). Inherent in this level of collaboration is a direct appreciation of the biopsychosocial perspective and the role that each provider plays in treating patients. There are regular face-to-face interactions about patients and a collaborative effort to design one single treatment plan. However, operational difficulties may still lead providers to feel separate from each other: treatment team meetings may be occasional or rare; meetings may be driven by specific patient issues; behavioral healthcare reimbursement is separate from medical healthcare payment; and PCPs may enjoy greater power and influence in making final decisions. This level may also be practiced at some HMOs and rehabilitation centers, as well as some family practice training programs.

Level Five integration is *close collaboration in a fully integrated system* (Doherty et al., 1996). Here behavioral and medical health professionals share the same site, the same system of care, and the same vision in treating all patients. This seamless system of biopsychosocial care is a team-effort as each provider works to magnify his or her own important role. Moreover, each provider has a strong understanding and appreciation for the work that other team members do. Regular, collaborative team meetings are held to address a range of patient topics. Although PCPs will probably still make any final decisions, there is a sense of egalitarianism between team members. Marlowe et al. reported implementing such a fully integrated system (2011).

These five levels of integration provide a dynamic series of progressive steps that primary care facilities can take in developing an integrated primary care program. Although a clinic may currently be operating integrated care at Level 2, there are mechanisms to guide that clinic to a higher level of integration. The level of integration depends on several components

including the proximal location of providers, overall vision of care, degree of direct communication, and comfort level and training of medical providers (including physicians and nurses). Integration also depends on the resources available to sustain collaboration between providers. This stratification of integration stages, though lacking in specificity, provides a good starting point for clinicians and administrators. The next description of IPC offers a more static, categorical conceptualization.

Static Integration

In an effort to delineate the relationship types that possibly exist between behavioral and medical healthcare providers, Blount (2003) offered three categories: *coordinated*, *co-located*, and *integrated*. These dimensions of collaborative care differ from the previously mentioned five levels due to the static nature of each relationship type. In other words, there is no discussion of how a site may progress from one level to the next. Although there is significant overlap between the two conceptualizations of integrated care (dynamic and static), Blount stated that he specifically created these relationship types to “give some order to the research in the field” (2003, p. 123). The first type, *coordinated care*, is essentially a referral-system between providers. The only trigger for communication between the two separate locations is a referral of a patient from a medical professional to a behavioral health professional, or vice versa. As Blount noted, coordinated care can be difficult and time consuming due to “different approaches to confidentiality, to returning phone calls and being interrupted, and different expectations about how actively to intervene in problems” (p. 123).

Co-located care, as the name implies, is when behavioral and medical healthcare staff share the same facility. Communication between providers is still referral-based but the convenience of a shared location facilitates closer and more frequent interaction. However, co-

located care does not always mean that patient treatment is coordinated. Although communication may be more convenient in co-located care, providers may still not coordinate treatment plans with one another and may not use the same electronic medical records. Some anecdotal evidence of such systems, however, suggests that providers in co-located settings have been engaging in face-to-face “curbside” consultations over patient care albeit not formal treatment plans (Blount, 2003). Another benefit of co-located services is the convenience that patients and providers may enjoy in receiving and providing treatment in the same building. Patients who receive a referral from a PCP to see a behavioral health professional are more likely to keep that appointment due to the familiarity of the setting and the possibility of a warm handoff. Patients know the location of the office and probably feel more comfortable with the PCP’s referral.

Finally, *integrated care*, according to Blount, is “care in which there is one treatment plan with behavioral and medical elements” (2003, p. 124). Such care may take place within a treatment team or as part of a pre-designed treatment protocol. In either case, it is most likely that treatment is directed toward a specific population in which psychosocial needs are almost universal or toward a specific disease that has strong, implied behavioral health components. Integrated care may be especially effective for chronic illnesses (e.g., diabetes) that impact patients at a psychosocial level in similar and different ways.

As Blount observed, “by distinguishing between coordinated, co-located, and integrated care, it is possible to be much clearer about what clinical practices are represented when collaborative programs are discussed” (2003, p. 124). These distinctions also allow researchers to identify the trends of IPC program design and outcome, as well as the advantages and disadvantages of each program type. In regards to program design, however, the level of

collaboration that exists at an IPC program site often depends on the available resources and the purpose of that program. Not every primary care clinic is able to afford (e.g., time, office space, and/or money) the implementation of a treatment team or, at the least, a full-time and on-site behavioral health professional. Rather, administrators at each primary care site can design a program that meets the needs of the site without overstressing the available resources. The following two models represent two types of behavioral health integration and illustrate the variability that exists in IPC. However, other models for integration also exist (see Collins, Hewson, Munger, & Wade, 2010).

Chronic Care Model

The Chronic Care Model (CCM) is a guiding framework for PCPs in treating chronically ill patients (Bodenheimer, Wagner, & Grumbach, 2002; Von Korff & Goldberg, 2001; Wagner, Austin, & Von Korff, 1996). The rationale behind the model is that since chronic illness is such a large part of health care costs and since rates of chronic conditions are increasing in the United States, PCPs stand to benefit from a standardized system of care (Bodenheimer et al., 2002). Moreover, traditional treatment protocols for chronic illness, which are more appropriate for acute conditions, are inadequate and contribute to these rising costs. In practice, PCPs may become burned out or frustrated with the extra time that chronic care patients may demand, especially when they work from an acute care model. Proponents of this model note that the “model does not offer a quick and easy fix” but rather “is a multidimensional solution to a complex problem” (p. 1776). Additionally, they observe that the “model is not an abstract theory but a concrete guide to improving practice” (p. 1777).

Although the CCM was originally developed for chronic conditions like diabetes, heart failure, and asthma, researchers and program developers have recently worked to integrate

behavioral health conditions into the CCM due to the “relapsing and recurring clinical course of depression” and other behavioral health disorders (Oxman et al., 2005, p. 1069). According to Oxman et al., there are two components of this model for treating chronic behavioral health conditions: care management and the role of the behavioral health specialist. Care management is a hallmark of the CCM and is used to relieve PCPs of the pressure of “fixing” a chronic illness in a single appointment. This is especially important for depressed patients who can experience acute episodes and who may also not adhere to usual treatment. In response, care management is intended to provide a treatment plan, close monitoring of symptoms, and patient education about the chronic condition including self-management techniques. Care management may take place in highly structured appointments with the PCP or it may be conducted by personnel who have been specifically trained for that treatment protocol. It may also be delivered through a telemedicine-based approach (video and/or phone) that allows for rural or homebound patients to access the service. Oxman et al. concluded that care management is “emerging as a meaningful primary care intervention for depression, given the relative shortage of doctoral level behavioral health specialists trained to work in medical settings” as well as the costs of such personnel and the fact that some patients may not have to meet with a specialist (p. 1070).

In regard to the behavioral health specialist in a CCM program, Oxman et al. (2005) suggested that such specialists (e.g., psychologists, psychiatrists) act as supervisors to intermediaries (e.g., nurses, care managers) who provide most of the case management. Providers in this system of care not only provide evidence-based, standardized treatment for patients with a particular behavioral health condition but also retain flexibility via specialists’ supervision and collaboration for adverse outcomes or complex patients. Indeed, the CCM for behavioral health conditions like depression has become a common choice for researchers due to

the specificity, replicability, and measurability of its design (see Butler et al., 2008 for examples).

Primary Care Behavioral Health Model

In addition to the CCM, another model of IPC, Primary Care Behavioral Health (PCBH), has been developed to address the complexity of patients in primary care (Peek, Baird, & Coleman, 2009; Strosahl, 1996). According to Strosahl, there are several reasons why behavioral health professionals should be integrated into primary care using the PCBH model. First, the psychotherapy field is filled with evidence-based and practiced-based approaches that are amenable to primary care. For example, relaxation techniques that were originally developed for systematic desensitization can be used to treat patients with anxiety, insomnia, or chronic pain. Next, many psychosocial issues show up in primary care and can be treated by behavioral health techniques. Third, behavioral health providers (BHP) are able to not only treat behavioral health conditions but also to promote health behaviors, reduce risk behaviors, and reduce morbidity and mortality for chronic disease patients. Fourth, the behavioral approach can be expanded by providers to include the influence and strength of family relationships. For example, a BHP may work with an entire family in order to help a patient improve treatment adherence for diabetes. Fifth, behavioral health treatment easily fits with the care management style that many primary care clinics use. This includes the use of patient education and self-management skills. Finally, many PCPs today use psychosocial interventions without even knowing the origins of those interventions, which speaks of the natural gravitation toward pragmatic approaches that many PCPs employ. Therefore, according to Strosahl, “the overlap between natural physician practices and behavioral strategies makes behavioral interventions very acceptable in the primary care setting” (p. 4).

Proponents of the PCBH model have concluded that behavioral health professionals can support PCPs on issues that may not traditionally be seen as psychological but instead behavioral (Robinson & Reiter, 2007; Robinson & Strohsal, 2009; Strohsal, 1996, 2001). Under the PCBH model, behavioral health providers are co-located with PCPs to create close collaboration and support that extends beyond just diagnosing and treating mental illness like anxiety and depression. As consultants, BHPs help with additional issues such as treatment adherence, substance abuse, family dysfunction, patient-provider relations, human development issues, anxiety about treatment, and more. The ultimate goals in the PCBH are to increase the consciousness and treatment of psychosocial issues within the medical setting and to enhance the patient-provider relationship. Behavioral health providers who work in this type of care system should be masters-level behavioral health professionals who have been trained to work in medical settings (Robinson & Reiter, 2007).

In regards to a comparison of the two models, differences between the CCM and the PCBH are matters of fit. In other words, the models should match and fulfill the needs of a particular clinic or research program. While the CCM may be used for providing standardized care management for specific diseases, the PCBH model may be used to offer behavioral health consultants to PCPs for a wide range of issues. Perhaps the ultimate reason for choosing a model may depend on available resources since there is a difference in cost between a behavioral health provider at the masters or doctoral level and a care manager with a nursing background, the former being traditionally more expensive. Moreover, clinical directors and administrators with medical backgrounds may be more comfortable in hiring a care manager with a nursing background who has more experience working in medical settings.

Integrated Primary Care: A Summary of Systematic Reviews

In the first chapter I described the history of this field of research to emphasize the trends associated with IPC programs and models that are known thus far. This was followed by the previous section in which I described the rationale for IPC as well as the constructs of IPC models that vary in specificity and operation. In this section I will provide a brief overview of the outcomes associated with IPC research, which extends over the past 15 to 20 years and includes a variety of populations and designs. The majority of IPC researchers to date have focused on depression solely or comorbidly (for a review, see Butler et al., 2008, 2011). Many additional researchers have examined anxiety including panic disorder and PTSD (Chan, Fan, & Unutzer, 2010; Chavira et al., 2009; Engel et al., 2008; Roy-Byrne, Katon, Cowley, & Russo, 2001). Other researchers have focused on military populations (Brawer, Martielli, Pye, Manwaring, & Tierney, 2010; Dobscha, Corson, Leibowitz, Sullivan, & Gerrity, 2008; Engel et al., 2008; Felker et al., 2004), HIV patients (Budin, Boslaugh, Beckett, & Winiarski, 2004), insomniacs (Goodie, Isler, Hunter, & Peterson, 2009), Latino populations (Dwight-Johnson et al., 2010), adolescents (Clarke et al., 2005), and lower SES patients (Mukherjee et al., 2006).

Although not the norm, several experts have developed non-disease specific programs for general behavioral health conditions (Chen et al., 2006; Guck, Guck, Brack, & Frey, 2007; Reiss-Brennan, Briott, Savitz, Cannon, & Staheli, 2010; Speer, Dupree, Vega, Schneider, Hanjian, & Ross, 2004). More recent empirical investigations of IPC include studies on cost-effectiveness (Blount et al., 2007; Katon et al., 2005; Katon, Fan, Lin, & Unutzer, 2006; Katon & Seelig, 2008; Liu et al., 2003; Reiss-Brennan et al., 2010; Unutzer et al., 2008). As mentioned before in the previous chapter, this is a significant trend in IPC research since most programs that develop in the process of a research project often cease to exist once the study and funding has

ended (Miller et al., 2009; Oxman et al., 2003, 2005). This can certainly be unfortunate especially for populations with already limited access to behavioral health services.

To date, there is a small group of reviews in which authors have organized the IPC research field (see Butler et al., 2008 for a list of most reviews). According to Butler et al. (2008), there are 12 major reviews of integrating behavioral health providers into primary care including one review of programs integrating primary care physicians into specialty behavioral health settings. Three of the 12 reviews are meta-analyses while the rest are systematic reviews. After additional literature searches I found two additional systematic reviews (Butler et al., 2011; Harkness & Bower, 2009). There are five themes to be found in these reviews. First, almost all reviews have solely focused on depression outcomes. The only exception is from Harkness and Bower who found moderate evidence that IPC causes a significant reduction in psychotropic medication prescription and referral by PCP to specialty behavioral health. Second, there is substantial evidence that collaborative care, especially disease management care, is effective in improving depression outcomes. Third, all of the reviews include only experimental design studies and none have sample sizes greater than 42. Fourth, many of the authors agree that the next step is to identify what specific components of integration, “special ingredients,” lead to greater outcomes. Fifth, it is not very clear how IPC is being practiced in other general behavioral health programs, beyond care management, disease-specific programs. These reviews are integral to organizing the evidence of IPC effectiveness; however, the search criteria used in these reviews limit the inclusion of other IPC studies and consequently do not allow for a comprehensive view of IPC research trends.

As an example of a major review, I will summarize the most recent publication. Butler et al. (2011) analyzed 26 trials to determine whether the level of integration (e.g., provider roles,

care process) affected depression outcomes. The researchers found that while most trials showed positive outcomes, the level of integration was not related to depression outcomes. That is, there was “no correlation between the outcomes and the extent of clinician integration or the implementation of structured processes of care, nor was there evidence that more intensive intervention ... produced better results” (p. 120). This review by Butler et al. is unique in that the researchers attempted to isolate the confounding effects of interventions that included both efforts to integrate providers and change treatment practices. In other words, the researchers wanted to determine if depression outcomes improved as the level of integration increased, which they found was not the case. Butler et al. concluded that although the trials identified in their systematic review provided valuable insight, they also represented atypical circumstances. In several cases, the researchers of the trials addressed depression that was not complicated by other behavioral health conditions like anxiety or substance abuse. Therefore, it seems uncertain how some of these trials may have fared with more complex patient populations. This review by Butler et al. is helpful since the researchers concluded that the level of integration was not significantly correlated with depression outcomes; however, this finding by the authors should spur future researchers to further examine the relationship between outcomes and level of integration. Although Butler et al.’s findings are important they are not absolute and may require future studies that explicitly examine this relationship. In addition, Butler et al.’s review is limited by the inclusion of only experimental studies. Non-experimental studies of IPC can contribute to the ongoing evolution of IPC in a few ways. Non-experimental study designs like case study, grounded theory, phenomenology, and participatory action research allow researchers to answer questions that go beyond effectiveness and efficacy to mechanism of action, quality improvement, and patient and provider experience. However, just like the healthcare system has

a difficult time adopting a new lens for broadening the care team, so do researchers who think experimental design is the only method for evaluating treatments.

This review is helpful for program developers looking to implement an evidence-based IPC program and for future researchers hoping to identify the next stage in moving IPC service forward. In other words, it can be difficult at times to determine the next evolutionary step in research; systematic reviews provide an organized illustration of the evidence at hand. However, it is still unclear, despite the reviews that have been presented thus far, what methodological trends and diversity exist for this field of research. It is clear, though, that most authors of these reviews have used narrow inclusion criteria (e.g., study design, diagnosis) in sampling IPC research. Since research methods are the tools for answering research questions and hypotheses, it is central to the refinement and progression of IPC that we understand what tools have been used thus far and, consequently, what questions have been asked thus far. This will ultimately allow researchers to identify the next set of questions. What is needed now is a cohesive profile of the samples and designs being used in IPC research. Such a profile does not currently exist.

Conclusion

Integrated primary care, the coordinated and co-located effort of medical and behavioral health providers, is a viable part of the solution to many of the challenges facing the health care delivery system of the United States. To date, systematic reviews of IPC research demonstrate that IPC is effective in treating patients with depression. However, these reviews have neglected to include non-experimental studies as well as other behavioral health conditions beyond depression. Researchers have also failed to provide a cohesive summary of how IPC is actually being practiced beyond randomized clinical trials. Future researchers will benefit from an organized review of the methodological and program characteristic trends inherent in these

studies. Such a review will shed light on the research questions that have not been examined thus far and hopefully advance the development of this valuable health care service.

REFERENCES

- Anderson, R. J., Huff, N. L., & Hodgson, J. L. (2008). Medical family therapy in an inpatient psychiatric setting: A qualitative study. *Families, Systems, & Health, 26*(2), 164-180. doi: 10.1037/1091-7527.26.2.164
- Baik, S., Bowers, B. J., Oakley, L. D., & Susman, J. L. (2005). The recognition of depression: The primary care clinician's perspective. *Annals of Family Medicine, 3*(1), 31-37. doi:10.1370/afm.239
- Blount, A. (1998). *Integrated primary care: The future of medical and mental health collaboration*. New York, NY: Norton.
- Blount, A. (2003). Integrated primary care: Organizing the evidence. *Families, Systems & Health, 21*(2), 121-133. doi: 10.1037/1091-7527.21.2.121
- Blount, A., Schoenbaum, M., Kathol, R., Rollman, B. L., Thomas, M., O'Donohue, W., & Peek, C. J. (2007). The economics of behavioral health services in medical settings: A summary of the evidence. *Professional Psychology: Research and Practice, 38*(3), 290-297. doi: 10.1037/0735-7028.38.3.290
- Brawer, P. A., Martielli, R., Pye, P. L., Manwaring, J., & Tierney, A. (2010). St. Louis Initiative for Integrated Care Excellence (SLI2CE): Integrated-collaborative care on a large scale model. *Families, Systems, & Health, 28*(2), 175-187. doi:10.1037/a0020342
- Bronfenbrenner, U. (1979). *The ecology of human development: Experiments by nature and design*. Cambridge, MA: Harvard University Press.

- Budin, J., Boslaugh, S., Beckett, E., & Winiarski, M. G. (2004). Utilization of psychiatric services integrated with primary care by persons of color with HIV in the inner city. *Community Mental Health Journal*, 40(4), 365-378.
doi:10.1023/B:COMH.0000035230.20900.59
- Butler, M., Minnesota Evidence-based Practice Center, & United States Agency for Healthcare Research and Quality. (2008). *Integration of mental health/substance abuse and primary care*. Rockville, MD: Agency for Healthcare Research and Quality.
- Butler, M., Kane, R. L., McAlpine, D., Kathol, R., Fu, S. S., Hagedorn, H., & Wilt, T. (2011). Does integrated care improve treatment for depression? A systematic review. *The Journal of Ambulatory Care Management*, 34(2), 113. doi:10.1097/JAC.0b013e31820ef605
- Chan, D., Fan, M., & Unützer, J. (2011). Long-term effectiveness of collaborative depression care in older primary care patients with and without PTSD symptoms. *International Journal of Geriatric Psychiatry*, 26(7), 758-764. doi:10.1002/gps.2606
- Chavira, D. A., Stein, M. B., Golinelli, D., Sherbourne, C. D., Craske, M. G., Sullivan, G., . . . Roy-Byrne, P. (2009). Predictors of clinical improvement in a randomized effectiveness trial for primary care patients with panic disorder. *Journal of Nervous and Mental Disease*, 197(10), 715-721. doi:10.1097/NMD.0b013e3181b97d4d
- Chen, H., Coakley, E. H., Cheal, K., Maxwell, J., Costantino, G., Krahn, D. D., . . . Levkoff, S. E. (2006). Satisfaction with mental health services in older primary care patients. *The American Journal of Geriatric Psychiatry*, 14(4), 371-379.
doi:10.1097/01.JGP.0000196632.65375.b9

- Clarke, G., Debar, L., Lynch, F., Powell, J., Gale, J., O'Connor, E., . . . Hertert, S. (2005). A randomized effectiveness trial of brief cognitive-behavioral therapy for depressed adolescents receiving antidepressant medication. *Journal of the American Academy of Child & Adolescent Psychiatry, 44*(9), 888-898. doi:10.1016/S0890-8567(09)62194-8
- Collins, C., Hewson, D. L., Munger, R., & Wade, T. (2010). *Evolving models of behavioral health integration in primary care*. Retrieved from <http://www.milbank.org/reports/10430EvolvingCare/10430EvolvingCare.html>
- Conis, E. (2009). A Model for Mental Health Integration. *Health Policy Monitor*, October. Retrieved at <http://www.hpm.org/survey/us/a14/4>
- Craven, M. A. & Bland, R. (2006). Better practices in collaborative mental health care: An analysis of the evidence base. *Canadian Journal of Psychiatry, 51*(6), 7S-72S.
- Davis, K. (2011). *Pathways to integrated care: Strategies for African American communities and organizations*. Washington, DC: US Department of Health and Human Services Office of Minority Health. Retrieved from <http://www.minorityhealth.hhs.gov/Assets/pdf/Checked/1/PathwaystoIntegratedHealthCareStrategiesforAfricanAmericans.pdf>
- Dobscha, S. K., Corson, K., Leibowitz, R. Q., Sullivan, M. D., & Gerrity, M. S. (2008). Rationale, design, and baseline findings from a randomized trial of collaborative care for chronic musculoskeletal pain in primary care. *Pain Medicine, 9*(8), 1050-1064. doi:10.1111/j.1526-4637.2008.00457.x

- Doherty, W., McDaniel, S., & Baird, M. (1996). Five levels of primary care - behavioral healthcare collaboration. *Behavioral Healthcare Tomorrow*, 5(5), 25-27.
- Engel, G. L. (1977). The need for a new medical model: A challenge for biomedicine. *Science*, 196(4286), 129-136. doi:10.1126/science.847460
- Engel, C. C., Oxman, T., Yamamoto, C., Gould, D., Barry, S., Stewart, P., . . . Dietrich, A. J. (2008). RESPECT-Mil: Feasibility of a systems-level collaborative care approach to depression and post-traumatic stress disorder in military primary care. *Military Medicine*, 173(10), 935-940. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&db=psyh&AN=2008-14931-001&site=ehost-live>
- Felker, B. L., Barnes, R. F., Greenberg, D. M., Chancy, E. F., Shores, M. M., Gillespie-Gateley, I., . . . Morton, C. E. (2004). Preliminary outcomes from an integrated mental health primary care team. *Psychiatric Services*, 55(4), 442-444. doi:10.1176/appi.ps.55.4.442
- Fries, J. F., Koop, C. E., Beadle, C. E., Cooper, P. P., England, M. J., Greaves, R. F., . . . Wright, D. (1993). Reducing health-care costs by reducing the need and demand form medical-services. *New England Journal of Medicine*, 329(5), 321-325. doi:10.1056/NEJM199307293290506
- Gatchel, R. J., & Oordt, M. S. (2003). *Clinical health psychology and primary care: Practical advice and clinical guidance for successful collaboration*. Washington, DC: American Psychological Association.
- Goodie, J. L., Isler, W. C., Hunter, C., & Peterson, A. L. (2009). Using behavioral health consultants to treat insomnia in primary care: A clinical case series. *Journal of Clinical Psychology*, 65(3), 294-304. doi:10.1002/jclp.20548

- Guck, T. P., Guck, A. J., Brack, A. B., & Frey, D. R. (2007). No-show rates in partially integrated models of behavioral health care in a primary care setting. *Families, Systems, & Health, 25*(2), 137-146. doi:10.1037/1091-7527.25.2.137
- Gunn, W. B., & Blount, A. (2009). Primary care mental health: A new frontier for psychology. *Journal of Clinical Psychology, 65*(3), 235-252. doi:10.1002/jclp.20499
- Harkness, E. F., & Bower, P. J. (2009). On-site mental health workers delivering psychological therapy and psychosocial interventions to patients in primary care: Effects on the professional practice of primary care providers. *Cochrane Database of Systematic Reviews* (Online), (1), 000532. doi:10.1002/14651858.CD000532.pub2
- Hunter, C. L., & Goodie, J. L. (2010). Operational and clinical components for integrated-collaborative behavioral healthcare in the patient-centered medical home. *Families, Systems, & Health, 28*(4), 308-321. doi:10.1037/a0021761
- Institute of Medicine [IOM] (U.S.). Committee on Quality of Health Care in America. (1996). *Crossing the quality chasm: A new health system for the 21st century*. Washington, D.C: National Academy Press.
- Institute of Medicine (U.S.) Committee on Quality of Health Care in America. (2001). *Crossing the quality chasm: A new health system for the 21st century*. Washington, D.C: National Academy Press. Retrieved from <http://www.iom.edu/~media/Files/Report%20Files/2001/Crossing-the-Quality-Chasm/Quality%20Chasm%202001%20%20report%20brief.pdf>
- Katon, W. (1995). Collaborative care: Patient satisfaction, outcomes, and medical cost-offset. *Family Systems Medicine, 13*(3-4), 351-365. doi:10.1037/h0089387

- Katon, W. J., Fan, M., Lin, E. H. B., & Unützer, J. (2006). Depressive symptom deterioration in a large primary care-based elderly cohort. *The American Journal of Geriatric Psychiatry*, *14*(3), 246-254. doi:10.1097/01.JGP.0000196630.57751.44
- Katon, W. J., Schoenbaum, M., Fan, M., Callahan, C. M., Williams, J., Jr., Hunkeler, E., . . . Unützer, J. (2005). Cost-effectiveness of improving primary care treatment of late-life depression. *Archives of General Psychiatry*, *62*(12), 1313-1320. doi:10.1001/archpsyc.62.12.1313
- Katon, W. J., & Seelig, M. (2008). Population-based care of depression: Team care approaches to improving outcomes. *Journal of Occupational and Environmental Medicine*, *50*(4), 459-467. doi:10.1097/JOM.0b013e318168efb7
- Lieberman, J. A. (2003). The use of antipsychotics in primary care. *Primary Care Companion Journal of Clinical Psychology*, *5* (supplement 3), 3-8. Retrieved from <http://www.psychiatrist.com/pcc/pccpdf/v05s03/v05s0301.pdf>
- Liu, C., Hedrick, S. C., Chaney, E. F., Heagerty, P., Felker, B., Hasenberg, N., . . . Katon, W. (2003). Cost-effectiveness of collaborative care for depression in a primary care veteran population. *Psychiatric Services*, *54*(5), 698-704. doi:10.1176/appi.ps.54.5.698
- Loeppke, R., Taitel, M., Haufle, V., Parry, T., Kessler, R. C., & Jinnett, K. (2009). Health and productivity as a business strategy: A multiemployer study. *Journal of Occupational and Environmental Medicine*, *51*(4), 411-428. doi:10.1097/JOM.0b013e3181a39180
- Marlowe, D., Hodgson, J., Lamson, A., White, M., & Irons, T. (2011). *Medical family therapy in a primary care setting: A model of integration*. (Unpublished doctoral dissertation). East Carolina University, Greenville, NC.

- McDaniel, S. H., Hepworth, J., & Doherty, W. J. (1992). *Medical family therapy: A biopsychosocial approach to families with health problems*. New York, NY: Basic Books.
- McDaniel, S. H. (1995). Collaboration between psychologists and family physicians - implementing the biopsychosocial model. *Professional Psychology: Research and Practice*, 26(2), 117-122. doi:10.1037/0735-7028.26.2.117
- Miller, B. F., Mendenhall, T. J., & Malik, A. D. (2009). Integrated primary care: An inclusive three-world view through process metrics and empirical discrimination. *Journal of Clinical Psychology in Medical Settings*, 16(1), 21-30. doi:10.1007/s10880-008-9137-4
- Miller B. F., Kessler R., Peek C. J., & Kallenberg, G.A. (2011). *A National agenda for research in collaborative care: Papers from the Collaborative Care Research Network Research Development Conference* (AHRQ Publication No. 11-0067). Rockville, MD: Agency for Healthcare Research and Quality. Retrieved from <http://www.ahrq.gov/research/collaborativecare/collabcare.pdf>
- Miranda, J., Hohnmann, A. A., & Attkisson, C. A. (1994). *Epidemiology of mental health disorders in primary care*. San Francisco, CA: Jossey-Bass.
- Mukherjee, S., Sullivan, G., Perry, D., Verdugo, B., Means-Christensen, A., Schraufnagel, T., . . . Roy-Byrne, P. (2006). Adherence to treatment among economically disadvantaged patients with panic disorder. *Psychiatric Services*, 57(12), 1745-1750. doi:10.1176/appi.ps.57.12.1745
- National Alliance on Mental Illness (2011). *A Family Guide: Integrating Mental Health and Pediatric Primary Care*. Arlington, VA: Retrieved from National Alliance on Mental Illness website: <http://www.nami.org/Content/ContentGroups/CAAC/FG-Integrating.pdf>

- National Center for Health Statistics [NCHS] (2011). *Health, United States, 2010: In brief*. Hyattsville, MD: U.S. Department of Health and Human Services.
- Patterson, J., Peek, C. J., Heinrich, R. L., Bischoff, R. J., & Scherger, J. (2002). *Mental health professionals in medical settings: A primer*. New York, NY: Norton.
- Oxman, T. E., Dietrich, A. J., & Schulberg, H. C. (2003). The depression care manager and mental health specialist as collaborators within primary care. *The American Journal of Geriatric Psychiatry, 11*(5), 507-516. doi:10.1097/00019442-200309000-00005
- Oxman, T. E., Dietrich, A. J., & Schulberg, H. C. (2005). Evidence-based models of integrated management of depression in primary care. *The Psychiatric Clinics of North America, 28*(4), 1061-1061. doi:10.1016/j.psc.2005.09.007
- Peek, C. J., Schoenbaum, M., Rollman, B. L., O'Donohue, W., Thomas, M., Blount, A., & Kathol, R. (2007). The economics of behavioral health services in medical settings: A summary of the evidence. *Professional Psychology: Research and Practice, 38*(3), 290-297. doi:10.1037/0735-7028.38.3.290
- Peek, C. J., Baird, M. A., & Coleman, E. (2009). Primary care for patient complexity, not only disease. *Families, Systems & Health, 27*(4), 287-302. doi:10.1037/a0018048
- Peek, C. & Oftedahl, G. (2010). *A consensus operational definition of patient-centered medical home (PCMH)*. Unpublished manuscript, Institute for Clinical Systems Improvement, University of Minnesota, Minneapolis, MN.
- Petterson S. M., Phillips R. L., Bazemore A. W., Doodoo M. S., Zhang X., Green L. A. Why there must be room for mental health in the medical home. *American Family Physician, 77*(6), 757. Retrieved from <http://search.proquest.com.jproxy.lib.ecu.edu/docview/234258259>

- Portman, T., & Garrett, M. (2006). Native American healing traditions. *International Journal of Disability, Development & Education*, 53(4), 453-469. doi: 10.1080/10349120601008647
- Reeves, W. C., Strine, T. W., Pratt, L. A., Thompson, W., Ahluwalia, I., Dhingra, S. S., & McKnight-Eily, L. R., ... Safran, M. A. (2011). Mental illness surveillance among adults in the United States. *Morbidity and Mortality Weekly Report*, 60(03), 1-32. Retrieved from http://www.cdc.gov/mmwr/preview/mmwrhtml/su6003a1.htm?s_cid=su6003a1_w
- Reiss-Brennan, B., Briot, P., Savitz, L., Cannon, W., & Staheli, R. (2010). Cost and quality impact of intermountain's mental health integration program. *Journal of Healthcare Management*, 55(2), 97-113. Retrieved from <http://go.galegroup.com.jproxy.lib.ecu.edu/ps/i.do?id=GALE%7CA224863076&v=2.1&u=gree96177&it=r&p=HRCA&sw=w>
- Robinson, P. J., & Reiter, J. T. (2007). *Behavioral consultation and primary care: A guide to integrating services*. New York, NY: Springer
- Robinson, P. J., & Strosahl, K. D. (2009). Behavioral health consultation and primary care: Lessons learned. *Journal of Clinical Psychology in Medical Settings*, 16(1), 58-71. doi:10.1007/s10880-009-9145-z
- Roy-Byrne, P., Katon, W., Cowley, D. S., & Russo, J. (2001). A randomized effectiveness trial of collaborative care for patients with panic disorder in primary care. *Archives of General Psychiatry*, 58(9), 869-876. doi:10.1001/archpsyc.58.9.869
- Ruddy, N. B. & McDaniel, S. H. (2005). Medical family therapy. In T. L. Sexton, G. R. Weeks, & M. S. Robbins (Eds.), *Handbook of family therapy* (pp. 418-436). New York, NY: Routledge.

- Substance Abuse and Mental Health Services Administration (2012). *Results from the 2010 National Survey on Drug Use and Health: Mental Health Findings*. NSDUH Series H-42, HHS Publication No. (SMA) 11-4667. Rockville, MD. Retrieved from http://www.samhsa.gov/data/NSDUH/2k10MH_Findings/
- Speer, D. C., Dupree, L. W., Vega, C., Schneider, M. G., Hanjian, J. M., & Ross, K. (2004). Age and mental health status differences in medical service utilization in an integrated primary care setting. *Clinical Gerontologist*, 27(4), 71-82. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&db=rzh&AN=2010364351&site=ehost-live>
- Strosahl, K. (1996). Confessions of a behavior therapist in primary care: The odyssey and the ecstasy. *Cognitive and Behavioral Science*, 3(1), 1-28. doi:10.1016/S1077-7229(96)80028-9
- Strosahl, K. (2001). The integration of primary care and behavioral health: Type II changes in the era of managed care. In V. Follette (Ed.), *Integrated behavioral healthcare: Positioning mental health practice with medical/surgical practice*. (pp. 45-69). San Diego, CA: Academic Press.
- Swatos, W. & Kivisto, P. (1998). *Encyclopedia of religion and society*. Walnut Creek, CA: Rowman Altamira.
- Unutzer, J., Katon, W. J., Fan, M., Schoenbaum, M. C., Lin, E. H. B., Della Penna, R. D., & Powers, D. (2008). Long-term cost effects of collaborative care for late-life depression. *The American Journal of Managed Care*, 14(2), 95-100. Retrieved from www.cinahl.com/cgi-bin/refsvc?jid=1514&accno=2009814586

Wang, P. S., Lane, M., Olfson, M., Pincus, H. A., Wells, K. B., & Kessler, R. C. (2005). Twelve-month use of mental health services in the United States: Results from the national comorbidity survey replication. *Archives of General Psychiatry*, 62(6), 629-640.
doi:10.1001/archpsyc.62.6.629

Wright, L. M., Watson, W. L., & Bell, J. M. (1996). *Beliefs: The heart of healing in families and illness*. New York, NY: Basic Books.

CHAPTER THREE: METHOD

Introduction

The purpose of this chapter is to describe the study design for both articles of this dissertation. Since articles one and two are both systematic reviews of the same literature, albeit with different outcome variables, this chapter will include information about the study design, inclusion criteria, and search strategy that was used to create a database for both articles. I will then describe the data extraction and organization that is unique to each systematic review.

Systematic Review Design

The purpose of a systematic review is to identify a sample or entire population of studies using a stepwise search strategy with specific inclusion and exclusion criteria. Although there are other possibly interchangeable terms in the scientific community (e.g., literature review, research synthesis; see Cooper, 2009), I purposefully use “systematic review” to reflect the organized, empirical *process* of identifying research trends within a body of studies. This is not a narrative review of themes in the literature nor is it a statistical or historical synthesis of study outcomes. Rather, it is an attempt to provide the field of integrated primary care research a unified profile of study design and program characteristic trends that I believe is sorely missing. A systematic review that is more inclusive than past reviews will help to identify those particular trends.

Seemingly, the only underlying theoretical framework of a systematic review is a positivist philosophy of science which, broadly speaking, states that knowledge is gained through direct manipulation and observation. This appears to be a general assumption of all empirical investigations and offers the lens that reality is independent of us and accessible through sensory experience. However, positivism is such a pervasive philosophy inherent in empirical science

and is difficult to find expressly stated in a theoretical format useful for conducting a systematic review. Perhaps an alternative then is to use theory as a tool for organizing study findings. Indeed, I have used biopsychosocial (BPS; Engel, 1977; McDaniel, Hepworth, & Doherty, 1992) and ecological lenses (Bronfenbrenner, 1979) to organize the findings of this dissertation as well as to inform my critical analysis of the findings. These lenses allow me to view individuals within a multi-level, contextual framework.

In planning the search strategy of this systematic review I drew upon Cooper's guidelines for literature searches and data organization (2009) as well as upon the strategy used in Butler et al.'s systematic review (2008). It was difficult to find a systematic review in which authors provided enough detail about search strategy. Butler et al. was the only identified report that included sufficient information to replicate and expound upon. In regard to inclusion criteria, Butler et al. included two criteria for eligibility: setting (primary care) and provider (primary care and behavioral health specialty). I added a third criterion: integration (shared records, collaboration, and/or shared treatment of patient). I also followed many of the exclusion criteria used by Butler et al. including the exclusion of non-US trials and any trials focusing on substance abuse, cognitive disorders, or developmental disorders. However, I did not exclude qualitative studies as part of the strategy for these systematic reviews.

Research Method

Inclusion and Exclusion Criteria

Eligibility for the reviews included the following criteria: 1) setting: outpatient (primary medical care); 2) providers: primary care and behavioral health; and 3) integration of medical providers and behavioral health providers. Given that I focused on outpatient primary care settings, I excluded hospital, inpatient, specialty behavioral health, substance abuse, hospice,

secondary or tertiary care settings. In regard to the second criterion, reviewed studies included medical care from a provider trained in family practice, pediatrics, internal medicine, and/or obstetrics/gynecology. Medical providers also included mid-level professionals, including physician assistants and family nurse practitioners. Behavioral health providers included nurses in a behavioral health role or providing a behavioral health service and/or behavioral health professionals, including care managers, case managers, clinical social workers, marriage and family therapists, behavioral health clinicians, professional counselors, psychologists, and psychiatrists. Integrated care included those programs where providers were sharing the same location and record system as well as collaborating on patient treatment (Peek & Oftedahl, 2010).

In addition to the above criteria, I included only peer-reviewed English-language journals and original, empirical research. In regard to patient populations, I included studies of adults, adolescents, and children. Acceptable study designs included both quantitative and qualitative study designs, and excluded any case studies, theoretical or conceptual articles, meta-analyses, and opinion or editorial articles. Since health care delivery systems outside the United States are different from those within the US and typically have particular funding structures, I only included those studies conducted inside the US. Additional exclusion criteria included the following: studies focused on integrated care for persons with cognitive disorders (e.g., dementia, delirium); studies focused on developmental disorders of children (e.g., ADHD); and studies of integrated care for only substance use (i.e., no comorbidity). These studies were not included so as to allow me to focus on the general population of primary care patients and on studies where improving behavioral health outcomes were a major part of the intervention. Moreover, patients with cognitive disorders, developmental disabilities, or substance use

disorders may require more specialized care due to the complexity of these conditions. Since this is a broad, comprehensive review, I did not limit the search to any particular range of years.

Search Strategy

The search effort included the following terms: *integrated primary care, collaborative care, collaboration, co-location, co-located service, embedded service, integrated service, and medical home*. These terms, although conceptually distinct from one another, were chosen to identify those researchers that examined integrated medical and behavioral health services in primary care. The last term is related to the patient-centered medical home concept which several researchers strongly suggested should include the integration of behavioral health treatment (Crogan & Brown, 2010). Although the search terms chosen are not synonymous and researchers are still working to develop a consensual definition of IPC, these terms still overlap with the general concept of IPC (Hunter & Goodie, 2010; Miller, Mendenhall, & Malik, 2009; Peek & Oftedahl, 2010). These search terms allow a literature search that satisfies the two criteria of setting and provider. Moreover, a portion of these search terms have been used in another systematic review (see Butler et al., 2008). I did not use the terms “behavioral health” and “mental health” in my list of search terms; rather, I used broader concepts like “integrated primary care” and “collaborative care” to locate qualifying studies. Then, while searching through the titles, abstracts, and method sections of each study, I identified those behavioral and mental health providers whose role description fit my inclusion criteria.

MEDLINE via PubMed, PsychINFO, Cochrane Central Register of Controlled Trials, and CINAHL via EBSCO were the primary databases used to identify eligible studies. Search terms were entered into each database search as “keywords” meaning that they had to appear in qualifying articles in their entirety (e.g., “integrated primary care” and not integrated + primary +

care). The same search terms were used for all databases except for CINAHL via EBSCO which uses a network of related terms for searching instead of the entry of specific search terms. The Medline via PUBMED database yielded the highest number of relevant articles (n=64). See Table 1 (stepwise chart) and Figure 1 (workflow diagram) for illustrations of the search strategy including the number of articles identified at each step.

The search strategy consisted of four steps (Cooper, 2009). First, studies were considered for selection based on information provided in the title and/or abstract that fit the inclusion criteria. Articles were rated with one of three categories: include, possible, and exclude. During the second step, articles' method sections were read to further determine if "possible" articles matched the inclusion criteria. The third step was to eliminate duplicate articles. During the fourth step, I searched the reference lists of other systematic reviews of IPC research to determine which articles we had missed (Badamgarav et al., 2003; Bee et al., 2008; Butler, 2008; Gilbody, Whitty, Grimshaw, & Thomas, 2003). I did not search through the reference lists of extracted articles because such a comprehensive extraction of the entire population of IPC studies was never my intention; rather I sought to extract a sizeable sample of IPC studies. The total number of articles extracted for article one was 112. In regard to article two, I identified secondary data analysis studies and removed those (n=36) during the fourth step of the search strategy. These studies were removed so as to avoid an inflation of the results for article two. The total number of articles reviewed for article two was 76. See Figure 2 for an illustration of the search strategy steps for the second article.

Data Extraction

Article One. In article one I used categories recommended by one expert on research synthesis to organize all the data extracted from the selected studies (Cooper, 2009). These

categories included *study design, sampling procedures, participant characteristics, outcome variables, and measurements*. In addition to these categories I also included *program characteristics* to extract data related to geographical setting and treatment scope. The first category, study design, included variables related to the research method type (e.g., experimental design) used in each study. Second, variables for sampling procedures were comprised of those screening and assessment methods used to identify a sample of the population in each study. Third, in regard to participant characteristics, I extracted available information that included sample size, age, gender, race, and diagnosis type. Fourth, the category of outcome variables captured the major results of treatment (e.g., depression treatment outcomes) in each study. Finally, the category of measurements was created to identify those psychosocial measures used in each study. A code list was developed to organize all the study characteristic variables extracted for article one (see Table 2).

Article Two. In article two, data relating to IPC program information was extracted from each study in a systematic manner (see Table 3). This extraction includes the following categories: *level of integration, theoretical model, intervention, behavioral health training, provider type, and setting*. First, in regard to level of integration, I extracted information reflecting the type of relationship between collaborating providers, (e.g., consultant, collaborator, or subordinate); I extracted data on the type of communication system between providers (e.g., electronic vs. face to face). Next, in extracting data on models and interventions, I identified the theory or model utilized in each program (e.g., chronic care model, IMPACT) as well as the type of intervention (e.g., psychoeducation or cognitive behavioral); I also determined the scope of the intervention in terms of whether the researchers targeted a behavioral health condition or whether they provided behavioral health treatment to a general patient population.

Fourth, in regard to behavioral health training, I extracted information about whether non-traditional behavioral health providers (i.e., nurses or care managers) were trained and/or supervised by traditional behavioral health providers (i.e., psychologists or psychiatrists), the duration and type of training (e.g., one day workshop), and the frequency and type of supervision (e.g., once a week supervision over the phone); I also extracted data regarding if researchers developed a manualized treatment for all providers. Fifth, in collecting data on provider type, I identified the various behavioral health and medical providers enrolled in each program. Finally, I extracted information on the type of communities in which researchers studied IPC programs (e.g., rural, urban). In preparing for the data extraction, I expected that some studies would have information that others did not and planned to collect whatever data I could from each study. For example, I anticipated that most studies would not include information on theoretical orientation; however, this expected outcome may be an indication of a gap in the literature. A code list was developed to organize all the program characteristic variables extracted for article two (see Table 3).

Articles One and Two. During data extraction I reviewed studies in alphabetical order and identified relevant information in the method, result, and discussion sections of each particular report. Some studies, particularly the program evaluation articles, were not organized in the traditional journal article format and thus it took a little more effort to glean pertinent information from those studies. Data was organized into a table that included categories for each variable. I inserted word values or abbreviations into most cells of the table; for example, appropriate responses for provider type were psychologist or social worker while responses for treatment scope were depression or general behavioral health treatment. I expected that some responses would vary and thus require codes that captured similarity between responses. For

both articles, all of the codes were created by the first author who also extracted all the data from the articles. The coding process followed the general data extraction used by Butler et al. (2008) and also included an iterative development of new codes as new information was found. An independent, second coder was recruited to ensure the reliability of these findings (Schlosser, 2007). This second coder was a graduate student who examined a random third of the studies (n=38 for the first article, n=25 for the second article) to confirm the data matched the tables of each corresponding article (2007). Any extraction mistakes were corrected and the second author was available to act as arbiter for any coding disagreements. Out of 38 articles with seven categories (a total of 266 items), eight items were identified (five were study design items, two were sample size items, and one was an outcome variable item) by the second coder as being questionable (i.e., did not match coding key) for the first systematic review. All of these items were incorrectly coded by the first coder and subsequently corrected. According to Schlosser (2007), an acceptable level of inter-rater agreement lies between 80 and 100%. The inter-rater agreement rate for the first review was 97%. In regard to the second review, nine items (one integration level item, three intervention items, two training and supervision items, and three setting items) were identified as being questionable out of the 25 randomly selected articles (six categories, 150 total possible items). Again, these items were recognized by the first coder as being incorrectly coded and thus appropriately changed. The inter-rater agreement rate for the second review was 94%.

Presentation of Findings

The results for this dissertation are organized into two systematic reviews (Chapter Four and Chapter Five). The presentation of results for each article is similar. Following data extraction, I calculated frequency counts of each outcome variable and constructed a table that

presents these findings for each systematic review. Each systematic review thus includes a table showing each value of each study, another table with frequency counts, and figures reflecting the search strategy. In the results section of article two I included the findings of each outcome variable and commented on what was found and what was not found. In the discussion sections I summarized the findings and made suggestions for future researchers.

REFERENCES

- Badamgarav, E., Weingarten, S. R., Henning, J. M., Knight, K., Hasselblad, V., Gano, J., Anacleto, & Ofman, J. J. (2003). Effectiveness of disease management programs in depression: A systematic review. *The American Journal of Psychiatry*, *160*(12), 2080-2090. doi:10.1176/appi.ajp.160.12.2080
- Bee, P. E., Bower, P., Lovell, K., Gilbody, S., Richards, D., Gask, L., & Roach, P. (2008). Psychotherapy mediated by remote communication technologies: A meta-analytic review. *BMC Psychiatry*, *8*(1), 60. doi:10.1186/1471-244X-8-60
- Bronfenbrenner, U. (1979). *The ecology of human development: Experiments by nature and design*. Cambridge, MA: Harvard University Press.
- Butler, M., Kane R. L., McAlpine D., Kathol, R. G., Fu S. S., Hagedorn H., Wilt T. J. (2008). *Integration of mental health/substance abuse and primary care*. (Prepared by the Minnesota Evidence-based Practice Center under Contract No. 290-02-0009.) AHRQ Publication No. 09- E003. Rockville, MD: Agency for Healthcare Research and Quality.
- Cooper, H. M. (2009). *Research synthesis and meta-analysis: A step-by-step approach* (4th ed.). Washington, DC: Sage.
- Crogan, T. W., & Brown, J. D. (2010). *Integrating mental health treatment into the patient centered medical home*. (Prepared by Mathematica Policy Research under Contract No. HHSA290200900019I TO2.) AHRQ Publication No. 10-0084-EF. Rockville, MD: Agency for Healthcare Research and Quality.
- Engel, G. L. (1977). The need for a new medical model: A challenge for biomedicine. *Science*, *196*(4286), 129-136. doi:10.1126/science.847460

Gilbody, S., Whitty, P., Grimshaw, J., & Thomas, R. (2003). Educational and organizational interventions to improve the management of depression in primary care: A systematic review. *The Journal of the American Medical Association*, 289(23), 3145-3151.

doi:10.1001/jama.289.23.3145

Hunter, C. L., & Goodie, J. L. (2010). Operational and clinical components for integrated-collaborative behavioral healthcare in the patient-centered medical home. *Families, Systems, & Health*, 28(4), 308-321. doi:10.1037/a0021761

McDaniel, S. H., Hepworth, J., & Doherty, W. J. (1992). *Medical family therapy: A biopsychosocial approach to families with health problems*. New York, NY: Basic Books.

Peek, C. & Oftedahl, G. (2010). A consensus operational definition of patient-centered medical home (PCMH). Unpublished Manuscript, Institute for Clinical Systems Improvement, University of Minnesota, Minneapolis, MN.

Table 1

Four Step Search Strategy

Databases			
Medline via PUBMED	PsychINFO	Cochrane Register	CINAHL via EBSCO
Step One: Titles and Abstracts			
<i>Integrated primary care</i>	<i>Integrated primary care</i>	<i>Integrated primary care</i>	<i>Integrated health care delivery</i>
Yield: 99	Yield: 156	Yield: 13	Yield: 79
Found 8 possible	Found 28 possible	Found 2 possible	Found 6 possible
<i>Collaborative care AND primary care</i>	<i>Collaborative care AND primary care</i>	<i>Collaborative care AND primary care</i>	<i>Collaborative care</i>
Yield: 342	Yield: 318	Yield: 95	Yield: 137
Found 86 possible	Found 39 possible	Found 6 possible	Found 14 possible
<i>Medical home AND primary care</i>	<i>Medical home AND primary care</i>	<i>Medical home AND primary care</i>	

Yield: 231

Found 3 possible

Colocation AND primary care

Yield: 2

Found 0 possible

Colocated Service AND primary care

Yield: 6

Found 0 possible

Embedded Service AND primary care

Yield: 47

Found 2 possible

Collaboration AND primary care

AND mental health

Yield: 531

Yield: 66

Found 5 possible

Colocation AND primary care

Yield: 8

Found 0 possible

Colocated Service AND primary care

Yield: 11

Found 1 possible

Embedded Service AND primary care

Yield: 73

Found 0 possible

Collaboration AND primary care

AND mental health

Yield: 466

Yield: 5

Found 0 possible

Colocation AND primary care

Yield: 0

Found 0 possible

Colocated Service AND primary care

Yield: 0

Found 0 possible

Embedded Service AND primary care

Yield: 0

Found 0 possible

Collaboration AND primary care

AND mental health

Yield: 9

Found 10 possible

*Integrated Service AND primary care
AND mental health*

Yield: 537

Found 16 possible

Found 13 possible

*Integrated Service AND primary care
AND mental health*

Yield: 601

Found 15 possible

Found 0 possible

*Integrated Service AND primary care
AND mental health*

Yield: 1

Found 0 possible

Step Two: Method Sections

Integrated primary care

Found 2 of 8

Integrated primary care

Found 12 of 28

Integrated primary care

Found 2 of 2

Integrated health

care delivery

Found 0 of 6

Collaborative care AND primary care

Found 54 of 86

Collaborative care AND primary care

Found 16 of 39

Collaborative care AND primary care

Found 5 of 6

Collaborative care

Found 1 of 14

Medical home AND primary care

Found 1 of 3

Medical home AND primary care

Found 1 of 5

Medical home AND primary care

Found 0 of 5

Colocation AND primary care

Found 0 of 2

Colocation AND primary care

Found 0 of 0

Colocation AND primary care

Found 0 of 0

Colocated Service AND primary care

Found 0 of 6

Colocated Service AND primary care

Found 1 of 1

Colocated Service AND primary care

Found 0 of 0

Embedded Service AND primary care

Found 0 of 2

Embedded Service AND primary care

Found 0 of 0

Embedded Service AND primary care

Found 0 of 0

Collaboration AND primary care

AND mental health

Found 3 of 10

Collaboration AND primary care

AND mental health

Found 7 of 13

Collaboration AND primary care

AND mental health

Found 0 of 9

Integrated Service AND primary care

AND mental health

Found 4 of 16

Integrated Service AND primary care

AND mental health

Found 4 of 15

Integrated Service AND primary care

AND mental health

Found 0 of 1

Total: 64 of 1795

Total: 39 of 1699

Total: 7 of 123

Total: 1 of 216

Step Three: Duplicate Studies

Removed 18

Total: 93 studies

Step Four: Systematic Reviews

Found 19 studies not found during first three steps

Final Total: 112 studies

Table 2

Article One Code Key

ANX: Anxiety	NY-VA: New York Veterans Affairs
AS: Attachment Style	QM: Qualitative, Matched
BD: Bipolar Disorder	PCP: primary care physician
BHP: Behavioral Health Provider	PCP-S: primary care physician satisfaction
BP: Behavioral Problems	PC: primary care
CBT: Cognitive Behavior Therapy	PD: Panic Disorder
CC: Collaborative Care	PE: Program Evaluation
CF: Collaboration Frequency	PN: Pain
CH: Cholesterol	PNW: Pacific Northwest
CM: Comorbidity	PO, OR: Portland, Oregon
CO: Colorado	PR, RI: Providence, Rhode Island
DEP: Depression	PRTX: Patient Reaction to Treatment
DI: Demographic Information	PS: Patient Satisfaction
DIAB: Diabetes	PSV: Problem Severity
DIS: Disability	PTSD: Post-Traumatic Stress Disorder
DX: Diagnosis	PTXP: Patient Treatment Perception
EMR: Electronic Medical Records	PU: Prescription Utilization
E-1: Experimental, Efficacy Trial	QER: Quasi-Experimental, Random
E-2: Experimental, Effectiveness Trial	QEM: Quasi-Experimental, Matched
ERV: Emergency Room Visits	QM: Qualitative, Matched
FT: Functioning	RR: Remission Rates

GEN: General	SA: Substance Abuse
HS, TX: Houston, Texas	SA, TX: San Antonio, Texas
HT: Hypertension	SCH: Schizophrenia
HV: Hospital Visits	SD: Service Description
I: Intervention	SF, CA: San Francisco, California
ID/UT: Idaho/Utah	SI: Suicidal Ideation
IN: Insomnia	SL, MO: St. Louis, Missouri
LA, CA: Los Angeles, California	SOM: Somatization
MA: Massachusetts	SU: Service Use
MH: Mental Health	TXC: Treatment Costs
MIL-NC: Military-North Carolina	TXA: Treatment Adherence
ML: Multiple Locations	TXP: Treatment Preference
MM: Mixed-Method	US-VA: United States Veterans Affairs
NJ: New Jersey	WA: Washington
NY/PA: New York/Pennsylvania	

Table 3

Article Two Code Key

Levels of Collaboration

BHP-C: BHP consultation with PCP

BHP-R: BHP offers recommendations to PCP

CIS: clinical information system used by BHP and PCP to make treatment decisions

COLL (Type): collaboration, (e.g., SDM: shared decision making)

COMM (Type): communication between BHP and PCP, type of contact (verbal, written)

CONJ: conjoint sessions of PCP and BHP with patient

CURB: “curbside”, corridor, or hallway consultation

EMR: electronic medical record shared

LIA: BHP facilitate communication between PCP and pt (liaison)

MR: non-electronic medical record

PCP-P: PCP consultation with psychiatrist

PCP-R: referral from PCP to BHP

PCP-WH: PCP warm handoff patient to BHP

TEAM: interdisciplinary treatment team

TEAM-C: interdisciplinary case conference

Models

AHCPR: operationalized collaboration guidelines proposed by Agency for Health Care Policy and Research

BRIDGE: Bridge Project

CBHP: Community Behavioral Health Program

CCAP: collaborative care for anxiety and panic

CCC: co-located collaborative care model

CCTP: collaborative care treatment programs

CSCT: culturally sensitive collaborative treatment

IMPACT: collaborative and stepped care management for depression

PIC: Partners in Care

PONI: Protocol for On-Site, Nurse-Administered Behavioral Intervention

PRISM-E: (Primary Care Research Study in Substance Abuse and Mental Health Services for the Elderly) collaborative primary care for substance abuse and mental health

PROSPECT: depression treatment guidelines for primary care of older adults (Prevention of Suicide in Primary Care Elderly: Collaborative Trial)

QUEST: Quality Enhancement by Strategic Teaming

RESPECT-MIL: Re-Engineering Systems for Primary Care Treatment of Depression-Military

SLI2CE: St. Louis Initiative for Integrated Care Excellence

TRANS: trans theoretical model of behavior change

WAGNER: Wagner Chronic Care Model

Interventions

BEH-C: BHP non-therapy consultation with patient

BEH-T: behavioral therapy interventions (behavioral activation, self-management skills, exercise)

BHP-S/A: behavioral health provider screened or assessed patients

CC: care coordination

CM (type): case management, contact type (telephone, in-person visit)

CP: care planning

EDUCATE (type): patient given psychoeducation about illness, type of material

EPT: emotional processing therapy

FU (Time): intervals or amount of time used to follow up on patient

HOUSE: BHP made house calls to house-bound patients

IND: individualized or tailored treatment

MANUAL: manualized treatment

MM: medication monitoring for adherence or side effects or support

OPT: care options given to patient

PEER: peer support

PCP-S/A: PCP screened or assessed patients

PHARM: psychopharmacology treatment

PS (type): patient support, type of communication

PST-PC: problem solving therapy for primary care

PSYCHI-S: psychiatric services

REF-SMH: referral to specialty mental health if needed

RPP: relapse prevention plan

SFT: solution focused therapy

SM: BHP symptom or mood monitoring either through in-person visit (V) or telephone contact (T)

STEP: stepped treatment

T-AL: treatment algorithm

THERAPY-B (Type): brief (less than 8 sessions) therapy offered to patient, type of therapy

THERAPY (Type): therapy offered to patient, type of therapy (e.g., CBT, motivational, SEFT-supportive emotion focused therapy)

TM: treatment monitoring

Training and Supervision

BHP-T (type): behavioral health provider trained, type

GENERAL-T: non-descriptive training of BHPs

MANUAL-TR: manual used in training

MF: model or treatment fidelity efforts

PCP-T: primary care physician trained

SUPER-PI (Frequency, Type): supervision provided by psychiatrists

SUPER-TEAM (Frequency): supervision by team

SUPER-PO (Frequency, Type): supervision by psychologist

Provider Type

BHC: behavioral health consultants

BHS: behavioral health specialists

CF: care facilitator

CHAP: chaplains

CM: care manager

CNS: clinical nurse specialist

DCS: depression clinical specialist

DCM: depression care manager
DNS: depression nurse specialist
DPS: depression prevention specialist
LMHP: licensed mental health providers
MHS: mental health specialists
MS-C: master's level counselors
NCC: nurse care coordinator
NE: nurse educator
NU: nurse
NP: nurse practitioner
NS: Nurse Specialist
PN: psychiatric nurse
PSYCHI: psychiatrists
PSYCHO: psychologist
SW: social worker
THERAPISTS: psychotherapists

Community

AF-PCC: Air Force Primary Care Clinic
CHC: Community health center
OHN: outpatient health network
MIL: military base
PCC: primary care clinics

RUR: rural

SUB: suburban

UCSF: University of California San Francisco

URB: urban

VAMC: Veteran's Affairs Medical Center

Other

F: family

G: group

I: individual

M: monthly

T: telephone

V: in-person visit

W: weekly

Figure 1

Article One Search Strategy Flowchart

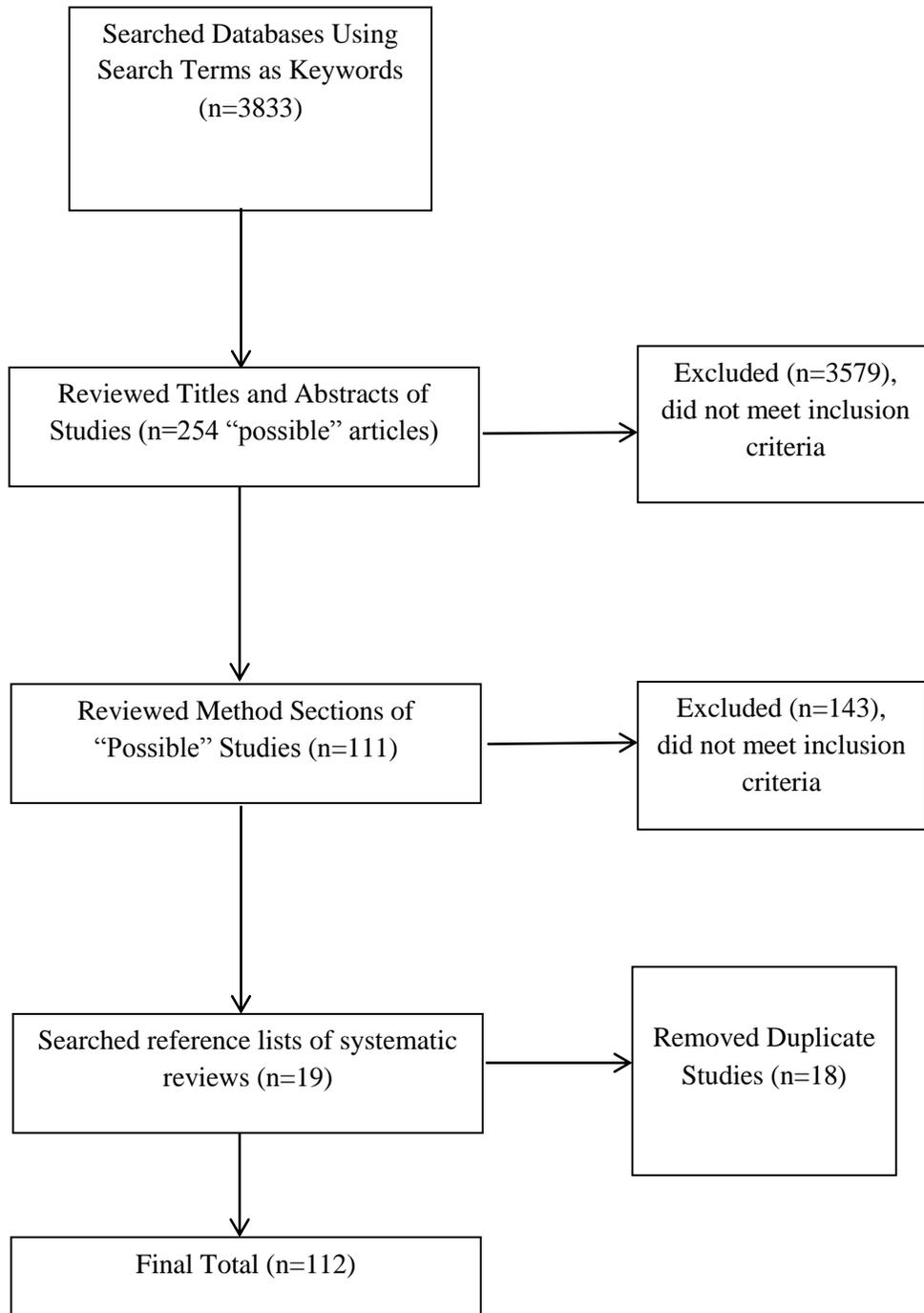
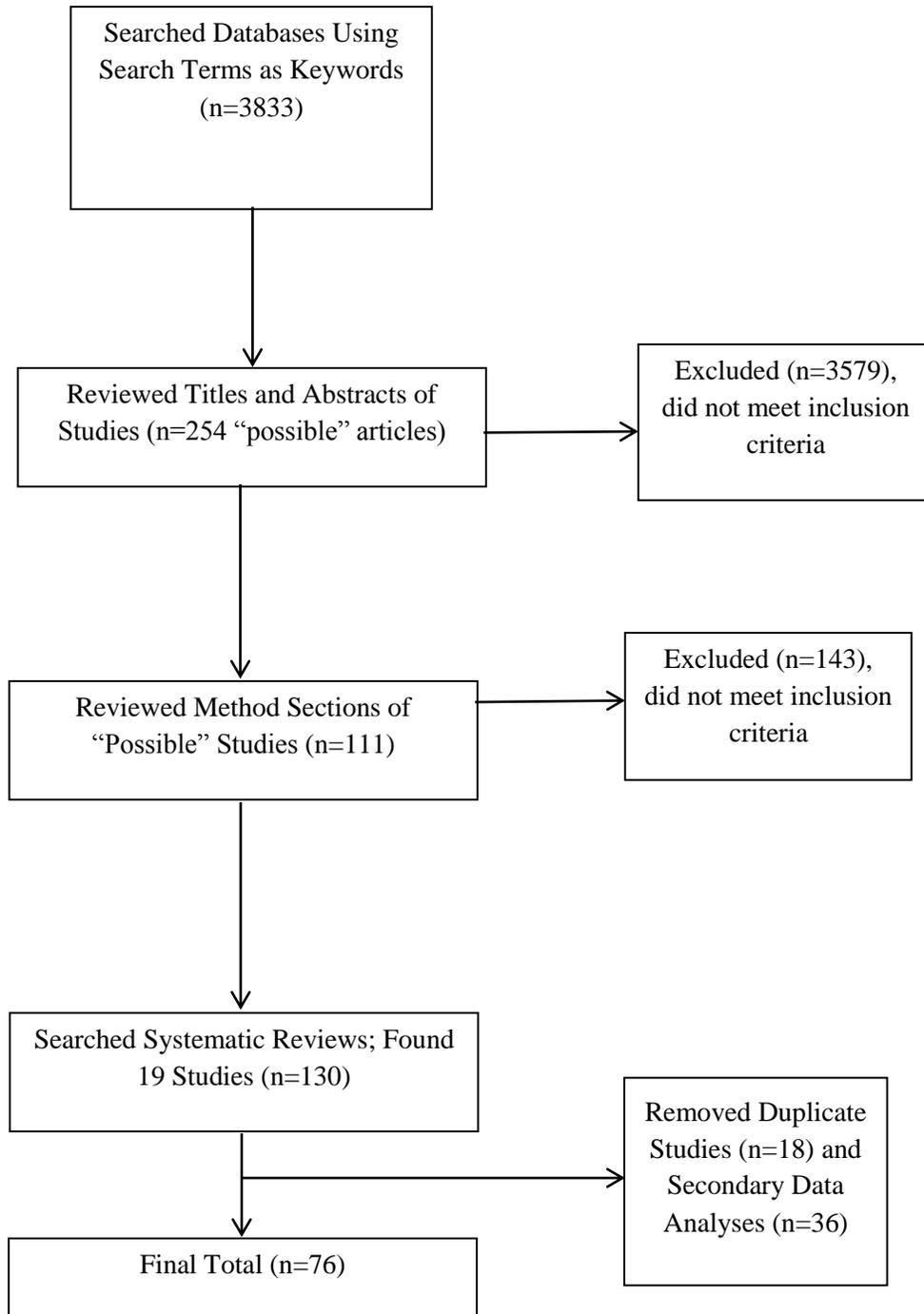


Figure 2

Article Two Search Strategy Flowchart



CHAPTER FOUR: INTEGRATED PRIMARY CARE: SYSTEMATIC REVIEW OF STUDY DESIGN

Introduction

The United States health care delivery system faces a myriad of challenges including provider burnout, patient dissatisfaction, rising health care costs and utilization, untreated behavioral health condition, and an increase in chronic illness (Institute of Medicine [IOM], 2001, 2006; National Center for Health Statistics [NCHS], 2011). Moreover, the primary health care delivery system typically includes a distinct separation of medical and behavioral health services (IOM 2001, 2005). In response to these challenges, health care providers and researchers have called for a re-integration of these services (Butler et al., 2008; Cummings, 2001; DeGruy, 1996; DeGruy & Fitz, 2010; Druss & Bornemann, 2010; IOM, 2001, 2005; Strosahl, 1997). Integrated Primary Care (IPC) is the coordinated effort of both medical (e.g., physicians) and behavioral health professionals (e.g., psychologists, social workers, marriage and family therapists) in primary care toward the treatment of patients with biopsychosocial needs (Blount, 2003). The authors of several systematic reviews have concluded that IPC is effective for a range of health problems (e.g., depression, anxiety, diabetes, cancer) (Butler et al., 2008, 2011; Craven & Bland, 2006; Harkness & Bower, 2009). However, due to the narrow inclusion criteria of existing systematic reviews of this literature, it remains unclear what research methods and populations are or are not being utilized in examining IPC. What is needed now is a unified profile of the samples and designs used with IPC, such that future clinicians, researchers, and policy makers can recognize where IPC may have the greatest momentum and what populations need more attention.

Literature Review

Overview of Integrated Primary Care

It has been estimated that nearly 70% of healthcare visits have a psychosocial component (Gatchel & Oordt, 2003). Primary care providers may find it challenging to diagnose behavioral and mental disorders properly because symptoms may appear somatically (e.g., headaches, poor sleep) and not psychosocially (Baik, Bowers, Oakley, & Susman, 2005; Miranda, Hohnmann, & Attkisson, 1994; Ruddy & McDaniel, 2005; Wang et al., 2005). For these reasons, integrating a behavioral health provider into a primary care setting is one solution to the increasing demands for same day behavioral health treatment (Gunn & Blount, 2009). As Blount (2003), an expert on IPC, has asserted, “Incorporating behavioral health services into primary medical care would seem so logical as to be almost inevitable” (p. 121). In general, IPC is the “service that unifies medical and behavioral healthcare in a primary care setting, and the practice of avoiding the dichotomy of ‘physical’ or ‘mental’ in defining the problems brought by a patient” (Blount, 1998, p. xi). The optimal structure of IPC is the coordination of services from both behavioral (e.g., mental health, treatment adherence, behavior health change, substance use) and medical health professionals that not only share the same location and medical health record system, but also the viewpoint that illness impacts a patient across all areas of his or her life. However, the actual implementation of IPC depends on the patient populations, practitioners, and settings involved (Blount & Bayona, 1994; Patterson, Peek, Heinrich, Bischoff, & Scherger, 2002). Some programs target specific populations (e.g., diabetic patients) with specific interventions (e.g., cognitive-behavioral therapy), while other programs have a broader scope of treatment (Blount, 2003).

Integrated Primary Care Research

In our literature search, we found 14 major reviews of programs integrating behavioral health providers into primary care (see Butler et al., 2008; Butler et al., 2011; Harkness & Bower, 2009). Three of the reviews are meta-analyses while the rest are systematic reviews. The range of trials and publication dates included in these reviews varies from 6 to 42 and from 2003 to 2011, respectively. We identified five themes in these reviews.

First, almost all reviews have solely focused on depression outcomes with two exceptions (Butler et al., 2008; Harkness & Bower, 2009). Butler et al. (2008) reviewed 26 depression outcome studies, seven outcome studies related to anxiety, ADHD, somatizing disorders, and depression and alcohol comorbidity. The authors concluded that although the reviewed trials provide valuable insight about the feasibility of integrating services they also represent atypical circumstances. That is, in several cases the authors found treatment for depression that was not complicated by other behavioral health conditions like anxiety or substance abuse. Therefore, it seems uncertain how some of these trials may have fared with more complex patient populations. Another exception is from Harkness and Bower (2009) who, after reviewing studies of IPC consultation, prescription, and referral rates in primary care, found moderate evidence that IPC causes a significant reduction in psychotropic medication prescriptions and referrals by primary care physician (PCP) to specialty behavioral health. Second, there is substantial evidence that integrated care, especially disease management care (i.e., medication maintenance, telephone follow up), is effective in improving depression outcomes in primary care. Third, all of the reviews include only experimental design studies and none have sample sizes greater than 42. Fourth, many of the authors agree that the next step is to identify what specific components of integration, “special ingredients,” lead to greater outcomes. Fifth, it is not very clear how IPC is

being practiced in other general behavioral health programs, beyond care management, disease-specific programs. We believe the narrow inclusion criteria of these reviews severely limit the number of questions to be asked about IPC. They provide a helpful organization of part of the literature but fail to capture the breadth of IPC studies available.

It can be difficult to determine the next evolutionary step in a particular line of research due to the enormous amount of scientific evidence available; systematic reviews provide an organized illustration of the evidence at hand. However, it is still unclear, despite the reviews that have been presented thus far, what methodological trends exist for this field of research beyond experimental studies and what types of patient populations are commonly involved. It is central to the refinement and progression of IPC that we understand what research methods have been used thus far, what questions have been asked, and what populations have been examined.

Purpose of the Paper

The purpose of this paper then is to review IPC empirical studies, highlight methodological trends, and recommend future studies for advancing and enhancing the science informing IPC programs. The paper will address the following questions regarding methodological trends of IPC studies: a) What is the most common study design? b) Which populations have been recruited most often? c) What are the most frequent strategies for sampling these populations? d) What are the most frequent outcome variables? e) What are the most frequently used psychosocial measures? f) What are the most common geographical locations? g) What is the treatment scope (e.g., depression, anxiety, pain, etc.) of IPC programs reported in the literature? We hope that the answers to these questions will provide a landscape of the research methods most frequently used in evaluating IPC programs as well as a map for

researchers and program developers wishing to take the next step in the evaluation and improvement of IPC programs.

Method

Inclusion and Exclusion Criteria

In this systematic review, we identified those studies in which authors empirically examined the outcomes of an IPC program and reported information about the study population. Three main criteria for eligibility included the following: 1) setting: outpatient (primary medical care); 2) providers: primary care and behavioral health; and 3) integrated care: collaboration of medical providers and behavioral health providers. Given that we focused on outpatient primary care settings, we excluded hospital, inpatient, specialty behavioral health, substance abuse, hospice, and secondary or tertiary care settings. In regard to the second criterion, studies included medical care from a provider trained in family practice, pediatrics, internal medicine, and/or obstetrics/gynecology. Medical providers also included mid-level professionals, including physician assistants and family nurse practitioners. Behavioral health providers included nurses in a behavioral health role or providing a behavioral health service and/or behavioral health professionals, including clinical social workers, marriage and family therapists, clinical psychologists, psychiatrists, care managers, case managers, and professional counselors. Integrated care included those programs where medical and behavioral health providers were sharing the same location and treating the same patients (Peek & Oftedahl, 2010).

In addition to the above criteria, we included only peer-reviewed English-language journals and original, empirical research. Acceptable study designs included both quantitative and qualitative study designs, but we excluded case studies, theoretical or conceptual articles, and opinion or editorial articles. Since health care delivery systems outside the United States are

different and have different funding structures, we only included those studies conducted inside the US. Additional exclusion criteria included the following: studies focused on integrating care for persons with cognitive disorders (e.g., dementia, delirium); studies focused on developmental disorders of children (e.g., ADHD); and studies of integrated care for only substance use (i.e., no comorbidity). These studies were not included so as to allow us to focus on the general population of primary care patients and on studies where improving behavioral health outcomes were a major part of the intervention. Moreover, patients with cognitive disorders, developmental disabilities, or substance use disorders may require more specialized care due to the complexity of these conditions. Finally, since this is a broad, comprehensive review, we did not limit the search to any particular range of years.

Search Strategy

MEDLINE via PubMed, PsychINFO, Cochrane Central Register of Controlled Trials, and CINAHL via EBSCO were the primary databases used to identify eligible studies. The following search terms were used: *integrated primary care, collaborative care, collaboration, co-location, co-located service, embedded service, integrated service, and medical home*. The last term is related to the patient-centered medical home concept that several researchers argue should include integrated behavioral health treatment (Crogan & Brown, 2010). Although the search terms we chose are not completely synonymous and researchers are still working to develop a consensual definition of IPC, these terms still overlap enough in meaning to cover the general concept of IPC (Hunter & Goodie, 2010; Miller, Mendenhall, & Malik, 2009; Peek & Oftedahl, 2010). The same search terms were used for all databases except for CINAHL via EBSCO, which uses a network of related terms for searching instead of the entry of specific search terms. The Medline via PUBMED database yielded the highest number of relevant

articles (see Table 1 for a list of search strategy steps; and Figure 1 for an illustration of the search strategy steps). In addition to searching databases of peer-reviewed articles, we searched the reference lists of past systematic reviews of IPC research (Badamgarav et al., 2003; Bee et al., 2008; Butler et al., 2008; Gilbody, Whitty, Grimshaw, & Thomas, 2003).

The search strategy consisted of four steps (Cooper, 2009; see Table 1 and Figure 1). First, studies were considered for selection based on information provided in the title and/or abstract that fit the inclusion criteria. Articles were rated with one of three categories: “include,” “possible,” and “exclude.” During the second step, article method sections were read to further determine if “possible” articles matched the inclusion criteria. The third step was to eliminate duplicate articles. During the fourth step, we searched the reference lists of other systematic reviews of IPC research to determine which articles we had missed. We did not search the reference lists of extracted studies. The final tally included 112 articles.

Data Organization

We used categories recommended by one expert on research synthesis to organize all the data extracted from the selected studies (Cooper, 2009; see Figure 2 for an illustration of the data extraction steps). These categories included *study design*, *sampling procedures*, *participant characteristics*, *outcome variables*, and *measurements*. In addition to these categories we also included *program characteristics*. In regard to participant characteristics, we extracted available information that included sample size, age, gender, race, and diagnosis type. A code list was developed to organize study characteristics (see Table 2). We organized the table to include information about each of the categories. All of the codes were created by the first author who also extracted all the data from the articles. The coding process followed the general data extraction used by Butler et al. (2008) and also included an iterative development of new codes

as new information was found. An independent, second coder was recruited to ensure the reliability of these findings (Schlosser, 2007). This second coder was a graduate student who examined a random third of the studies (n=38) to confirm the data matched the table. Any extraction mistakes were corrected and the second author was available to act as arbiter for any coding disagreements. Out of 38 articles with seven categories (a total of 266 items), eight items were identified (five were study design items, two were sample size items, and one was an outcome variable item) by the second coder as being questionable (for the first systematic review). All of these items were incorrectly coded by the first coder and subsequently corrected. The inter-rater agreement rate for the first review was 97%. According to Schlosser (2007), an acceptable level of inter-rater agreement lies between 80 and 100%.

Results

The results for this systematic review have been organized into four main categories: study design, study participant characteristics, study variables and measures, and program characteristics (see Figure 3 for an organization of main findings). The categories here correlate with the table as follows: research methods and sampling procedures were grouped under study design; sample size, age, gender, and race were classified as study participant characteristics; outcome variables and psychosocial measures were categorized into study variables and measures; and geographical setting and treatment scope were organized into program characteristics. We inserted our study questions, which are stated earlier in the paper, into each corresponding section of the results. Table 2 outlines a list of acronyms used in this article as well as those used in Table 4. Table 3 includes study characteristic frequencies. Data from each study was extracted and organized into Table 4. In the text that follows, numbers in parentheses are frequency counts whereas bracketed numbers refer to specific studies. See Table 4 for a list

of corresponding study numbers. We recognize that there is no report of study outcome data in our paper which is atypical for a systematic review. Since our intention was to report on study characteristic trends and since other systematic reviews have already reported on study outcomes (albeit, only related to depression), we did not extract any outcome data. Also, we report information regarding psychosocial measures here and not in the table, in order to keep the table as concise as possible.

Study Design

All articles gathered during the systematic review were categorized according to research design (e.g., experimental, quasi-experimental, qualitative) and/or method for grouping participants (e.g., randomized, matching). See Table 2 for acronym list. Experimental studies were labeled as being either an efficacy study or an effectiveness study. Efficacy studies were labeled as such if researchers included the following: randomized study participants, comparison of one or more groups, and a specific protocol for treatment. Effectiveness studies included “real-world” or less-controlled settings as well as broader inclusion/exclusion criteria for study samples. A study was considered quasi-experimental if study participants were not randomized or if there was no control group. Program evaluation, the broadest label, included those authors who examined the frequency of diagnoses, service utilization, or patient satisfaction, to name a few. In addition to design, studies were labeled according to how samples were gathered (e.g., referrals from physicians, systematic screening techniques).

Research Methods. *What is the most common study design?* A majority of researchers (77) reported using experimental methods to examine intervention efficacy (75) [1-9, 13, 17-22, 24-26, 28, 30-31, 40-74, 81-85, 87-89, 91, 97, 102, 104, 106, 108-110, 112] or effectiveness (2) [10, 38]. The second most frequent method was program evaluation (17) with the remaining

studies being quasi-experimental (15), qualitative techniques (2), or mixed methods (1). Program evaluation studies [11-12, 14-16, 29, 32-36, 76, 86, 100-101, 105, 111] were most commonly used to assess the number of patients utilizing a service and the frequency of certain diagnoses. Fifteen research teams reported using quasi-experimental methods [23, 27, 37, 39, 77, 78, 80, 90, 92-96, 99, 107], two reported collecting only qualitative data [75, 98], and one reported using both quantitative and qualitative data, or mixed methods [79]. The researchers conducting program evaluations did not report any methods for grouping participants.

We found only two studies in which researchers designed an effectiveness trial based off a model tested in efficacy trials [10, 38]. The second of these studies [38] included a historical control group from the earlier efficacy trial. We did not find any qualitative studies where researchers examined the mechanism of action behind an intervention (i.e., the element in an intervention that results in a positive effect). Although many researchers collected data on patient or provider satisfaction, we only found two qualitative studies [75, 98] where researchers examined the experience of patients and providers in IPC.

Sampling Procedures. *What are the most frequent strategies for sampling patient populations?* The majority of researchers recruited participants via systematic screening (80), referral (61), or waiting room encounters (8). The first procedure, systematic screening, refers to those researchers who recruited participants via medical health records or through another systematized process (e.g., mailed questionnaires, phone calls) [1-5, 7-11, 13, 17-22, 24, 26-29, 31, 32, 36, 40-42, 44-47, 50-51, 53-56, 58-66, 68-74, 78-81, 84, 87-94, 96-97, 99, 101-104, 106-110, 112]. The second procedure, referral, signifies those researchers who recruited patients by requesting primary care physicians or therapists to refer potential patients for a study [3-6, 9, 12, 14-20, 23, 25, 30, 33-35, 37-45, 48-49, 52, 56-59, 63, 65, 67, 69-70, 76, 77, 79, 82-83, 85-86, 92,

96-99, 101-106, 109-111]. The third procedure involved researchers approaching patients in clinic waiting rooms [20, 28, 52, 57, 82-83, 85, 100]. Multiple researchers (30) reported using more than one procedure to recruit participants [3-5, 9, 18-20, 40-42, 44-45, 56, 58-59, 63, 65, 69-70, 79, 92, 97, 99, 101, 103-104, 106, 109-110].

Study Participant Characteristics

Which populations have been recruited most often? For the purpose of this review, study participant characteristics include sample size, age, gender, and race. These categories provide a general description of the participants recruited in studies we reviewed. For studies in which researchers did not report total sample characteristics (e.g., age, gender, minority) we estimated that information by weighting each percentage or mean with the associated sample size (e.g., treatment, control).

Sample Size. The mean total sample size was 616.6 (median = 329.5) with a maximum of 2894 participants in one study [11] and a minimum of 5 in another [98]. We did not include any studies that did not report a sample size.

Age. The mean age of participants was 52.4 years of age (median = 48.2) with a maximum of 74.8 and a minimum of 7.9. Researchers in four studies [24, 63, 79, 105] reported utilizing participants younger than 18 years of age. A large number of researchers reported using patients older than 50 years of age (50) [1-9, 13, 18, 21-22, 26-27, 31, 33-34, 36, 38, 40-45, 54-56, 58-62, 64, 66, 69-70, 73, 93, 96-97, 101-104, 106-109, 111-112]. Thirteen research teams did not report any age statistics [11-12, 14, 19, 29, 32, 35, 75-76, 84, 86, 94, 110].

Gender. The mean percentage of females was 59.1% (median = 65.4%) with a range of 0-90%. Two groups of researchers focused entirely on males [73, 93] while researchers in 22 studies reported female participant percentages less than 50% [6, 9-10, 12, 15, 21, 23, 26-27, 33-

34, 36, 42, 60, 63-64, 66, 70, 73, 93, 96, 105, 110]. Researchers of seven studies did not report any participant sex percentages [1, 19, 29, 35, 39, 76, 86].

Race. The mean percentage of minorities was 31.5% (median = 23%) with a range of 0-100%. Three studies [28, 111, 112] focused entirely on minority status participants. Researchers of twenty five studies did not report any minority status participants [1, 12, 16, 19, 26, 29, 32-33, 35, 38-39, 47-48, 67, 71, 72, 76, 78, 86, 89-90, 93-94, 99, 105]. Researchers of ten studies reported percentages of minority status participants to be greater than 50% [7, 11, 15, 21, 28, 30, 64, 73, 111, 112].

In regard to research gaps, we did not find many studies where researchers investigated the impact of IPC on children, adolescents, or young adults (3). We did identify a number of studies (7) in which researchers only examined patients older than 60 [1-2, 8, 13, 21, 40, 66]. We only found three studies with a sample consisting completely of minority status participants [28, 111-112] and found no studies with only female patients.

Study Variables and Measures

Outcome Variables. *What are the most frequent outcome variables?* In regard to outcome variables, researchers of 70 studies used depression levels as a primary outcome variable [1-8, 13, 17-19, 22, 24, 25, 27, 29, 31, 38, 40-51, 53-56, 58-62, 64-65, 67-74, 79-82, 87-91, 94, 96-97, 99, 102-103, 106-110], 33 used service utilization rates [6-7, 9-12, 15-16, 32-34, 36, 38-39, 46, 63, 66, 70, 76, 78-79, 86, 89, 91-94, 99-100, 105-108, 111-112], 14 used anxiety-related conditions like post-traumatic stress disorder (PTSD), panic disorder, or generalized anxiety [6-7, 19, 20, 23, 29, 47, 52, 57, 77, 82-85,], 14 used patient or PCP satisfaction [11, 21, 32, 35, 45, 48, 50, 63, 86, 91, 93, 94, 96, 102, 105], 11 used treatment costs [19, 21, 52, 56-58, 60, 70, 78, 90, 104], 8 used medication utilization [8, 38, 48, 82, 89, 91-92, 99], 8 used

prescription utilization rates [8, 38, 48, 82, 89, 91, 92, 99], 7 used pain [26-27, 65, 69, 73, 77, 97], 6 used comorbidity [41, 53, 77-78, 84, 107], 6 used physical functioning [18, 45, 53, 74, 81, 102], 5 used diabetes [54-55, 60-61, 109], 5 used service description [32, 34, 36, 98, 101], 4 used disability [68, 82, 84-85], 4 used suicidal ideation [2, 13, 103, 106], 3 used demographic information [83, 95, 101], 3 used remission rates [1, 25, 81], 2 used comorbid substance use [6, 7], and 2 used treatment preferences [28, 40]. Other outcome variables included attachment style [22], insomnia [37], patient perception of treatment [37], patient reaction to treatment [75], and problem severity [105].

While most researchers examined depression or anxiety treatment outcomes, we found several that included comorbid conditions such as diabetes, blood pressure, substance use, and pain as outcome variables [41, 53, 77-78, 84, 107]. We found only two studies that included patient's perception of or reaction to treatment [37, 75] and one study that included provider perception of treatment [98]. We did not find any studies with family outcomes like marital satisfaction, communication style, involvement of family in IPC, or impact of IPC on family.

Psychosocial Measures. *What are the most frequently used psychosocial measures?* Here we report the most common psychosocial measures found in our review. A majority of researchers (45) employed the SCL-20 (Symptom Checklist – 20 items) [2-6, 17-19, 22, 25, 31, 38, 40-43, 45, 48-51, 53-54, 56, 58-62, 65-70, 89, 91, 97, 99, 101-102, 106-107, 109-110], while 32 used the CES-D (Center for Epidemiological Studies Depression Scale) [1, 7-11, 13-14, 16, 21, 23-24, 26, 32, 36, 46, 57, 64, 66, 73, 80-85, 89, 94, 100, 108, 111, 112], 24 used the SCID (Structured Clinical Interview: DSM IV TR) [1-6, 13, 18, 43, 45, 50, 53, 56, 59, 70, 74, 90, 99, 101-102, 106-107, 109-110], 14 used the PHQ (Patient Health Questionnaire) [23, 27-30, 38, 54, 60, 61, 65, 79, 91, 100, 112], 13 used the NEO (NEO Personality Inventory) [7, 20, 41, 48-51,

53, 59, 82-83, 106-107], 10 used some form of a patient satisfaction survey [9, 21, 22, 35, 40, 86, 93, 94, 96, 102], nine used the CIDI (Composite International Diagnostic Interview) [20, 28, 52, 57, 82-83, 85, 87, 88], seven used the ASI (Anxiety Severity Inventory) [20, 52, 58, 82-85], six used the BDI (Beck Depression Inventory) [44, 49, 71-72, 74, 96], five used the HAM-D (Hamilton Rating Scale for Depression) [2, 30, 44, 71, 72], four used the SCL-90 (Symptom Checklist – 90 items) [47, 55, 77, 90], and three used the MINI (Mini-International Neuropsychiatric Interview) [9, 21, 64].

Five of these measures were used for screening or assessing depression symptoms (SCL-20, CES-D, PHQ, BDI, and HAM-D). The SCL-90 includes subscales for depression and anxiety. There were in total 74 reported different measures. Although many researchers used other measures (e.g., disability, health status) in addition to those reported here, we extracted only those measures pertaining to psychosocial issues. We only found one measure pertaining to family process or dynamics [100].

Program Characteristics

Settings. *What are the most common geographical locations?* Thirty-seven researchers reported using undisclosed multiple locations for a study [3-6, 9-10, 18-19, 21, 25, 31, 40-41, 43, 45-46, 56, 58-59, 62, 64-66, 69, 81, 87-88, 92, 97, 101-104, 106, 108-110], 24 reported only Washington state [17, 20, 22, 33, 42, 47-55, 57, 60-61, 68, 70, 75, 82-85, 89-91, 99, 107], 12 reported Veterans Affairs locations [16, 33-36, 42, 64, 70, 73, 76, 93, 96], 5 reported only California [7, 28, 38, 44, 74], 5 reported a combination of California and Washington State locations [20, 57, 75, 84-85], 4 reported a combination of New York and Pennsylvania locations [1-2, 8, 13], 4 reported only Oregon [24, 26-27, 98], 3 reported only Massachusetts [32, 111, 112], 3 reported military bases [29, 37, 86], 2 reported only New York [14-15], and 2 reported

only Texas [11, 23]. Other locations include St. Louis, MO [12], New Jersey [30], Colorado [77], Idaho and Utah [78], Pacific Northwest [79], Minnesota [95], Providence, RI [100], and Nebraska [105].

While many researchers did not report the exact location of their study, a large number of those who did (34) reported utilizing clinical settings on the west coast of the US like Washington, California, and Oregon. We did not find many studies between the west and east coasts of the US [11-12, 23, 78, 95, 105] and did not find any studies in the southeastern part of the US.

Treatment Scope. *What is the treatment scope of IPC programs reported in the literature?* We determined the treatment scope of each study based on the disease type reported by each team of researchers as the focus of each respective IPC program. Research teams of 80 studies reported depression as the sole (71) or part (9) of a program's treatment scope [1-9, 13, 17-19, 21-22, 24-25, 27-29, 31-32, 38, 40-51, 53-56, 58-62, 64-74, 79-82, 87-92, 94, 96-97, 99-104, 106-110, 112], 19 reported anxiety, panic disorder, or PTSD [6-7, 9, 19-21, 23, 29, 43, 47, 52, 57, 66, 75, 77, 82-85], 17 reported general mental health [11-12, 14-16, 33-36, 39, 76, 78, 86, 95, 98, 105, 111], 4 reported comorbid substance abuse [6, 9, 21, 66], 2 reported bipolar disorder [10, 93], 2 reported comorbid pain [26, 73], 2 reported somatization [30, 47], one reported child behavioral problems [63], one reported insomnia [37], and one reported comorbid schizophrenia [93].

We found that a majority of researchers examined programs that were disease-specific (e.g., depression or anxiety) as opposed to general mental health programs. We found only one study that included psychotic symptoms [93] and one that included family problems [63]. We

did not find any programs that specifically treated bereavement, sexual dysfunction, personality disorders, impulse-control, or eating disorders.

Discussion

Study Findings

The integration of medical and behavioral health services in primary care can be a part of the solution for addressing many of the current health care delivery challenges (DeGruy & Etz, 2010; Druss & Bornemann, 2010; IOM, 2001, 2005). Although the conceptual and operational definitions of integrated primary care may continue to evolve, there is certainly an increase in the implementation of these types of programs (Butler et al., 2008; Sanchez, Thompson, & Alexander, 2010; Wells, Morrissey, Lee, & Radford, 2010). In addition, there is growing evidence for the efficacy of IPC for specific mental health diagnoses, especially depression (Butler et al., 2011).

The main purpose of this study was to identify the research trends of studies evaluating integrated primary care programs. We included empirical studies in which researchers examined outcome variables of programs integrating behavioral health providers in primary care settings. Overall, our findings show that within IPC research there is a severe lack of diversity in research methods and patient populations. In regard to what we consider the most significant trends in this literature, we found that most researchers have focused on middle-aged, white populations, experimental study designs, and disease-specific programs (i.e., depression). As for patient characteristics, we found that nearly 60% of participants in reviewed studies were female while almost 70% were Caucasian. This trend may severely limit the generalizability of most IPC findings. According to the National Center for Health Statistics, medically underserved populations tend to be non-Caucasian whether in rural or urban settings (2011); moreover, some

authors report that as much as 70% of patients from underserved populations present in primary care with a behavioral health disorder (Proser & Cox, 2004). Although there is growing support for implementing IPC among underserved populations (Davis, 2011), it seems that current IPC research has neglected this population.

Next, in regard to study design characteristics, we found that 82% (n=92) of researchers utilized experimental or quasi-experimental research methods. Randomized clinical trials (RCT) have become the “gold-standard” in assessing the efficacy of medical treatment and play an important part in winnowing what specific treatments work best for specific populations while reducing as much bias as possible (Kaptchuk, 2001). However, RCTs are designed to typically answer one specific question: does an intervention have a statistically-significant effect? RCTs are limited in answering other questions, namely why an intervention works, when it works best, why another intervention does not work, how patients are experiencing the treatment, and what can be done to improve it (Kaptchuk, 2001; Verhoef, Casebeer, & Hilsden, 2002). We wonder how appropriate RCTs are for answering the questions facing integrated primary care. Other authors have begun to question the appropriateness and even possibility of using RCTs for measuring IPC interventions and predict instead that comparative case studies and mixed methods will eventually replace RCTs (DeGruy & Etz, 2009).

Finally, as for treatment scope, we found that 71.4% researchers (n=80) examined disease-specific programs designed for depression. Although we identified several IPC programs that treated general behavioral health most of which were program evaluations, the majority of researchers focused on particular disease types like depression. This makes sense since depression has been identified by some researchers as the source of greatest cost in the

workforce (Loeppke et al., 2009). DeGruy and Etz predict that the inclusion of depression treatment in primary care alone could greatly improve healthcare (2010).

Although mood disorders are a common characteristic of patients with mental health conditions, recent surveillance data shows that national rates of anxiety are similar to depression (Reeves et al., 2011). Moreover, many primary care patients have social and environmental factors that increase the complexity of health treatment (IOM, 2002) especially in underserved populations (Proser & Cox, 2004); such patients can be high utilizers of medical services and may not respond appropriately to a standardized program that is geared towards a specific disease (Peek, Baird, & Coleman, 2009). Some authors have recently stated that “it is inconceivable that whole person care can occur absent attention to and incorporation of the full psychosocial dimension of health” (DeGruy & Etz, 2010, p. 300). Indeed, the appeal of an established, routine program of care is that it is consistent and measurable which, we surmise, is part of the reason why many IPC researchers have designed disease-specific programs. However, we believe it is possible, due to the increasingly advanced research techniques that are becoming available, to establish a “whole person care” treatment program that is reliable and measurable as well as person centered. We agree with DeGruy and Etz that “as interventions become more iterative, bottom-up, multilevel and individualized ... then the old gold standard randomized clinical trial becomes less and less appropriate, or even possible, and may be replaced” (2010, p. 305).

In addition to noting what was found, it is critical to report what was *not* found. We did not find any qualitative or process research in which researchers investigated the mechanism of action behind an intervention or the detailed experience (i.e., beyond satisfaction surveys) of patients and providers working within an IPC program. Moreover, we did not identify any

studies using psychosocial measures or interventions that were family-oriented which is surprising considering the evidence that demonstrates a bi-directional relationship between family relationships and health (Kiecolt-Glaser, 1999; Kiecolt-Glaser & Newton, 2001). For example, cardiovascular disease and cancer, which account for nearly 75% of all deaths in the US, may largely be attributed to unhealthy lifestyles (Mokdad, Marks, Stroup, & Gerberding, 2004) and a healthy or unhealthy lifestyle is usually developed, maintained, or changed within the family setting (McDaniel, Campbell, Hepworth, & Lorenz, 2005). IPC researchers have not yet realized the potential of family relationships and integrated care. A new family guide by the National Alliance on Mental Illness (2011) encourages patient families to become involved in IPC and lists national programs as examples of IPC. This can be an effective introduction to patients as well as clinicians who are new to involving families in IPC.

It is also interesting to note that researchers of 37 studies did not disclose the location of their study and that there were very few studies in the Midwest and none in the southeast. Lastly, we did not find many trials where researchers examined cost savings, cost-offset, or billing and reimbursement structure of IPC. Program sustainability is an extremely important component of IPC implementation and may largely determine the future development of this new system of care (Blount et al., 2007).

Limitations

A primary limitation of this systematic review is that it appears that most but not all of the authors of the studies we found reported positive findings. This phenomenon is commonly referred to as the “file drawer problem” (Cooper, 2009, p. 260) and is a direct result of the search parameters of our review, namely databases. Since non-significant findings are less likely to be published in search databases than significant findings (2009), meta-analyses and systematic

reviews are more likely to be at risk for inflating positive treatment results. No effort was made to locate and include empirical studies that had not been peer-reviewed and/or published because a systematic and comprehensive strategy for doing so was beyond the scope of this article. Also, since our goal was not to extract the entire population of IPC studies, no effort was made to search the reference lists of extracted studies.

Future Research

Future research investigations of IPC programs must include populations and methods that are more diverse. Future researchers can extend the line of inquiry regarding IPC value to underserved populations especially within clinics such as community health centers that serve these populations. Moreover, the impact of IPC on family systems is an important line of inquiry and may answer questions regarding how family relations influence medical treatment utilization and behavioral health outcomes. Also, future researchers of IPC can diversify research methodology to include process research or qualitative designs that stretch beyond questions of efficacy and effectiveness to address issues of intervention mechanism, quality improvement, and treatment portability. In addition, the treatment scope of future IPC programs should be expanded since patients often present with issues that extend beyond just depression or that may be especially difficult to diagnose. PCPs and patients can benefit from a system of care that is equipped to assess and treat almost any behavioral health issue. However, the demonstration of an effective and inclusive system of care may be a difficult task to complete since a general patient population does not fit well into a single RCT study, one that would only establish the efficacy of that treatment. This may explain why most studies to date have examined specific diagnoses and population types in order to demonstrate the effectiveness of an intervention. It is

far more challenging to demonstrate the value and financial feasibility of a non-specific IPC program, one that addresses a variety of behavioral health needs (Blount et al., 2007).

REFERENCES

(*table references)

- *Alexopoulos, G. S., Katz, I. R., Bruce, M. L., Heo, M., Ten Have, T., Raue, P., . . . PROSPECT Group. (2005). Remission in depressed geriatric primary care patients: A report from the PROSPECT study. *The American Journal of Psychiatry*, *162*(4), 718-724.
doi:10.1176/appi.ajp.162.4.718
- *Alexopoulos, G. S., Reynolds, Charles F., I,II, Bruce, M. L., Katz, I. R., Raue, P. J., Mulsant, B. H., . . . Ten Have, T. (2009). Reducing suicidal ideation and depression in older primary care patients: 24-month outcomes of the PROSPECT study. *The American Journal of Psychiatry*, *166*(8), 882-890. doi:10.1176/appi.ajp.2009.08121779
- *Areán, P. A., Ayalon, L., Hunkeler, E., Lin, E. H. B., Tang, L., Harpole, L., . . . Unützer, J. (2005). Improving depression care for older, minority patients in primary care. *Medical Care*, *43*(4), 381-390. doi:10.1097/01.mlr.0000156852.09920.b1
- *Areán, P. A., Ayalon, L., Jin, C., McCulloch, C. E., Linkins, K., Chen, H., . . . Estes, C. (2008). Integrated specialty behavioral health care among older minorities improves access but not outcomes: Results of the PRISMe study. *International Journal of Geriatric Psychiatry*, *23*(10), 1086-1092. doi:10.1002/gps.2100
- *Areán, P. A., Gum, A. M., Tang, L., & Unützer, J. (2007). Service use and outcomes among elderly persons with low incomes being treated for depression. *Psychiatric Services*, *58*(8), 1057-1064. doi:10.1176/appi.ps.58.8.1057

- *Areán, P., Hegel, M., Vannoy, S., Fan, M., & Unuzter, J. (2008). Effectiveness of problem-solving therapy for older, primary care patients with depression: Results from the IMPACT project. *The Gerontologist*, 48(3), 311-323. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&db=psyh&AN=2008-09633-004&site=ehost-live>
- *Ayalon, L., Areán, P. A., Linkins, K., Lynch, M., & Estes, C. L. (2007). Integration of mental health services into primary care overcomes ethnic disparities in access to mental health services between black and white elderly. *The American Journal of Geriatric Psychiatry*, 15(10), 906-912. doi:10.1097/JGP.0b013e318135113e
- Badamgarav, E., Weingarten, S. R., Henning, J. M., Knight, K., Hasselblad, V., Gano, J., Anacleto, & Ofman, J. J. (2003). Effectiveness of disease management programs in depression: A systematic review. *The American Journal of Psychiatry*, 160(12), 2080-2090. doi:10.1176/appi.ajp.160.12.2080
- Baik, S., Bowers, B. J., Oakley, L. D., & Susman, J. L. (2005). The recognition of depression: The primary care clinician's perspective. *Annals of Family Medicine*, 3(1), 31-37. doi:10.1370/afm.239
- *Bao, Y., Alexopoulos, G. S., Casalino, L. P., Ten Have, T. R., Donohue, J. M., Post, E. P., . . . Bruce, M. L. (2011). Collaborative depression care management and disparities in depression treatment and outcomes. *Archives of General Psychiatry*, 68(6), 627-636. doi:10.1001/archgenpsychiatry.2011.55

- *Bartels, S. J., Coakley, E. H., Zubritsky, C., Ware, J. H., Miles, K. M., Areán, P. A., . . .
PRISM-E Investigators. (2004). Improving access to geriatric mental health services: A
randomized trial comparing treatment engagement with integrated versus enhanced referral
care for depression, anxiety, and at-risk alcohol use. *The American Journal of Psychiatry*,
161(8), 1455-1462. doi:10.1176/appi.ajp.161.8.1455
- *Bauer, M. S., McBride, L., Williford, W. O., Glick, H., Kinoshian, B., Altshuler, L., . . . and
Coauthors for the Cooperative Studies Program 430 Study Team. (2006). Collaborative care
for bipolar disorder: Part I. intervention and implementation in a randomized effectiveness
trial. *Psychiatric Services*, *57*(7), 927-936. doi:10.1176/appi.ps.57.7.927
- Bee, P. E., Bower, P., Lovell, K., Gilbody, S., Richards, D., Gask, L., & Roach, P. (2008).
Psychotherapy mediated by remote communication technologies: A meta-analytic review.
BMC Psychiatry, *8*(1), 60-60. doi:10.1186/1471-244X-8-60
- *Begley, C. E., Hickey, J. S., Ostermeyer, B., Teske, L. A., Vu, T., Wolf, J., . . . Rowan, P. J.
(2008). Integrating behavioral health and primary care: The Harris county community
behavioral health program. *Psychiatric Services*, *59*(4), 356-358.
- Blount, A. (1998). *Integrated primary care: The future of medical and mental health
collaboration*. New York, NY: Norton.
- Blount, A. (2003). Integrated primary care: Organizing the evidence. *Families, Systems &
Health*, *21*(2), 121. doi: 10.1037/1091-7527.21.2.121
- Blount, A., & Bayona, J. (1994). Toward a system of integrated primary care. *Family Systems
Medicine*, *12*(2), 171-182. doi:10.1037/h0089151

- Blount, A., Schoenbaum, M., Kathol, R., Rollman, B. L., Thomas, M., O'Donohue, W., & Peek, C. J. (2007). The economics of behavioral health services in medical settings: A summary of the evidence. *Professional Psychology: Research and Practice, 38*(3), 290-297.
doi:10.1037/0735-7028.38.3.290
- *Brawer, P. A., Martielli, R., Pye, P. L., Manwaring, J., & Tierney, A. (2010). St. louis initiative for integrated care excellence (SLI2CE): Integrated-collaborative care on a large scale model. *Families, Systems, & Health, 28*(2), 175-187. doi:10.1037/a0020342
- *Bruce, M. L., Ten Have, T. R., Reynolds, Charles F., I,II, Katz, I. I., Schulberg, H. C., Mulsant, B. H., . . . Alexopoulos, G. S. (2004). Reducing suicidal ideation and depressive symptoms in depressed older primary care patients: A randomized controlled trial. *JAMA: Journal of the American Medical Association, 291*(9), 1081-1091. doi:10.1001/jama.291.9.1081
- *Brucker, P. S. & Shields, C. G. (2003). Collaboration between mental and medical healthcare providers in an integrated primary care medical setting. *Families, Systems, & Health, 21*(2), 181-191. doi:10.1037/1091-7527.21.2.181
- *Bryan, C. J., Morrow, C., & Appolonio, K. K. (2009). Impact of behavioral health consultant interventions on patient symptoms and functioning in an integrated family medicine clinic. *Journal of Clinical Psychology, 65*(3), 281-293. doi:10.1002/jclp.20539
- *Budin, J., Boslaugh, S., Beckett, E., & Winiarski, M. G. (2004). Utilization of psychiatric services integrated with primary care by persons of color with HIV in the inner city. *Community Mental Health Journal, 40*(4), 365-378.
doi:10.1023/B:COMH.0000035230.20900.59

- *Bush, T., Rutter, C., Simon, G., von Korff, M., Katon, W. J., Walker, E. A., . . . Ludman, E. (2004). Who benefits from more structured depression treatment? *International Journal of Psychiatry in Medicine*, 34(3), 247-258. doi:10.2190/LF18-KX2G-KT79-05U8
- Butler, M., Kane R. L., McAlpine D., Kathol, R. G., Fu S. S., Hagedorn H., Wilt T. J. (2008). Integration of mental health/substance abuse and primary care. (Prepared by the Minnesota Evidence-based Practice Center under Contract No. 290-02-0009.) AHRQ Publication No. 09- E003. Rockville, MD. Agency for Healthcare Research and Quality.
- *Butler, M., Kane, R. L., McAlpine, D., Kathol, R., Fu, S. S., Hagedorn, H., & Wilt, T. J. (2011). Does integrated care improve treatment for depression? A systematic review. *The Journal of Ambulatory Care Management*, 34(2), 113. doi:10.1097/JAC.0b013e31820ef605
- *Callahan, C. M., Kroenke, K., Counsell, S. R., Hendrie, H. C., Perkins, A. J., Katon, W., . . . Unützer, J. (2005). Treatment of depression improves physical functioning in older adults. *Journal of the American Geriatrics Society*, 53(3), 367-373. doi:10.1111/j.1532-5415.2005.53151.x
- *Chan, D., Fan, M., & Unützer, J. (2011). Long - term effectiveness of collaborative depression care in older primary care patients with and without PTSD symptoms. *International Journal of Geriatric Psychiatry*, 26(7), 758-764. doi:10.1002/gps.2606
- *Chavira, D. A., Stein, M. B., Golinelli, D., Sherbourne, C. D., Craske, M. G., Sullivan, G., . . . Roy-Byrne, P. (2009). Predictors of clinical improvement in a randomized effectiveness trial for primary care patients with panic disorder. *Journal of Nervous and Mental Disease*, 197(10), 715-721. doi:10.1097/NMD.0b013e3181b97d4d

- *Chen, H., Coakley, E. H., Cheal, K., Maxwell, J., Costantino, G., Krahn, D. D., . . . Levkoff, S. E. (2006). Satisfaction with mental health services in older primary care patients. *The American Journal of Geriatric Psychiatry, 14*(4), 371-379.
doi:10.1097/01.JGP.0000196632.65375.b9
- *Ciechanowski, P. S., Russo, J. E., Katon, W. J., Von Korff, M., Simon, G. E., Lin, E. H. B., . . . Young, B. A. (2006). The association of patient relationship style and outcomes in collaborative care treatment for depression in patients with diabetes. *Medical Care, 44*(3), 283-291. doi:10.1097/01.mlr.0000199695.03840.0d
- *Cigrang, J. A., Rauch, S. A. M., Avila, L. L., Bryan, C. J., Goodie, J. L., Hryshko-Mullen, A., & Peterson, A. L. (2011). Treatment of active-duty military with PTSD in primary care: Early findings. *Psychological Services, 8*(2), 104-113. doi:10.1037/a0022740
- *Clarke, G., Debar, L., Lynch, F., Powell, J., Gale, J., O'Connor, E., . . . Hertert, S. (2005). A randomized effectiveness trial of brief cognitive-behavioral therapy for depressed adolescents receiving antidepressant medication. *Journal of the American Academy of Child & Adolescent Psychiatry, 44*(9), 888-898. doi:10.1016/S0890-8567(09)62194-8
- Cooper, H. M. (2009). *Research synthesis and meta-analysis: A step-by-step approach* (4th Edition). Washington, DC: Sage.
- Crogan, T. W., & Brown, J. D. (2010). Integrating mental health treatment into the patient centered medical home. (Prepared by Mathematica Policy Research under Contract No. HHS290200900019I TO2.) AHRQ Publication No. 10-0084-EF. Rockville, MD: Agency for Healthcare Research and Quality.
- Craven, M. A. & Bland, R. Better practices in collaborative mental health care: An analysis of the evidence base. *Canadian Journal of Psychiatry, 51*(6 - Supplement 1), 7S-72S.

- Cummings, N. A. (2001). A new vision of healthcare for America. In N. A. Cummings, W. O'Donohue, S. C. Hayes, & V. Follette (Eds.), *Integrated behavioral healthcare: Positioning mental health practice with medical/surgical practice* (pp. 19-37). San Diego, CA: Academic Press.
- Davis, K. (2011). *Pathways to integrated care: Strategies for African American communities and organizations*. Washington, DC: US Department of Health and Human Services Office of Minority Health. Retrieved from <http://www.minorityhealth.hhs.gov/Assets/pdf/Checked/1/PathwaystoIntegratedHealthCareStrategiesforAfricanAmericans.pdf>
- DeGruy, F. (1996). Mental health care in the primary care setting. In M. S. Donaldson, K. D. Yordy, K. N. Lohr & N. A. Vanselow (Eds.), *Primary care: America's health in a new era*. Washington, D.C.: Institute of Medicine.
- DeGruy, F. V., & Etz, R. S. (2010). Attending to the whole person in the patient-centered medical home: The case for incorporating mental healthcare, substance abuse care, and health behavior change. *Families, Systems & Health, 28*(4), 298. doi:10.1037/a0022049
- *Dickinson, K. C., Sharma, R., Duckart, J. P., Corson, K., Gerrity, M. S., & Dobscha, S. K. (2010). VA healthcare costs of a collaborative intervention for chronic pain in primary care. *Medical Care, 48*(1), 38-44. doi:10.1097/MLR.0b013e3181bd49e2
- *Dietrich, A. J., Oxman, T. E., Williams, J., John W., Schulberg, H. C., Bruce, M. L., Lee, P. W., . . . Nutting, P. A. (2004). Re-engineering systems for the treatment of depression in primary care: Cluster randomised controlled trial. *BMJ (Clinical Research Ed.)*, *329*(7466), 602-605. doi:10.1136/bmj.38219.481250.55

- *Dobscha, S. K., Corson, K., Leibowitz, R. Q., Sullivan, M. D., & Gerrity, M. S. (2008). Rationale, design, and baseline findings from a randomized trial of collaborative care for chronic musculoskeletal pain in primary care. *Pain Medicine*, 9(8), 1050-1064. doi:10.1111/j.1526-4637.2008.00457.x
- Druss, B. G., & Bornemann, T. H. (2010). Improving health and health care for persons with serious mental illness: The window for US federal policy change. *JAMA : The Journal of the American Medical Association*, 303(19), 1972-1973. doi:10.1001/jama.2010.615
- *Dwight-Johnson, M., Lagomasino, I. T., Hay, J., Zhang, L., Tang, L., Green, J. M., & Duan, N. (2010). Effectiveness of collaborative care in addressing depression treatment preferences among low-income latinos. *Psychiatric Services*, 61(11), 1112-1118. doi:10.1176/appi.ps.61.11.1112
- *Engel, C.C., Oxman, T., Yamamoto, C., Gould, D., Barry, S., Stewart, P. ... Dietrich, A.A. (2008). RESPECT-Mil: Feasibility of a systems-level collaborative care approach to depression and post-traumatic stress disorder in military primary care. *Military Medicine*, 173(10), 935-940. Retrieved from <http://jproxy.lib.ecu.edu/login?url=http://proquest.umi.com.jproxy.lib.ecu.edu/pqdweb?did=1586796821&Fmt=2&clientId=15121&RQT=309&VName=PQD>
- *Escobar, J. (2007). Effectiveness of a time-limited cognitive behavior therapy type intervention among primary care patients with medically unexplained symptoms. *Ann Fam Med*, 5(4), 328-335. doi:10.1370/afm.702
- *Fann, J. R., Fan, M., & Unützer, J. (2009). Improving primary care for older adults with cancer and depression. *Journal of General Internal Medicine*, 24, S417-S424. doi:10.1007/s11606-009-0999-4

- *Feinman, J. A., Cardillo, D., Palmer, J., & Mitchel, M. (2000). Development of a model for the detection and treatment of depression in primary care. *Psychiatric Quarterly*, 71(1), 59-78. doi:10.1023/A:1004666701711
- *Felker, B. L., Barnes, R. F., Greenberg, D. M., Chancy, E. F., Shores, M. M., Gillespie-Gateley, I., . . . Morton, C. E. (2004). Preliminary outcomes from an integrated mental health primary care team. *Psychiatric Services*, 55(4), 442-444. doi:10.1176/appi.ps.55.4.442
- *Funderburk, J. S., Sugarman, D. E., Maisto, S. A., Ouimette, P., Schohn, M., Lantinga, L., . . . Strutynski, K. (2010). The description and evaluation of the implementation of an integrated healthcare model. *Families, Systems, & Health*, 28(2), 146-160. doi:10.1037/a0020223
- *Funderburk, J. S., Sugarman, D. E., Labbe, A. K., Rodrigues, A., Maisto, S. A., & Nelson, B. (2011). Behavioral health interventions being implemented in a VA primary care system. *Journal of Clinical Psychology in Medical Settings*, 18(1), 22-29. doi:10.1007/s10880-011-9230-y
- Gatchel, R. J., & Oordt, M. S. (2003). *Clinical health psychology and primary care: Practical advice and clinical guidance for successful collaboration*. Washington, DC: American Psychological Association.
- Gilbody, S., Whitty, P., Grimshaw, J., & Thomas, R. (2003). Educational and organizational interventions to improve the management of depression in primary care: A systematic review. *JAMA : The Journal of the American Medical Association*, 289(23), 3145-3151. doi:10.1001/jama.289.23.3145
- *Goodie, J. L., Isler, W. C., Hunter, C., & Peterson, A. L. (2009). Using behavioral health consultants to treat insomnia in primary care: A clinical case series. *Journal of Clinical Psychology*, 65(3), 294-304. doi:10.1002/jclp.20548

- *Grypma, L., Haverkamp, R., Little, S., & Unützer, J. (2006). Taking an evidence-based model of depression care from research to practice: Making lemonade out of depression. *General Hospital Psychiatry*, 28(2), 101-107. doi:10.1016/j.genhosppsy.2005.10.008
- *Guck, T. P., Guck, A. J., Brack, A. B., & Frey, D. R. (2007). No-show rates in partially integrated models of behavioral health care in a primary care setting. *Families, Systems, & Health*, 25(2), 137-146. doi:10.1037/1091-7527.25.2.137
- *Gum, A. M., Areán, P. A., Hunkeler, E., Tang, L., Katon, W., Hitchcock, P., . . . Unützer, J. (2006). Depression treatment preferences in older primary care patients. *The Gerontologist*, 46(1), 14-22. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&db=psyh&AN=2006-02366-001&site=ehost-live>
- Gunn, J., William B., & Blount, A. (2009). Primary care mental health: A new frontier for psychology. *Journal of Clinical Psychology*, 65(3), 235-252. doi:10.1002/jclp.20499
- Harkness, E. F. & Bower, P. J. (2009). On-site mental health workers delivering psychological therapy and psychosocial interventions to patients in primary care: Effects on the professional practice of primary care providers. *Cochrane Database of Systematic Reviews*, Issue 1. Art. No.: CD000532. doi: 10.1002/14651858.CD000532.pub2.
- *Harpole, L. H., Williams, J. W., Jr., Olsen, M. K., Stechuchak, K. M., Oddone, E., Callahan, C. M., . . . Unützer, J. (2005). Improving depression outcomes in older adults with comorbid medical illness. *General Hospital Psychiatry*, 27(1), 4-12. doi:10.1016/j.genhosppsy.2004.09.004

- *Hedrick, S. C., Chaney, E. F., Felker, B., Liu, C., Hasenberg, N., Heagerty, P., . . . Katon, W. (2003). Effectiveness of collaborative care depression treatment in veterans' affairs primary care. *Journal of General Internal Medicine*, *18*(1), 9-16. doi:10.1046/j.1525-1497.2003.11109.x
- *Hegel, M. T., Unützer, J., Tang, L., Areán, P. A., Katon, W., Noël, P. H., . . . Lin, E. H. B. (2005). Impact of comorbid panic and posttraumatic stress disorder on outcomes of collaborative care for late-life depression in primary care. *The American Journal of Geriatric Psychiatry*, *13*(1), 48-58. doi:10.1176/appi.ajgp.13.1.48
- *Hunkeler, E. M., Meresman, J. F., Hargreaves, W. A., Fireman, B., Berman, W. H., Kirsch, A. J., . . . Salzer, M. (2000). Efficacy of nurse telehealth care and peer support in augmenting treatment of depression in primary care. *Archives of Family Medicine*, *9*(8), 700-708. doi:10.1001/archfami.9.8.700
- *Hunkeler, E. M., Katon, W., Tang, L., Williams, J. W., Jr., Kroenke, K., Lin, E. H. B., . . . Unützer, J. (2006). Long term outcomes from the IMPACT randomised trial for depressed elderly patients in primary care. *BMJ: British Medical Journal*, *332*(7536), 259-263. doi:10.1136/bmj.38683.710255.BE
- Hunter, C. L., & Goodie, J. L. (2010). Operational and clinical components for integrated-collaborative behavioral healthcare in the patient-centered medical home. *Families, Systems, & Health*, *28*(4), 308-321. doi:10.1037/a0021761
- Institute of Medicine (U.S.) Committee on Quality of Health Care in America. (2001). *Crossing the quality chasm: A new health system for the 21st century*. Washington, D.C: National Academy Press.

Institute of Medicine. (2002). *The Future of the Public's Health in the 21st Century*.

Washington, DC: National Academy of Sciences, National Academy Press. Retrieved from <http://www.iom.edu/~media/Files/Report%20Files/2002/The-Future-of-the-Publics-Health-in-the-21st-Century/Future%20of%20Publics%20Health%202002%20Report%20Brief.pdf>

Institute of Medicine (U.S.). Committee on the Future of Rural Health Care. (2005). *Quality through collaboration: The future of rural health*. Washington, D.C: National Academy Press. Retrieved from <http://www.iom.edu/Reports/2004/Quality-Through-Collaboration-The-Future-of-Rural-Health.aspx>

Institute of Medicine (U.S.). Committee on Crossing the Quality Chasm: Adaptation to Mental Health and Addictive Disorders, & Institute of Medicine (U.S.). Committee on Crossing the Quality Chasm: Adaptation to Mental Health and Addictive Disorders. (2006). *Improving the quality of health care for mental and substance-use conditions*. Washington, DC: National Academy Press.

*Jaycox, L. H., Miranda, J., Meredith, L. S., Duan, N., Benjamin, B., & Wells, K. (2003). Impact of a primary care quality improvement intervention on use of psychotherapy for depression. *Mental Health Services Research*, 5(2), 109-120. doi:10.1023/A:1023233612022

Kaptchuk, T. J. (2001). The double-blind, randomized, placebo-controlled trial: Gold standard or golden calf? *Journal of Clinical Epidemiology*, 54(6), 541-549. doi:10.1016/S0895-4356(00)00347-4

*Katon, W., Robinson, P., Von Korff, M., Lin, E., Bush, T., Ludman, E., . . . Walker, E. (1996). A multifaceted intervention to improve treatment of depression in primary care. *Archives of General Psychiatry*, 53(10), 924-932. doi:10.1001/archpsyc.1996.01830100072009

- *Katon, W., Rutter, C., Ludman, E. J., Von Korff, M., Lin, E., Simon, G., . . . Unützer, J. (2001). A randomized trial of relapse prevention of depression in primary care. *Archives of General Psychiatry*, 58(3), 241-247. doi:10.1001/archpsyc.58.3.241
- *Katon, W., Von Korff, M., Lin, E., Bush, T., Russo, J., Lipscomb, P., & Wagner, E. (1992). A randomized trial of psychiatric consultation with distressed high utilizers. *General Hospital Psychiatry*, 14(2), 86-98. doi:10.1016/0163-8343(92)90033-7
- *Katon, W. (1995). Collaborative care: Patient satisfaction, outcomes, and medical cost-offset. *Family Systems Medicine*, 13(3-4), 351-365. doi:10.1037/h0089387
- *Katon, W. J., Fan, M., Lin, E. H. B., & Unützer, J. (2006). Depressive symptom deterioration in a large primary care-based elderly cohort. *The American Journal of Geriatric Psychiatry*, 14(3), 246-254. doi:10.1097/01.JGP.0000196630.57751.44
- *Katon, W. J., Lin, E. H. B., Von Korff, M., Ciechanowski, P., Ludman, E., Young, B., . . . McCulloch, D. (2010). Collaborative care for patients with depression and chronic illnesses. *The New England Journal of Medicine*, 363(27), 2611-2620. doi:10.1056/NEJMoa1003955
- *Katon, W. J., Roy-Byrne, P., Russo, J., & Cowley, D. (2002). Cost effectiveness and cost offset of a collaborative care intervention for primary care patients with panic disorder. *Archives of General Psychiatry*, 59(12), 1098-1104. doi:10.1001/archpsyc.59.12.1098
- *Katon, W. J., Schoenbaum, M., Fan, M., Callahan, C. M., Williams, J., Jr., Hunkeler, E., . . . Unützer, J. (2005). Cost-effectiveness of improving primary care treatment of late-life depression. *Archives of General Psychiatry*, 62(12), 1313-1320. doi:10.1001/archpsyc.62.12.1313

- *Katon, W. J., & Seelig, M. (2008). Population-based care of depression: Team care approaches to improving outcomes. *Journal of Occupational and Environmental Medicine*, 50(4), 459-467. doi:10.1097/JOM.0b013e318168efb7
- *Katon, W. J., Von Korff, M., Lin, E. H. B., Simon, G., Ludman, E., Russo, J., . . . Bush, T. (2004). The pathways study: A randomized trial of collaborative care in patients with diabetes and depression. *Archives of General Psychiatry*, 61(10), 1042-1049. doi:10.1001/archpsyc.61.10.1042
- *Katon, W., Lin, E. H. B., Unützer, J., Williams, J. W., Hunkeler, E. M., Fan, M., & Schoenbaum, M. (2006). Cost-effectiveness and net benefit of enhanced treatment of depression for older adults with diabetes and depression. *Diabetes Care*, 29(2), 265-270. doi:10.2337/diacare.29.02.06.dc05-1572
- *Katon, W., Russo, J., Sherbourne, C., Stein, M. B., Craske, M., Fan, M., & Roy-Byrne, P. (2006). Incremental cost-effectiveness of a collaborative care intervention for panic disorder. *Psychological Medicine: A Journal of Research in Psychiatry and the Allied Sciences*, 36(3), 353-363. doi:10.1017/S0033291705006896
- *Katon, W., Russo, J., Von Korff, M., Lin, E., Simon, G., Bush, T., . . . Walker, E. (2002). Long-term effects of a collaborative care intervention in persistently depressed primary care patients. *Journal of General Internal Medicine*, 17(10), 741-748. doi:10.1046/j.1525-1497.2002.11051.x
- *Katon, W., Von Korff, M., Lin, E., Simon, G., Ludman, E., Bush, T., . . . Rutter, C. (2003). Improving primary care treatment of depression among patients with diabetes mellitus: The design of the pathways study. *General Hospital Psychiatry*, 25(3), 158-168. doi:10.1016/S0163-8343(03)00013-6

- *Katon, W., Von Korff, M., Lin, E., Simon, G., Walker, E., Unützer, J., . . . Ludman, E. (1999). Stepped collaborative care for primary care patients with persistent symptoms of depression: A randomized trial. *Archives of General Psychiatry*, *56*(12), 1109-1115. doi:10.1001/archpsyc.56.12.1109
- Kiecolt-Glaser, J. K. (1999). Stress, personal relationships, and immune function: Health implications. *Brain, Behavior, and Immunity*, *13*, 61-72. doi:10.1006/brbi.1999.0552
- Kiecolt-Glaser, J. K., & Newton, T. L. (2001). Marriage and health: His and hers. *Psychological Bulletin*, *127*, 472-503. doi:10.1037/0033-2909.127.4.472
- *Kinder, L. S., Katon, W. J., Ludman, E., Russo, J., Simon, G., Lin, E. H. B., . . . Young, B. (2006). Improving depression care in patients with diabetes and multiple complications. *Journal of General Internal Medicine*, *21*(10), 1036-1041. doi:10.1111/j.1525-1497.2006.00552.x
- *Kolko, D. J., Campo, J. V., Kelleher, K., & Cheng, Y. (2010). Improving access to care and clinical outcome for pediatric behavioral problems: A randomized trial of a nurse-administered intervention in primary care. *Journal of Developmental and Behavioral Pediatrics*, *31*(5), 393-404. doi:10.1097/DBP.0b013e3181dff307
- *Krahn, D. D., Battels, S. J., Coakley, E., Oslin, D. W., Chen, H., McIntyre, J., . . . Levkoff, S. E. (2006). PRISM-E: Comparison of integrated care and enhanced specialty referral models in depression outcomes. *Psychiatric Services*, *57*(7), 946-953. doi:10.1176/appi.ps.57.7.946
- *Kroenke, K., Shen, J., Oxman, T. E., Williams, J. W., Jr., & Dietrich, A. J. (2008). Impact of pain on the outcomes of depression treatment: Results from the RESPECT trial. *Pain*, *134*(1-2), 209-215. doi:10.1016/j.pain.2007.09.021

- *Levkoff, S. E., Chen, H., Coakley, E., Herr, E. C. M., Oslin, D. W., Katz, I., . . . Ware, J. H. (2004). Design and sample characteristics of the PRISM-E multisite randomized trial to improve behavioral health care for the elderly. *Journal of Aging and Health, 16*(1), 3-27. doi:10.1177/0898264303260390
- *Lin, E. H., VonKorff, M., Russo, J., Katon, W., Simon, G. E., Unützer, J., . . . Ludman, E. (2000). Can depression treatment in primary care reduce disability? A stepped care approach. *Archives of Family Medicine, 9*(10), 1052-1058. doi:10.1001/archfami.9.10.1052
- *Lin, E. H. B., Simon, G. E., Katon, W. J., Russo, J. E., Von Korff, M., Bush, T. M., . . . Walker, E. A. (1999). Can enhanced acute-phase treatment of depression improve long-term outcomes? A report of randomized trials in primary care. *The American Journal of Psychiatry, 156*(4), 643-645. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&db=psyh&AN=1999-13232-022&site=ehost-live>
- *Lin, E. H. B., Tang, L., Katon, W., Hegel, M. T., Sullivan, M. D., & Unützer, J. (2006). Arthritis pain and disability: Response to collaborative depression care. *General Hospital Psychiatry, 28*(6), 482-486. doi:10.1016/j.genhosppsych.2006.08.006
- *Liu, C., Hedrick, S. C., Chaney, E. F., Heagerty, P., Felker, B., Hasenberg, N., . . . Katon, W. (2003). Cost-effectiveness of collaborative care for depression in a primary care veteran population. *Psychiatric Services, 54*(5), 698-704. doi:10.1176/appi.ps.54.5.698
- Loeppke, R., Taitel, M., Haufle, V., Parry, T., Kessler, R. C., & Jinnett, K. (2009). Health and productivity as a business strategy: A multiemployer study. *Journal of Occupational and Environmental Medicine, 51*, 411-428. doi:10.1097/JOM.0b013e3181a39180

- *Lynch, D. J., Tamburrino, M. B., & Nagel, R. (1997). Telephone counseling for patients with minor depression: Preliminary findings in a family practice setting. *The Journal of Family Practice, 44*(3), 293-298. Retrieved from <http://go.galegroup.com.jproxy.lib.ecu.edu/ps/i.do?id=GALE%7CA19245259&v=2.1&u=gr ee96177&it=r&p=HRCA&sw=w>
- *Lynch, D., Tamburrino, M., Nagel, R., & Smith, M. (2004). Telephone-based treatment for family practice patients with mild depression. *Psychological Reports, 94*(3), 785-792. doi: 10.2466/pr0.94.3.785-792
- *Mavandadi, S. (2007). Effect of depression treatment on depressive symptoms in older adulthood: The moderating role of pain. *Journal of the American Geriatrics Society, 55*(2), 202-211. doi:10.1111/j.1532-5415.2007.01042.x
- McDaniel, S. H., Campbell, T. L., Hepworth, J., & Lorenz, A. (2005). *Family-oriented primary care*. New York: Springer.
- Miller, B. F., Mendenhall, T. J., & Malik, A. D. (2009). Integrated primary care: An inclusive three-world view through process metrics and empirical discrimination. *Journal of Clinical Psychology in Medical Settings, 16*(1), 21-30. doi:10.1007/s10880-008-9137-4
- Miranda, J., Hohnmann, A. A., & Attkisson, C. A. (1994). *Epidemiology of mental health disorders in primary care*. San Francisco, CA: Jossey-Bass.
- *Mohr, D. C., Hart, S. L., Julian, L., Catledge, C., Honos-Webb, L., Vella, L., & Tasch, E. T. (2005). Telephone-administered psychotherapy for depression. *Archives of General Psychiatry, 62*(9), 1007-1014. doi:10.1001/archpsyc.62.9.1007

- Mokdad, A. H., Marks, J. S., Stroup, D. F., & Gerberding, J. L. (2004). Actual causes of death in the united states, 2000. *JAMA : The Journal of the American Medical Association*, 291(10), 1238-1245. doi:10.1001/jama.291.10.1238
- *Mukherjee, S., Sullivan, G., Perry, D., Verdugo, B., Means-Christensen, A., Schraufnagel, T., . . . Roy-Byrne, P. (2006). Adherence to treatment among economically disadvantaged patients with panic disorder. *Psychiatric Services*, 57(12), 1745-1750. doi:10.1176/appi.ps.57.12.1745
- National Alliance on Mental Illness (2011). *A Family Guide: Integrating Mental Health and Pediatric Primary Care*. Arlington, VA: Retrieved from National Alliance on Mental Illness website: <http://www.nami.org/Content/ContentGroups/CAAC/FG-Integrating.pdf>
- National Center for Health Statistics (2011). *Health, United States, 2010: In brief*. Hyattsville, MD: U.S. Department of Health and Human Services.
- Patterson, J., Peek, C. J., Heinrich, R. L., Bischoff, R. J., & Scherger, J. (2002). *Mental health professionals in medical settings: A primer*. New York: Norton.
- Peek, C. J., Baird, M. A., & Coleman, E. (2009). Primary care for patient complexity, not only disease. *Families, Systems, & Health*, 27(4), 287-302. Doi: 10.1037/a0018048
- Peek, C. & Oftedahl, G. (2010). A consensus operational definition of patient-centered medical home (PCMH) Unpublished Manuscript, Institute for Clinical Systems Improvement, University of Minnesota, Minneapolis, MN.
- *Pomerantz, A., Cole, B. H., Watts, B. V., & Weeks, W. B. (2008). Improving efficiency and access to mental health care: Combining integrated care and advanced access. *General Hospital Psychiatry*, 30(6), 546-551. doi:10.1016/j.genhosppsy.2008.09.004

- *Price, D., Beck, A., Nimmer, C., & Bensen, S. (2000). The treatment of anxiety disorders in a primary care HMO setting. *Psychiatric Quarterly*, 71(1), 31-45.
doi:10.1023/A:1004662600803
- Proser, M. & Cox, L. (2004). *Health centers' role in addressing the behavioral health needs of the medically underserved*. (Special Topics Issue Brief #8). Retrieved from
http://nachc.com/client/documents/publications-resources/ib_8_04.pdf
- Reeves, W. C., Strine, T. W., Pratt, L. A., Thompson, W., Ahluwalia, I., Dhingra, S. S., & McKnight-Eily, L. R., ... Safran, M. A. (2011). Mental illness surveillance among adults in the United States. *Morbidity and Mortality Weekly Report*, 60(03), 1-32. Retrieved from
http://www.cdc.gov/mmwr/preview/mmwrhtml/su6003a1.htm?s_cid=su6003a1_w
- *Reiss-Brennan, B., Briot, P., Savitz, L., Cannon, W., & Staheli, R. (2010). Cost and quality impact of Intermountain's Mental Health Integration program. *Journal of Healthcare Management*, 55(2), 97-113.
- *Richardson, L., McCauley, E., & Katon, W. (2009). Collaborative care for adolescent depression: A pilot study. *Gen Hosp Psychiatry*, 31(1), 36-45.
doi:10.1016/j.genhosppsy.2008.09.019
- *Rost, K., Nutting, P., Smith, J. L., Dickinson, M., & Elliott, C. E. (2002). Managing depression as A chronic disease: A randomised trial of ongoing treatment in primary care. *British Medical Journal*, 325(7370), 934-937. doi:10.1136/bmj.325.7370.934
- *Rost, K., Nutting, P., Smith, J., Werner, J., & Duan, N. (2001). Improving depression outcomes in community primary care practice: A randomized trial of the quest intervention. *Journal of General Internal Medicine*, 16(3), 143-149. doi:10.1111/j.1525-1497.2001.00537.x

- *Roy-Byrne, P., Craske, M. G., Stein, M. B., Sullivan, G., Bystritsky, A., Katon, W., . . . Sherbourne, C. D. (2005). A randomized effectiveness trial of cognitive-behavioral therapy and medication for primary care panic disorder. *Archives of General Psychiatry*, 62(3), 290-298. doi:10.1001/archpsyc.62.3.290
- *Roy-Byrne, P., Katon, W., Cowley, D. S., & Russo, J. (2001). A randomized effectiveness trial of collaborative care for patients with panic disorder in primary care. *Archives of General Psychiatry*, 58(9), 869-876. doi:10.1001/archpsyc.58.9.869
- *Roy-Byrne, P., Russo, J., Cowley, D. S., & Katon, W. J. (2003). Unemployment and emergency room visits predict poor treatment outcome in primary care panic disorder. *Journal of Clinical Psychiatry*, 64(4), 383-389. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&db=psyh&AN=2003-03944-005&site=ehost-live>
- *Roy-Byrne, P., Stein, M. B., Russo, J., Craske, M., Katon, W., Sullivan, G., & Sherbourne, C. (2005). Medical illness and response to treatment in primary care panic disorder. *General Hospital Psychiatry*, 27(4), 237-243. doi:10.1016/j.genhosppsy.2005.03.007
- Ruddy, N. B. & McDaniel, S. H. (2005). Medical Family Therapy. In T. L. Sexton, G. R. Weeks, & M. S. Robbins (Eds.) *Handbook of Family Therapy*. New York: Routledge.
- *Runyan, C. N., Fonseca, V. P., Meyer, J. G., Oordt, M. S., & Talcott, G. W. (2003). A novel approach for mental health disease management: The air force medical service's interdisciplinary model. *Disease Management*, 6(3), 179-188. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&db=rzh&AN=2004038029&site=ehost-live>

- Sanchez, K., Thompson, & Alexander, L. (2010). Current strategies and barriers in integrated health care: A survey of publicly funded providers in Texas. *General Hospital Psychiatry*, 32, 26-32. doi:10.1016/j.genhosppsy.2009.10.007
- *Schoenbaum, M., Unützer, J., McCaffrey, D., Duan, N., Sherbourne, C., & Wells, K. B. (2002). The effects of primary care depression treatment on patients' clinical status and employment. *Health Services Research*, 37(5), 1145-1158. doi:10.1111/1475-6773.01086
- Schlosser, R. W. (2007). Appraising the quality of systematic reviews. *Focus*, Technical Brief No. 17, 1-8. Retrieved from <http://www.ncddr.org/kt/products/focus/focus17/>
- *Sherbourne, C. D., Wells, K. B., Duan, N., Miranda, J., Unützer, J., Jaycox, L., . . . Rubenstein, L. V. (2001). Long-term effectiveness of disseminating quality improvement for depression in primary care. *Archives of General Psychiatry*, 58(7), 696-703.
doi:10.1001/archpsyc.58.7.696
- *Simon, G. E., Katon, W. J., VonKorff, M., Unützer, J., Lin, E. H. B., Walker, E. A., . . . Ludman, E. (2001). Cost-effectiveness of a collaborative care program for primary care patients with persistent depression. *The American Journal of Psychiatry*, 158(10), 1638-1644. doi:10.1176/appi.ajp.158.10.1638
- *Simon, G. E., Ludman, E. J., Tutty, S., Operskalski, B., & Korff, M. V. (2004). Telephone psychotherapy and telephone care management for primary care patients starting antidepressant treatment: A randomized controlled trial. *JAMA: The Journal of the American Medical Association*, 292(8), 935-942. doi:10.1001/jama.292.8.935

- *Simon, G. E., VonKorff, M., Rutter, M., & Wagner, E. (2000). Randomised trial of monitoring, feedback, and management of care by telephone to improve treatment of depression in primary care. *BMJ: British Medical Journal*, 320(7234), 550-554.
doi:10.1136/bmj.320.7234.550
- *Smith, J. L., Rost, K. M., Nutting, P. A., Elliott, C. E., & Duan, N. (2000). A primary care intervention for depression. *The Journal of Rural Health*, 16(4), 313-323. Retrieved from http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Citation&list_uids=11218319
- *Snyder, K., Dobscha, S. K., Ganzini, L., Hoffman, W. F., & Delorit, M. A. (2008). Clinical outcomes of integrated psychiatric and general medical care. *Community Mental Health Journal*, 44(3), 147-154. doi:10.1007/s10597-007-9117-4
- *Solberg, L. I., Fischer, L. R., Wei, F., Rush, W. A., Conboy, K. S., Davis, T. F., & Heinrich, R. L. (2001). A CQI intervention to change the care of depression: A controlled study. *Effective Clinical Practice*, 4(6), 239. Retrieved from http://www.acponline.org/clinical_information/journals_publications/ecp/novdec01/solberg.pdf
- *Speer, D. C., Dupree, L. W., Vega, C., Schneider, M. G., Hanjian, J. M., & Ross, K. (2004). Age and mental health status differences in medical service utilization in an integrated primary care setting. *Clinical Gerontologist*, 27(4), 71-82. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&db=rzh&AN=2010364351&site=ehost-live>

- Strosahl, K. (1997). Building primary care behavioral health systems that work: A compass and a horizon. In N. A. Cummings, J. L. Cummings & J. N. Johnson (Eds.), *Behavioral health in primary care: A guide for clinical integration* (pp. 37-58). Madison, CT: Psychosocial Press.
- *Swindle, R. W., Rao, J. K., Helmy, A., Plue, L., Zhou, X. H., Eckert, G. J., & Weinberger, M. (2003). Integrating clinical nurse specialists into the treatment of primary care patients with depression. *International Journal of Psychiatry in Medicine*, 33(1), 17-37.
doi:10.2190/QRY5-B61V-QE4R-8141
- *Thielke, S. M., Fan, M., Sullivan, M., & Unützer, J. (2007). Pain limits the effectiveness of collaborative care for depression. *The American Journal of Geriatric Psychiatry*, 15(8), 699-707. doi:10.1097/JGP.0b013e3180325a2d
- *Todahl, J. L., Linville, D., Smith, T. E., Barnes, M. F., & Miller, J. K. (2006). A qualitative study of collaborative health care in a primary care setting. *Families, Systems, & Health*, 24(1), 45-64. doi:10.1037/1091-7527.24.1.45
- *Tutty, S., Simon, G., & Ludman, E. (2000). Telephone counseling as an adjunct to antidepressant treatment in the primary care system. A pilot study. *Effective Clinical Practice*, 3(4), 170. Retrieved from
http://www.acponline.org/clinical_information/journals_publications/ecp/julaug00/telephone_counseling.pdf
- *Uebelacker, L. A., Smith, M., Lewis, A. W., Sasaki, R., & Miller, I. W. (2009). Treatment of depression in a low-income primary care setting with colocated mental health care. *Families, Systems & Health*, 27(2), 161-171. doi:10.1037/a0015847

- *Unützer, J., Katon, W., Callahan, C. M., Williams, J. W., Jr., Hunkeler, E., Harpole, L., . . .
Langston, C. (2002). Collaborative care management of late-life depression in the primary care setting: A randomized controlled trial. *JAMA: Journal of the American Medical Association*, 288(22), 2836-2845. doi:10.1001/jama.288.22.2836
- *Unützer, J., Katon, W., Williams, J. W., Jr., Callahan, C. M., Harpole, L., Hunkeler, E. M., . . .
Langston, C. A. (2001). Improving primary care for depression in late life: The design of a multicenter randomized trial. *Medical Care*, 39(8), 785-799. doi:10.1097/00005650-200108000-00005
- *Unützer, J., Tang, L., Oishi, S., Katon, W., Williams, J. W., Jr., Hunkeler, E., . . . Langston, C. (2006). Reducing suicidal ideation in depressed older primary care patients. *Journal of the American Geriatrics Society*, 54(10), 1550-1556. doi:10.1111/j.1532-5415.2006.00882.x
- *Unützer, J., Katon, W. J., Fan, M., Schoenbaum, M. C., Lin, E. H. B., Della Penna, R. D., & Powers, D. (2008). Long-term cost effects of collaborative care for late-life depression. *The American Journal of Managed Care*, 14(2), 95-100. Retrieved from www.cinahl.com/cgi-bin/refsvc?jid=1514&accno=2009814586
- *Valleley, R. J., Kosse, S., Schemm, A., Foster, N., Polaha, J., & Evans, J. H. (2007). Integrated primary care for children in rural communities: An examination of patient attendance at collaborative behavioral health services. *Families, Systems & Health*, 25(3), 323-332. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&db=rzh&AN=2009705412&site=ehost-live>

- *Vannoy, S. D., Duberstein, P., Cukrowicz, K., Lin, E., Fan, M., & Unützer, J. (2007). The relationship between suicide ideation and late-life depression. *The American Journal of Geriatric Psychiatry, 15*(12), 1024-1033. doi:10.1097/JGP.0b013e3180cc2bf1
- Verhoef, M. J., Casebeer, A. L., & Hilsden, R. J. (2002). Assessing efficacy of complementary medicine: Adding qualitative research methods to the "gold standard". *Journal of Alternative and Complementary Medicine, 8*(3), 275-281. doi:10.1089/10755530260127961
- *Walker, E. A., Katon, W. J., Simon, G., Lin, E., Ludman, E., Unützer, J., . . . Russo, J. (2000). Predictors of outcome in a primary care depression trial. *Journal of General Internal Medicine, 15*(12), 859-867. doi:10.1046/j.1525-1497.2000.91142.x
- Wang, P. S., Lane, M., Olfson, M., Pincus, H. A., Wells, K. B., & Kessler, R. C. (2005). Twelve-month use of mental health services in the united states: Results from the national comorbidity survey replication. *Archives of General Psychiatry, 62*(6), 629-640. doi:10.1001/archpsyc.62.6.629
- *Wells, K. B., Sherbourne, C., Schoenbaum, M., Duan, N., Meredith, L., Unützer, J., . . . Rubenstein, L. V. (2000). Impact of disseminating quality improvement programs for depression in managed primary care: A randomized controlled trial: 1. *JAMA : The Journal of the American Medical Association, 283*(2), 212-220. doi:10.1001/jama.283.2.212
- Wells, R., Morrissey, J. P., Lee, I., & Radford, A. (2010). Trends in behavioral health care service provision by community health centers, 1998-2007. *Psychiatric Services, 61*(8), 759-764. doi:10.1176/appi.ps.61.8.759
- *Williams, J. W., Katon, W., Lin, E. H. B., Nöel, P. H., Worchel, J., Cornell, J., . . . IMPACT Investigators. (2004). The effectiveness of depression care management on diabetes-related outcomes in older patients. *Annals of Internal Medicine, 140*(12), 1015-1024.

- *Williams, E. V. L., Unützer, J., Lee, S., & Noël, P. H. (2009). Collaborative depression care for the old-old: Findings from the IMPACT trial. *The American Journal of Geriatric Psychiatry, 17*(12), 1040-1049. doi:10.1097/JGP.0b013e3181b4bf08
- *Yeung, A., Kung, W. W., Chung, H., Rubenstein, G., Roffi, P., Mischoulon, D., & Fava, M. (2004). Integrating psychiatry and primary care improves acceptability to mental health services among Chinese Americans. *General Hospital Psychiatry, 26*(4), 256-260. doi:10.1016/j.genhosppsy.2004.03.008
- *Yeung, A., Shyu, I., Fisher, L., Wu, S., Yang, H., & Fava, M. (2010). Culturally sensitive collaborative treatment for depressed Chinese Americans in primary care. *American Journal of Public Health, 100*(12), 2397-2402. doi:10.2105/AJPH.2009.184911

Table 1

Four Step Search Strategy

Databases			
Medline via PUBMED	PsychINFO	Cochrane Register	CINAHL via EBSCO
Step One: Titles and Abstracts			
<i>Integrated primary care</i>	<i>Integrated primary care</i>	<i>Integrated primary care</i>	<i>Integrated health care delivery</i>
Yield: 99	Yield: 156	Yield: 13	Yield: 79
Found 8 possible	Found 28 possible	Found 2 possible	Found 6 possible
<i>Collaborative care AND primary care</i>	<i>Collaborative care AND primary care</i>	<i>Collaborative care AND primary care</i>	<i>Collaborative care</i>
Yield: 342	Yield: 318	Yield: 95	Yield: 137
Found 86 possible	Found 39 possible	Found 6 possible	Found 14 possible
<i>Medical home AND primary care</i>	<i>Medical home AND primary care</i>	<i>Medical home AND primary care</i>	

Yield: 231

Found 3 possible

Colocation AND primary care

Yield: 2

Found 0 possible

Colocated Service AND primary care

Yield: 6

Found 0 possible

Embedded Service AND primary care

Yield: 47

Found 2 possible

Collaboration AND primary care

AND mental health

Yield: 531

Yield: 66

Found 5 possible

Colocation AND primary care

Yield: 8

Found 0 possible

Colocated Service AND primary care

Yield: 11

Found 1 possible

Embedded Service AND primary care

Yield: 73

Found 0 possible

Collaboration AND primary care

AND mental health

Yield: 466

Yield: 5

Found 0 possible

Colocation AND primary care

Yield: 0

Found 0 possible

Colocated Service AND primary care

Yield: 0

Found 0 possible

Embedded Service AND primary care

Yield: 0

Found 0 possible

Collaboration AND primary care

AND mental health

Yield: 9

Found 10 possible

Found 13 possible

Found 0 possible

*Integrated Service AND primary care
AND mental health*

*Integrated Service AND primary care
AND mental health*

*Integrated Service AND primary care
AND mental health*

Yield: 537

Yield: 601

Yield: 1

Found 16 possible

Found 15 possible

Found 0 possible

Step Two: Method Sections

Integrated primary care

Integrated primary care

Integrated primary care

Integrated health

Found 2 of 8

Found 12 of 28

Found 2 of 2

care delivery

Found 0 of 6

Collaborative care AND primary care

Collaborative care AND primary care

Collaborative care AND primary care

Collaborative care

Found 54 of 86

Found 16 of 39

Found 5 of 6

Found 1 of 14

Medical home AND primary care

Medical home AND primary care

Medical home AND primary care

Found 1 of 3

Found 1 of 5

Found 0 of 5

Colocation AND primary care

Found 0 of 2

Colocation AND primary care

Found 0 of 0

Colocation AND primary care

Found 0 of 0

Colocated Service AND primary care

Found 0 of 6

Colocated Service AND primary care

Found 1 of 1

Colocated Service AND primary care

Found 0 of 0

Embedded Service AND primary care

Found 0 of 2

Embedded Service AND primary care

Found 0 of 0

Embedded Service AND primary care

Found 0 of 0

Collaboration AND primary care

AND mental health

Found 3 of 10

Collaboration AND primary care

AND mental health

Found 7 of 13

Collaboration AND primary care

AND mental health

Found 0 of 9

Integrated Service AND primary care

AND mental health

Found 4 of 16

Integrated Service AND primary care

AND mental health

Found 4 of 15

Integrated Service AND primary care

AND mental health

Found 0 of 1

Total: 64 of 1795

Total: 39 of 1699

Total: 7 of 123

Total: 1 of 216

Step Three: Duplicate Studies

Removed 18

Total: 93 studies

Step Four: Systematic Reviews

Found 19 studies not found during first three steps

Final Total: 112 studies

Note. *Italicized words indicate search term*

Table 2

Article One Code Key

ANX: Anxiety	NY-VA: New York Veterans Affairs
AS: Attachment Style	QM: Qualitative, Matched
BD: Bipolar Disorder	PCP: primary care physician
BHP: Behavioral Health Provider	PCP-S: primary care physician satisfaction
BP: Behavioral Problems	PC: primary care
CBT: Cognitive Behavior Therapy	PD: Panic Disorder
CC: Collaborative Care	PE: Program Evaluation
CF: Collaboration Frequency	PN: Pain
CH: Cholesterol	PNW: Pacific Northwest
CM: Comorbidity	PO, OR: Portland, Oregon
CO: Colorado	PR, RI: Providence, Rhode Island
DEP: Depression	PRTX: Patient Reaction to Treatment
DI: Demographic Information	PS: Patient Satisfaction
DIAB: Diabetes	PSV: Problem Severity

DIS: Disability	PTSD: Post-Traumatic Stress Disorder
DX: Diagnosis	PTXP: Patient Treatment Perception
EMR: Electronic Medical Records	PU: Prescription Utilization
E-1: Experimental, Efficacy Trial	QER: Quasi-Experimental, Random
E-2: Experimental, Effectiveness Trial	QEM: Quasi-Experimental, Matched
ERV: Emergency Room Visits	QM: Qualitative, Matched
FT: Functioning	RR: Remission Rates
GEN: General	SA: Substance Abuse
HS, TX: Houston, Texas	SA, TX: San Antonio, Texas
HT: Hypertension	SCH: Schizophrenia
HV: Hospital Visits	SD: Service Description
I: Intervention	SF, CA: San Francisco, California
ID/UT: Idaho/Utah	SI: Suicidal Ideation
IN: Insomnia	SL, MO: St. Louis, Missouri
LA, CA: Los Angeles, California	SOM: Somatization
MA: Massachusetts	SU: Service Use

MH: Mental Health

TXC: Treatment Costs

MIL-NC: Military-North Carolina

TXA: Treatment Adherence

ML: Multiple Locations

TXP: Treatment Preference

MM: Mixed-Method

US-VA: United States Veterans Affairs

NJ: New Jersey

WA: Washington

NY/PA: New York/Pennsylvania

Table 3

Study Characteristic Frequencies

	<i>n</i> (%)	Mean	Median	Range
Study Design				
Research Methods				
Efficacy	75 (66.9)			
Effectiveness	2 (1.8)			
Program Evaluation	17 (15.2)			
Quasi-experimental	15 (13.4)			
Qualitative	2 (1.8)			
Mixed methods	1 (.9)			
Sampling Procedures*				
Systematic screening	80 (71.4)			
Referral	61 (54.4)			
Waiting room encounters	8 (7.1)			
Combination of three	30 (26.8)			
Study Participant Characteristics				
Sample Size		616.6	329.5	5-2984
Age (years)		52.4	48.2	7.9-74.8
Gender (female %)		59.1	65.4	0-90
Race (minority %)		31.5	23	0-100
Study Variables and Measures				
Outcome Variables				
Depression	70 (62.5)			

Service utilization	33 (29.5)
Anxiety disorders	14 (12.5)
Satisfaction	14 (12.5)
Treatment costs	11 (9.8)
Psychosocial Measures*	
SCL-20	45 (40.2)
CES-D	32 (28.6)
SCID	24 (21.4)
PHQ	14 (12.5)
NEO	13 (11.6)
Satisfaction items	10 (8.9)
Program Characteristics	
Setting*	
Multiple undisclosed locations	37 (33.0)
Washington state	24 (21.4)
Veterans Affairs	12 (10.7)
California	5 (4.5)
California/Washington	5 (4.5)
New York/Pennsylvania	4 (3.6)
Treatment Scope*	
Depression	80 (71.4)
Anxiety disorders	19 (16.9)
General mental health	17 (15.2)

Total number of studies = 112; * = Percentage total does not equal 100

Table 4

Study Designs and Characteristics

	Study Name, Year	Study Design	Total Sample Size (age mean, SD)	Female %	Minority %	Outcome Variables	Setting	Treatment Scope
1	Alexopoulos, 2005	E-1*	215 (> 60)			DEP, RR	NY/PA	DEP
2	Alexopoulos, 2009	E-1*	599 (> 60)	71.6	32.4	DEP, SI	NY/PA	DEP
3	Areán, 2005	E-1*#	1801 (71.2, 7.5)	65	23	DEP	ML	DEP
4	Areán, 2007	E-1*#	1801 (71.2, 7.5)	65	23	DEP	ML	DEP
5	Areán & Hegel, 2008	E-1*#	433 (70.6)	69	23	DEP	ML	DEP
6	Areán & Ayalon, 2008	E-1#	2022 (73, 6.1)	26.7	48.3	ANX, DEP, SA, SU	ML	ANX, DEP, SA
7	Ayalon, 2007	E-1*	183 (74.8)	63	67	ANX, DEP, SA, SU	SF, CA	ANX, DEP
8	Bao, 2011	E-1*	396 (\geq 60)	71	33	DEP, PU	NY/PA	DEP
9	Bartels, 2004	E-1*#	2022 (73.5, 6.2)	25.9	48	SU	ML	ANX, DEP, SA
10	Bauer, 2006	E-2*	306 (46.6, 10.1)	9	23	SU	ML	BD
11	Begley, 2008	PE*	2894	71.7	74	PCP-S, SU, TXC	HS, TX	GEN

12	Brawer, 2010	PE#	2812	22		SU	SL, MO	GEN
13	Bruce, 2004	E-1*	598 (> 60)	71.7	32.9	DEP, SI	NY/PA	DEP
14	Brucker, 2003	PE#	65 (40.9, 11.6)	76.9	43.1	CF	NY	GEN
15	Budin, 2004	PE#	80 (42.8, 7.9)	46.3	97	DX, SU	NY	GEN
16	Bryan, 2009	PE#	338 (35.8)	62.7		DX, SU	US-VA	GEN
17	Bush, 2004	E-1*#	156 (43, 3.7)	79	15	DEP	WA	DEP
18	Callahan, 2005	E-1*#	1801 (71.2, 7.5)	65	23	DEP, FT	ML	DEP
19	Chan, 2010	E-1*#	191			DEP, PTSD, TXC	ML	DEP, PTSD
20	Chavira, 2009	E-1*#^	232 (41.2)	66	34	PD	CA/WA	PD
21	Chen, 2006	E-1*	1052 (>65)	26.4	50.4	PS	ML	ANX, DEP, SA
22	Ciechanowski, 2006	E-1*	324 (58.4, 11.8)	65.4	21.8	DEP, AS	WA	DEP, DIAB
23	Cigrang, 2011	QEM#	15 (39)	20	47	PTSD	SA, TX	PTSD
24	Clarke, 2005	E-1*	152 (15, 1.6)	77	14	DEP	PO, OR	DEP
25	Dietrich, 2004	E-1#	405 (42, 14.5)	80.2	34.21	DEP, RR	ML	DEP
26	Dickinson, 2010	E-1*	401 (61.6)	8		PN	PO, OR	PN
27	Dobscha, 2008	QER*	401 (61.7, 11.8)	8	11	DEP, PN	OR	DEP

28	Dwight-Johnson, 2010	E-1*^	339 (49.8, 12.6)	84	100	TXP	LA, CA	DEP
29	Engel, 2008	PE*	404			DEP, PTSD	MIL-NC	DEP, PTSD
30	Escobar, 2007	E-1#	172 (40, 13)	87	81	SOM	NJ	SOM
31	Fann, 2009	E-1*	215 (71.8, .5)	60	25	DEP	ML	DEP
32	Feinman, 2000	PE*	255	62		DX, PCP-S, PS, SD, SU	MA	DEP
33	Felker, 2004	PE#	560 (53)	10		SU	WA-VA	GEN
34	Funderburk, 2010	PE#	180 (59.7, 14.7)	12	23	SD, SU	NY-VA	GEN
35	Funderburk (1), 2010	PE#	140			PS	NY-VA	GEN
36	Funderburk, 2011	PE*	180 (57, 21)	12	23	SD, SU	NY-VA	GEN
37	Goodie, 2009	QEM#	47 (40.5, 15.6)	61	43	IN, PTPX	MIL	IN
38	Grypma , 2006	E-2#	211 (67.7)	86		DEP, PU, SU	SD, CA	DEP
39	Guck, 2007	QEM#	173 (37, 12)			SU		GEN
40	Gum, 2006	E-1*#	1602 (> 60)	67	23	DEP, TXP	ML	DEP
41	Harpole, 2005	E-1*#	1801 (71.2, 7.5)	65	23	DEP, CM	ML	DEP
42	Hedrick, 2003	E-1*#	354 (57, 13)	5	20	DEP	WA-VA	DEP
43	Hegel, 2005	E-1#	1801 (71.2, 7.5)	65	23	DEP	ML	ANX, DEP,PTSD

44	Hunkeler, 2000	E-1*#	302 (55.4)	69	37	DEP	CA	DEP
45	Hunkeler, 2006	E-1*#	1801 (71.2, 7.5)	65	23	DEP, FT, PS	ML	DEP
46	Jaycox, 2003	E-1*	1356 (43, 14)	71	42	DEP, SU	ML	DEP
47	Katon, 1992	E-1*	251 (47, 13)	61		ANX, DEP, SOM	WA	ANX, DEP, SOM
48	Katon, 1995	E-1#	217 (47.7)	76.5		DEP, PU, PS	WA	DEP
49	Katon, 1996	E-1#	153 (46.4)	73.8	15	DEP	WA	DEP
50	Katon, 1999	E-1*	228 (47, 14.7)	74.5	20	DEP, PS, TXA	WA	DEP
51	Katon, 2001	E-1*	386 (46, 12)	73	10	DEP, TXA	WA	DEP
52	Katon & Roy-Byrne, 2002	E-1#^	115 (40.5)	57	34	ANX, TXC	WA	ANX
53	Katon & Russo, 2002	E-1*	228(47, 13.7)	74	20	DEP, FT, CM	WA	DEP
54	Katon, 2003	E-1*	330 (58, 12)	65	20	DEP, DIAB	WA	DEP
55	Katon, 2004	E-1*	329 (58, 12)	65	20	DEP, DIAB	WA	DEP
56	Katon, 2005	E-1*#	1801 (71.2, 7.5)	65	23	DEP, TXC	ML	DEP
57	Katon & Russo, 2006	E-1#^	232 (41.2)	67	35	ANX, TXC	CA/WA	ANX
58	Katon & Unützer, 2006	E-1*#	418 (70.1)	53	36	DEP, TXC	ML	DEP
59	Katon & Fan, 2006	E-1*#	901 (70)	65	23	DEP	ML	DEP

60	Katon, 2008	E-1*	329 (57.5, 12)	35	25	DEP, DIAB, TXC	WA	DEP
61	Katon, 2010	E-1*	214 (57, 11)	52	23	CH, DEP, DIAB, HT	WA	DEP
62	Kinder, 2006	E-1*	329 (58.3, 11.3)	65	22	DEP	ML	DEP
63	Kolko, 2010	E-1*#	163 (8.1, 1.6)	35	20	BP, PS, SU	PT, PA	BP
64	Krahn, 2006	E-1*	1531 (73.9, 6.6)	30.7	55	DEP	ML-VA	DEP
65	Kroenke, 2008	E-1*#	405 (42)	80	17	DEP, PN	ML	DEP
66	Levkoff, 2004	E-1*	2012 (≥ 65)	26.4	48	DX, SU	ML	ANX, DEP, SA
67	Lin, 1999	E-1#	116 (44.1, 13.6)	81		DEP		DEP
68	Lin, 2000	E-1*	228 (47, 13.5)	74.5	20	DEP, DIS	WA	DEP
69	Lin, 2006	E-1*#	1001 (72, 7.4)	68.3	23	DEP, PN	ML	DEP
70	Liu, 2003	E-1*#	354 (57, 14)	5	20	DEP, SU, TXC	WA-VA	DEP
71	Lynch, 1997	E-1*	29 (48.4)	86.6		DEP		DEP
72	Lynch, 2004	E-1*	54 (38.5, 13.7)	83		DEP		DEP
73	Mavandadi, 2007	E-1*	524 (73)	0	55	DEP, PN	US-VA	DEP, PN
74	Mohr, 2005	E-1*	127 (47.9, 10)	77.2	10.2	DEP, FT	CA	DEP
75	Mukherjee, 2006	QM	21	67	48	PRTX	CA/WA	ANX, PD

76	Pomerantz, 2008	PE#	987			SU	US-VA	GEN
77	Price, 2000	QEM#	137 (48.8)	80	15	ANX, PN, CM	CO	ANX
78	Reiss-Brennan, 2010	QER*	1225 (40)	66		CM, SU, TXC	ID/UT	GEN
79	Richardson, 2009	MM*#	40 (15, 1.45)	90	13	DEP, SU	PNW	DEP
80	Rost, 2001	QER*	461 (42.6, 13.1)	83.9	15.7	DEP		DEP
81	Rost, 2002	E-1*	211 (43, 15)	84	16	DEP, FT, RR	ML	DEP
82	Roy-Byrne, 2001	E-1#^	115 (40.8, 10.3)	57.4	32.7	ANX, DEP, DIS, PU	WA	ANX, DEP
83	Roy-Byrne, 2003	E-1#^	97 (40.5, 9.5)	65	32	ANX, DI, ERV, HV	WA	ANX
84	Roy-Byrne & Stein, 2005	E-1*	232	66	33	ANX, CM, DIS, PD	CA/WA	ANX, PD
85	Roy-Byrne & Craske, 2005	E-1#^	232 (41.2)	67	35	ANX, DIS, PD	CA/WA	ANX, PD
86	Runyan, 2003	PE#	76			PS, SU	MIL	GEN
87	Schoenbaum, 2002	E-1*	938 (43)	73.4	38.5	DEP	ML	DEP
88	Sherbourne, 2001	E-1*	1299 (43.7, 14.9)	70.9	34.1	DEP	ML	DEP
89	Simon, 2000	E-1*	613 (46.5, 15)	72		DEP, PU, SU	WA	DEP
90	Simon, 2001	QEM*	162 (47, 14)	74		DEP, TXC	WA	DEP
91	Simon, 2004	E-1*	600 (44.5, 15)	74.6	20.3	DEP, PS, PU, SU	WA	DEP
92	Smith, 2000	QER*#	479 (42.6, 13.1)	83.9	15.7	PU, SU	ML	DEP

93	Snyder, 2008	QEM*	46 (52, 8.0)	0		DX, PS, SU	US-VA	BD, SCH
94	Solberg, 2001	QEM*	560	71		DEP, PS, SU	MN	DEP
95	Speer, 2004	QEM	334 (47)	75	3	DI		GEN
96	Swindle, 2003	QER*#	268 (56.3, 12.4)	3.5	14.5	DEP, PS	US-VA	DEP
97	Thielke, 2007	E-1*#	1801 (71.2, 7.5)	65	23	DEP, PN	ML	DEP
98	Todahl, 2006	QM#	5 (45.8)	60	0	SD	OR	GEN
99	Tutty, 2000	QEM*#	122 (47.5, 14.5)	69.3		DEP, PU, SU	WA	DEP
100	Uebelacker, 2009	PE^	91 (34.7, 10.4)	78	28	DX, SU	PR, RI	DEP
101	Unützer, 2001	PE*#	1287 (71.2, 7.4)	63.7	24.5	DI, SD	ML	DEP
102	Unützer, 2002	E-1*#	1801 (71.2, 7.5)	65	23	DEP, FT, PS	ML	DEP
103	Unützer, 2006	E-1*#	1801 (71.2, 7.5)	65	23	DEP, SI	ML	DEP
104	Unützer, 2008	E-1*#	551 (72.7, 7.8)	72	9	TXC	ML	DEP
105	Valleley, 2007	PE#	807 (7.94)	36		SU, PSV	NE	GEN
106	Vannoy, 2007	E-1*#	1801 (71.2, 7.5)	65	23	DEP, SI	ML	DEP
107	Walker, 2000	QER*	228 (46.9, 13.5)	74.6	19.8	DEP, CM	WA	DEP
108	Wells, 2000	E-1*	1356 (44, 15)	71	43	DEP, SU	ML	DEP
109	Williams, 2004	E-1*#	417 (70.2, 7.0)	53.5	36	DEP, DIAB	ML	DEP

110	Williams, 2009	E-1*#	906	36	20	DEP	ML	DEP
111	Yeung, 2004	PE#	64 (54, 18)	75	100	SU	MA	GEN
112	Yeung, 2010	E-1*	296 (50)	67	100	SU	MA	DEP

Note. Empty cells indicate information that was not available in article. See Table 1 for list of acronyms and definitions. * Systematic screening, # Referral, ^ Waiting room

Figure 1

Article One Search Strategy Flowchart

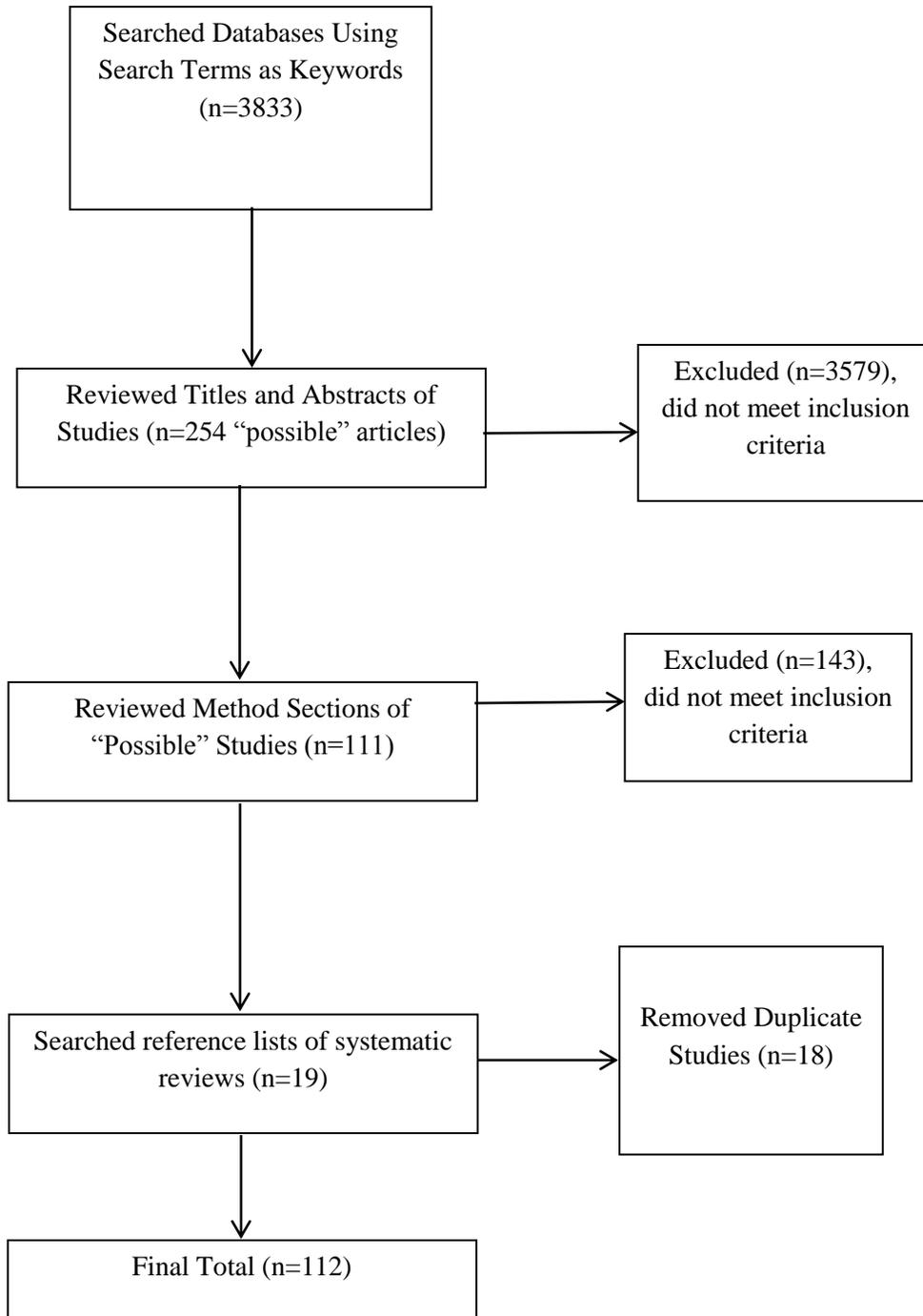


Figure 2

Data Extraction Flowchart

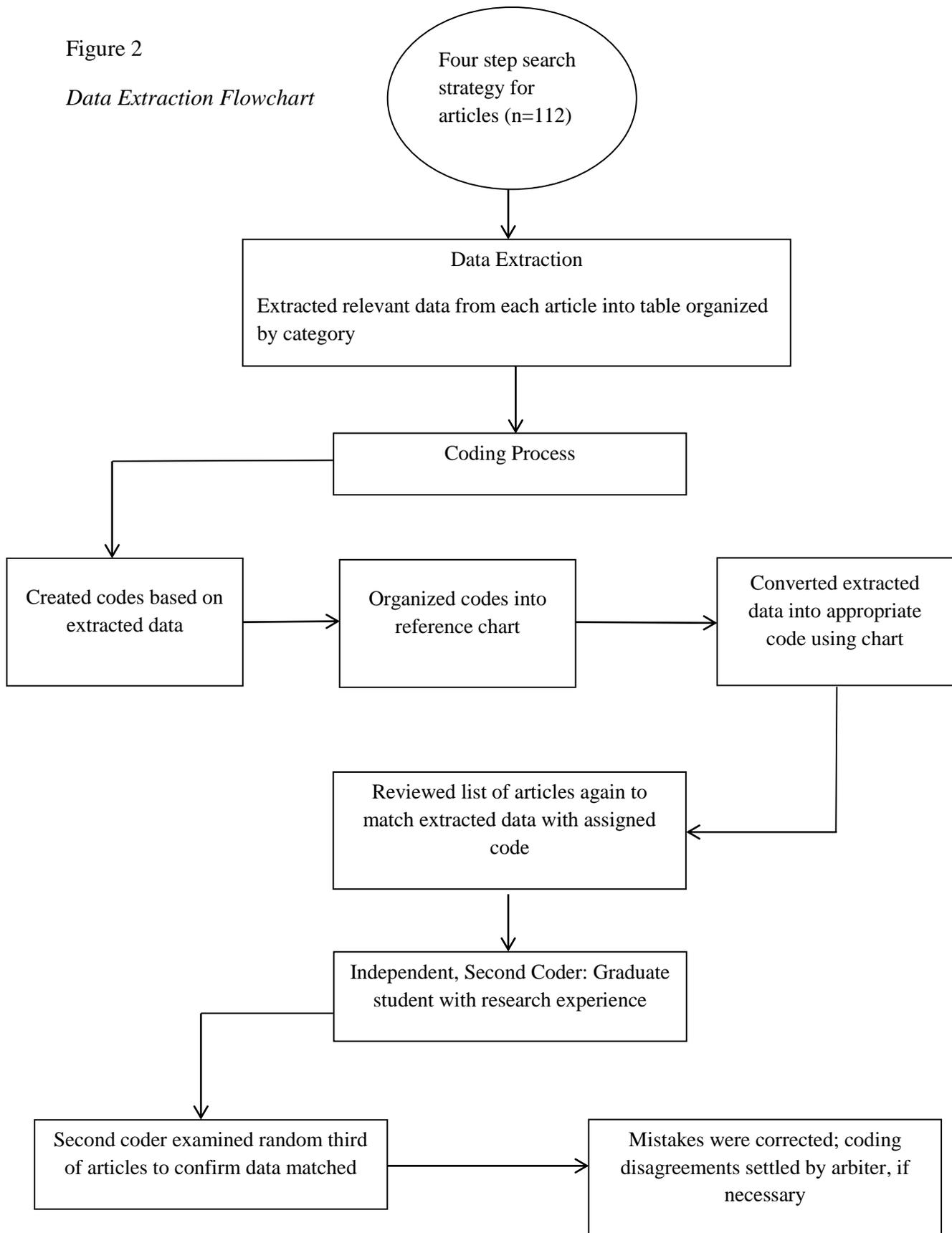
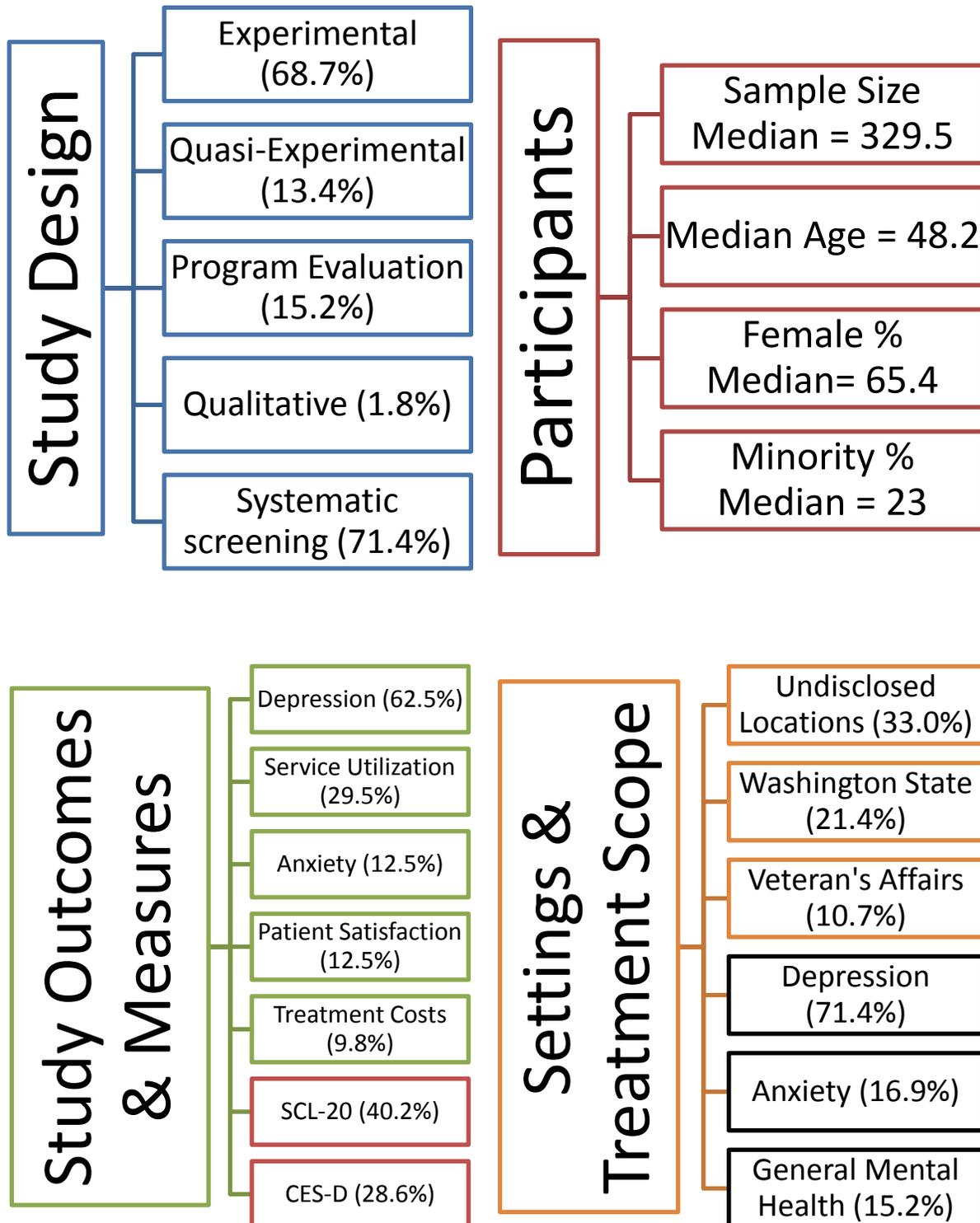


Figure 3

Article One Study Findings



CHAPTER FIVE: INTEGRATED PRIMARY CARE:
A SYSTEMATIC REVIEW OF PROGRAM CHARACTERISTICS

Introduction

Integrated primary care (IPC) is the integration and collaboration of primary care providers (PCP) and behavioral health providers (BHP) in primary care settings (Blount, 1998, 2003; Collins, Hewson, Munger, & Wade, 2010). Researchers of IPC programs have made two things clear: there are many IPC programs designed to enhance primary care treatment and many of these programs are effective to some degree (Butler et al., 2008; Martin, White, Hodgson, Lamson, & Irons, 2012). However, it is not exactly clear what integration practices (e.g., provider type, shared treatment plan, collaboration frequency) exist within many of these programs (Butler et al., 2008; Miller, Kessler, Peek, & Kallenberg, 2011). Although several systematic reviews of the IPC literature have been published over the past decade, the researchers of these reviews have typically chosen to focus on experimental research designs and depression outcomes and not on program models reflecting the level of integration (Butler et al., 2008), meaning the degree to which PCPs and BHPs share resources and information in treating patients (Doherty, McDaniel, & Baird, 1996). To the extent that researchers and program developers better understand how IPC is reportedly being practiced, the delivery of IPC in treating behavioral health issues (e.g., mental health conditions, health risk behavior, substance abuse) will continue to grow and develop.

Literature Review

Mental health problems affect all age groups and millions of people in the US each year (Collins et al., 2010; Reeves et al., 2011). In 2010, over 45 million US adults (18 years or older) reported having a mental health condition with much less than half (17.9 million) of those adults

receiving mental health services (Substance Abuse and Mental Health Services Administration [SAMHSA], 2012). Researchers supported by the National Institute of Mental Health (NIMH) reported that mental health challenges typically begin early in life with evidence showing that half of all lifetime cases begin by age fourteen and three-quarters by age twenty-four (NIMH, 2005). Moreover, there is significant evidence for co-morbidity with as many as a fourth of individuals suffering from at least three DSM-IV diagnoses (Kessler, Chiu, Demler, & Walters, 2005).

Outpatient treatment in primary care is increasingly recognized as the gateway for responding to these large numbers of suffering individuals (Gunn & Blount, 2009; Institute of Medicine, 1996; Katon, 1995). Indeed, there are reports that nearly 70% of primary care patients suffer from some psychosocial issue (Kilgore, Richter, Siler, & Sayre-Stanhope, 2008; Robinson & Reiter, 2007). Considering the complexity of patients and the increasing volume of behavioral health issues, IPC is a viable and reasonable solution for addressing the biopsychosocial needs of primary care patients. As one expert stated, “Incorporating behavioral health services into primary medical care would seem so logical as to be almost inevitable” (Blount, 2003, p. 121). Over the past decade, researchers have found evidence that IPC is effective in improving treatment outcomes (Gensichen et al., 2006); however, the majority of IPC researchers to date have focused on depression solely or co-morbidly (Butler et al., 2008). Despite the growing evidence of IPC effectiveness, it is surprising how little is known about IPC research beyond experimental studies as well as how integration (i.e., shared records, communication patterns) is actually occurring in these programs (Martin et al., 2012).

To date, there is a small group of systematic reviews and meta-analyses in which authors have organized experimental studies of IPC (see Butler et al., 2008; Butler et al., 2011; Harkness

& Bower, 2009; Martin et al., 2012). In examining this group of reviews we found five themes. First, there is substantial evidence that collaborative care, especially disease-specific management care, is effective in treating patients with depression. Second, almost all IPC research programs have been solely focused on depression outcomes. Third, all of the reviews included only experimental design studies and none had sample sizes greater than 42. Fourth, many of the authors agreed that the next step is to identify what specific components of integration or action mechanisms lead to greater outcomes. Fifth, it is not very clear how IPC is being practiced in other general behavioral health programs, beyond care management, disease-specific programs. From these reviews, it is clear that there is growing interest in and evidence for IPC programs as well as a significant need to clarify IPC mechanism and practice. Although systematic reviews and meta-analyses are integral for organizing the evidence of IPC effectiveness, it seems clear that the narrow inclusion criteria used by many of the authors severely limits a more comprehensive review of the literature. We found very little information in these reviews about collaboration practices, program models, the types of BHPs working in these programs, behavioral health provider training and supervision, patient communities (e.g., rural, urban, low income, middle income, minority status), and what interventions BHPs are utilizing (Martin, White, Hodgson, Lamson, & Irons, 2012). Indeed, it is difficult to appreciate the effectiveness of IPC without knowing how behavioral health is actually being integrated into primary care.

In regard to integration, we only found one review in which authors examined the level of integration within IPC programs (Butler et al., 2008). These authors identified and reviewed 26 experimental design trials to determine whether the level of integration (e.g., provider roles, care process) affected patient's depression scores. The researchers found that while most trials

showed improvement in patient outcomes, the level of integration was not related to those improvements. In operationalizing integration, Butler et al. created summary scores that captured two dimensions of integration (i.e., integration of steps in the care process and degree of collaboration between providers). The first dimension was composed of 10 elements and included the following: screening, patient education/self-management, medication, psychotherapy, coordinated care, clinical monitoring, assessment of medication adherence, standardized follow-up, formal stepped care, and supervision. The second dimension was organized to focus on relational aspects of providers in IPC which Butler et al. credit Doherty, McDaniel, and Baird (1996); this second dimension also reflects the Institute of Medicine's (IOM) definition of integration (2006). The two components of this dimension were, one, a shared decision-making process about treatment and, two, the co-location of providers. As far as we could tell, Butler et al. were the first to examine collaboration and integration components; however, they did not evaluate other components like training and supervision of behavioral health providers, targeted communities, behavioral health provider type (e.g., psychologist, family therapist, social worker), and program model (e.g., an organized system of integrating behavioral health services into a primary care clinic).

Purpose of Paper

To date, only one other team of researchers have examined program characteristics of IPC research and they included only experimental design studies, as well as just two components of integration (i.e., integration of care elements and provider collaboration) (Butler et al., 2008). We hope to expand upon the findings of past reviews by including quasi-experimental, program evaluation, and qualitative design studies and by investigating additional variables regarding the integration of medical and mental health providers (e.g., provider type, behavioral health

training, supervision, program model). Thus, the purpose of this paper was to address the following questions regarding IPC program characteristics: At what level or how closely are providers collaborating (e.g., electronic records, face-to-face, shared treatment plans)? What models are being used in integration design? What types of interventions are being used? How are behavioral health providers (e.g., nurses, psychologists) being trained or supervised to provide treatment? What behavioral health providers are most frequently providing behavioral health treatment? What communities are being treated? The answers to these questions will hopefully contribute to the ongoing investigation of how providers are being integrated and how that integration may be improved.

Method

Search Strategy

The search effort included the following terms: *integrated primary care, collaborative care, collaboration, co-location, co-located service, embedded service, integrated service, and medical home*. These terms, although conceptually distinct from one another, were chosen to identify those researchers that examined integrated medical and behavioral health services in primary care. The last term is related to the patient-centered medical home concept which several researchers strongly suggest should include the integration of mental health treatment (Crogan & Brown, 2010). Although the search terms chosen are not synonymous and researchers are still working to develop a consensual definition of IPC, these terms still overlap with the general concept of IPC (Hunter & Goodie, 2010; Miller, Mendenhall, & Malik, 2009; Peek & Oftedahl, 2010). These search terms allow a literature search that satisfies the two inclusion criteria of setting and provider. Moreover, a portion of these search terms have been used in another systematic review (see Butler et al., 2008). We did not use the broad terms

“behavioral health” and “mental health” as search terms but rather used more descriptive concepts like “integrated primary care” and “collaborative care” to locate qualifying studies. Then, while searching through the titles, abstracts, and method sections of each study, we identified those behavioral and mental health providers whose role description fit the inclusion criteria.

MEDLINE via PubMed, PsychINFO, Cochrane Central Register of Controlled Trials, and CINAHL via EBSCO were the primary databases used to identify eligible studies. Search terms were entered into each database search as “keywords” meaning that they had to appear in qualifying articles in their entirety (e.g., “integrated primary care” and not integrated + primary + care). The same search terms were used for all databases except for CINAHL via EBSCO, which uses a network of related terms for searching instead of the entry of specific search terms. The Medline via PUBMED database yielded the highest number of relevant articles (n=64). See Table 1 (stepwise chart) and Figure 1 (workflow diagram) for illustrations of the search strategy including the number of articles identified at each step.

The search strategy consisted of four steps (Cooper, 2009; see Table 1 and Figure 1). First, studies were considered for selection based on information provided in the title and/or abstract that fit the inclusion criteria. Articles were rated with one of three categories: include, possible, and exclude. During the second step, article method sections were read to further determine if “possible” articles matched the inclusion criteria. Third, we searched the reference lists of other systematic reviews of IPC research to determine which articles we had missed (Badamgarav et al., 2003; Bee et al., 2008; Butler, 2008; Gilbody, Whitty, Grimshaw, & Thomas, 2003). During the fourth step, we found several duplicate articles (n=19) as well as secondary data analysis articles (n=36). In regard to the latter, we removed these so as to not

review programs for which we had the original articles. Reviewing these secondary data analyses would have inflated our results regarding particular IPC programs. The total number of articles extracted was 76.

Inclusion and Exclusion Criteria

Eligibility for the reviews included the following criteria: 1) setting: outpatient (primary medical care); 2) providers: primary care and behavioral health; and 3) integrated care: the integration of medical and behavioral health providers. We excluded hospital, inpatient, specialty mental health, substance abuse, hospice, secondary or tertiary care settings. In regard to the second criterion, reviewed studies included medical care from a provider trained in family practice, pediatrics, internal medicine, and/or obstetrics/gynecology. Medical providers also included mid-level professionals, including physician assistants and family nurse practitioners. Behavioral health providers included nurses in a behavioral health role or providing a behavioral health service and/or mental health professionals, including care managers, case managers, clinical social workers, marriage and family therapists, mental health clinicians, professional counselors, psychologists, and psychiatrists. Integrated care included those programs where medical and behavioral health providers were sharing the same location and treating the same patients (Peek & Oftedahl, 2010).

In addition to the above criteria, we included only peer-reviewed English-language journals and original, empirical research. Acceptable study designs included both quantitative and qualitative study designs, and excluded any case studies, theoretical or conceptual articles, and opinion or editorial articles. We excluded meta-analyses since these papers do not typically provide original information about a study. Since health care delivery systems outside the United States are different and have different funding structures, we only included those studies

conducted inside the US. Additional exclusion criteria comprised the following: studies focused on integrated care for persons with cognitive disorders (e.g., dementia, delirium); studies focused on developmental disorders of children (e.g., autism spectrum disorder); and studies of integrated care for only substance use (i.e., no comorbidity). These studies were not included so as to allow us to focus on the general population of primary care patients and on studies where improving behavioral health outcomes were a major part of the intervention. Moreover, patients with cognitive disorders, developmental disabilities, or substance use disorders may require more specialized care due to the complexity of these conditions. Since this is a broad, comprehensive review, we did not limit the search to any particular range of years.

Data Extraction

Data extraction included the following six categories: *level of integration, program model, intervention, behavioral health training, provider type, and setting* (see Table 2 for a description of each category). In preparing for data extraction, we expected that some studies would have information that others did not and planned to collect whatever data we could from each study. For example, we anticipated that most studies would not include information on program or community setting; however, this expected outcome may be an indication of a gap in the literature.

During data extraction we reviewed studies in alphabetical order and identified relevant information in the method, result, and discussion sections of each particular report. Some studies, particularly the program evaluation articles, were not organized in the traditional journal article format and thus it took a little more time to extract relevant data from those studies. Overall, our approach to data extraction was to focus on common elements or themes found among IPC programs (e.g., did the researchers provide psychoeducation?) and not on specific

details about collaboration (e.g., screening tools, length of time between follow up contacts). This “thematic” approach seemed appropriate considering that we reviewed a large assortment of study designs and settings. Moreover, it seemed that the larger elements of integration (e.g., communication patterns, behavioral health training) were more relevant than information that was more particular to a certain IPC program. Although we did not know exactly beforehand what data would be extracted from each study, we looked for information relevant to integration (Butler et al., 2008) as well as information that answered our research questions (see Table 2).

The data extraction and coding process involved four steps (see Figure 2). First, we extracted all relevant information (i.e., information that fit our inclusion criteria; e.g., behavioral health interventions, behavioral health providers, etc.) from each article into a table that included labels for each variable. Second, we created codes for each phrase or word, organized the codes into a chart, and converted all the extracted data into the appropriate code. All of the codes were created by the first author who also extracted all the data from the articles. Third, we reviewed the articles a second time while referring to the data table and code chart to validate our findings. Fourth, an independent, second coder was recruited to ensure the reliability of these findings (Schlosser, 2007). This second coder was a graduate student who examined a randomized third of the studies (n=25) to confirm the article data matched the table cells of each corresponding category (2007). Any extraction mistakes identified by the second coder were corrected and any coding disagreements were settled by an arbiter (the second author). Nine items (one integration level item, three intervention items, two training and supervision items, and three setting items) were identified as being questionable out of the 25 randomly selected articles (six categories, 150 total possible items). These items were recognized by the first coder as being incorrectly coded and thus appropriately changed. The inter-rater agreement rate for this review was 94%.

Results

The results for this systematic review have been organized into six main categories: level of integration, program model, intervention, behavioral training and supervision, provider type, and setting. See Table 2 for a description of each category. Table 3 outlines a list of acronyms used in this article. Table 4 includes program characteristic frequency counts. The data from each article was extracted, coded, and organized into Table 5. To create a more digestible table, the “Model” and “Settings” categories were removed. The main findings of the review are illustrated in Figure 3. These categories correlate with the table organization (Table 5) as well as with the research questions posed earlier. The data for these categories will be described in narrative format below. In the text that follows, numbers in parentheses are frequency counts whereas bracketed numbers refer to specific studies. See Table 5 for a list of corresponding study numbers. Our goal here is not to provide a clear, “play by play” description of each IPC program but rather highlight those program or model characteristics that researchers are commonly using to implement integrated care. For experimental design studies, we did not extract any data related to usual care, only treatment or intervention protocols.

Level of Integration

At what level or how closely are providers collaborating? Less than half of all researchers (36) reported some type of communication (not reported as collaborative) between PCP and BHP [2,5,7,9-12,14-19, 21-22, 27, 30-32, 35, 41-42, 54-58, 60-63, 67-69, 73, 76]. While researchers of 9 studies reported verbal communication [5, 9, 12, 21, 32, 35, 41, 57-58], researchers of 16 studies reported written communication [7, 14-16, 19, 30-31, 42, 54-56, 60, 62-63, 69, 76] and researchers of five reported both written and verbal [12, 32, 35, 41, 57]. Eleven documented non-descript communication [2, 10-11, 17-18, 22, 27, 61, 67-68, 73]. Several

researchers (12) described collaboration between providers as being a shared-decision making process [3, 6, 9, 28-29, 44, 50-51, 59, 65, 71, 74].

In 14 studies, researchers reported BHPs, as a form of integration, providing treatment recommendations to PCPs [5-6, 8-10, 14, 19, 22-24, 27, 39, 52, 58-59, 63, 65-66, 68, 70, 72] while thirteen researcher groups reported that psychiatrist consultations were made available to PCPs [4-6, 10-11, 15, 18, 40, 43, 50, 54, 57, 61]. Over a fourth of researchers (21) stated that PCPs provided referrals to onsite BHPs [5-6, 8-10, 14, 19, 22-24, 27, 39, 52, 58-59, 63, 65-66, 68, 70, 72] while four described the referral to BHP services as being like a “warm handoff” [8, 20, 25, 72]. Several researchers (9) described communication processes occurring within teams of providers [8, 10, 16, 21, 30, 36, 50, 58, 65] and five described BHPs acting as liaisons between PCPs and psychiatrists [11, 57, 62, 67, 76].

Nine researcher groups reported utilizing electronic medical records [5, 16, 21-22, 26, 44, 51-52, 58] while two reported using non-electronic records [20, 67]. Researchers of four studies reported using clinical information systems to track patient data [16, 20, 24, 36] but it is not clear if PCPs or BHPS had access to these systems. “Curbside” consultations were used by some researchers (7) to facilitate informal, hallway conversations between providers [4-5, 7-8, 22, 50, 72]. Researchers of three studies integrated physicians and behavioral health providers in conjoint behavioral health sessions [7, 29, 72].

Program Model

What models are being used in integration design? Here we include models, treatment guidelines, and program names. Overall, we did not find many studies in which researchers identified a specific model (e.g., Chronic Care Model; Wagner, Austin, & Von Korff, 1996). A small number of researchers (4) reported using the IMPACT (Improving Mood-Promoting

Access to Collaborative) model [24, 36, 52, 71], while three reported the PRISM-E (Primary Care Research Study in Substance Abuse and Mental Health Services for the Elderly) model [2, 12, 41] and two the PROSPECT (Prevention of Suicide in Primary Care Elderly: Collaborative Trial) model [1, 6]. Researchers of five studies reported using AHCPR (Agency for Health Care Policy and Research) treatment guidelines to treat primary care patients with depression [1, 10, 53-54, 63]. Other programs, which did not include any mention of specific theoretical models, included the Bridge Project [75], Co-located Collaborative Care model [22], Collaborative Care for Anxiety and Panic [11, 48, 57], Collaborative Care Treatment Program [10], Community Behavioral Health Program [4], Culturally Sensitive Collaborative Treatment model [76], Partners in Care [59, 74], Protocol for On-Site, Nurse-Administered Behavioral Intervention [39], Quality Enhancement by Strategic Teaming [53], Re-Engineering Systems for Primary Care Treatment of Depression-Military [18, 40], and St. Louis Initiative for Integrated Care Excellence [5]. The Wagner Chronic Care Model (Wagner, Austin, & Von Korff, 1996) was specifically named by researchers of one study as being the conceptual framework of their IPC program [16].

Intervention

What types of interventions are being used? A majority of researchers (43) reported using psychoeducation [3, 10-11, 16-17, 20-24, 26, 28, 30-35, 38, 41-45, 47-48, 50, 52-57, 59, 61-63, 65, 69, 71, 73-74, 76] or medication (43) [1, 3, 6, 8, 10-12, 17-18, 24, 26-34, 36-38, 41-44, 48, 50, 52-57, 59-60, 63, 65, 67, 69, 71, 73-74] as interventions in an IPC program. A majority of researchers (40) also reported providing follow up contact (via BHP) with patients following treatment [1, 5-6, 9-11, 14-17, 20, 27, 29, 31-40, 42, 44-45, 49-50, 52-57, 60-61, 63, 71, 73]. While less than a fifth of researchers (11) reported using BHPs to screen and assess

patients for mental health conditions [1, 9, 12, 16, 23, 41-42, 49, 58-59, 62], seven reported using PCPs to screen and assess for mental health conditions [7, 18, 27, 40, 50, 63, 69]. Multiple researchers (16) reported BHPs providing non-therapy consultations (i.e., treatment sessions or meetings that did not constitute as psychotherapy) to patients in addition to other interventions [12, 14, 22, 28-29, 32, 34-35, 41, 43-44, 55-56, 63-64, 71].

Many researchers reported using care management strategies including medication monitoring (e.g., antidepressant medication) (27) [1, 6, 10, 14, 17, 20-21, 24, 26-27, 30, 32-33, 37-38, 42, 48, 55-56, 59-62, 67, 69, 73-74], symptom monitoring (9) [1, 3, 6, 16, 37, 54, 57, 60, 67], treatment monitoring (13) [1, 6, 10, 15, 18, 33, 40, 48, 50, 54, 57, 67, 76], non-therapy patient support (12) [15, 18, 44, 48-49, 57, 59-60, 62, 65, 69, 76], care planning (2) [12, 41], care coordination (5) [54, 57, 59-60, 62], and non-descriptive general care management (19) [2-3, 6, 12, 16-17, 20, 24, 26-27, 38-41, 44, 51, 62, 71, 76]. Researchers of five studies reported creating relapse prevention plans with patients following treatment [24, 31, 42, 71]. A majority of researchers (46) reported at least one care management strategy [1-3, 6, 10, 12, 14-18, 20-21, 24, 26-27, 30, 32-33, 37-42, 44, 48, 50-51, 54-57, 59-62, 67, 69, 71, 73-74, 76].

A majority of researchers reported using psychotherapy (46) [1, 4-6, 8-14, 16-17, 19, 21-26, 28, 31, 36-37, 39, 41-42, 44-48, 50-52, 57-59, 62, 66, 68-72, 74] including brief (22) [5, 9, 11, 13-14, 22-24, 26, 31, 36-37, 39, 42, 45-46, 50, 52, 57-58, 62, 71], group (6) [21, 28, 44, 47-48, 59, 74], and family therapy (1) [51]. In regard to therapy models, 25 researchers reported using behavioral interventions [5, 9-10, 13, 15, 18, 20, 22-23, 27, 33, 38, 40, 42-43, 46, 51-54, 58, 62-63, 65, 76], cognitive and behavioral therapy (24) [10-11, 13-14, 17, 19, 25-26, 28, 31, 37, 39, 42, 44, 47-48, 50, 57-59, 62, 69, 74], problem-solving therapy (4) [24, 36, 52, 71],

solution focused therapy [31, 42], supportive emotion focused therapy [47], motivational enhancement [28], or emotional processing therapy [13].

Several researchers (13) reported integrating the services of a psychiatrist (medication or consultation) into a primary care system [4, 8, 10, 26, 43, 49, 55-56, 61, 70, 73, 75-76]. Over a fourth of researchers (20) reported referring patients to specialty mental health care as needed [5, 7, 16, 21, 26, 29, 39, 41, 43-44, 49-50, 53-54, 58, 61-62, 65, 67, 73]. Other intervention strategies include house visits [1] and peer support [27].

As for individualized treatment, many researchers reported creating individualized care plans for patients (10) [13-14, 16, 23, 26, 30, 32-34, 39], several provided stepped care (8) [14, 16, 26, 35-36, 38, 43-44], and almost a third reported treatment options for patients (24) [1, 11, 14, 16-18, 21, 28-29, 36-37, 44, 50, 52-54, 57-59, 63, 65, 67, 74, 76]. Several (12) also reported using manualized treatment [3, 13, 18-19, 26, 31, 39, 42, 44, 52, 58, 65] or a treatment algorithm (8) [1, 3, 6, 11, 34, 57, 60-61].

Behavioral Health Training and Supervision

How are behavioral health providers (e.g., nurses, psychologists) being trained or supervised to provide treatment? Overall, nearly half of researchers (35) reported training BHPs, PCPs, or both [3, 10, 12, 14-16, 18-19, 26-28, 30-31, 33, 34, 36-39, 41-42, 51-54, 57-59, 62-63, 65, 67, 71, 74-75]. A third of researchers (26) reported some type of BHP training [3, 12, 14-16, 18-19, 27, 33, 36-39, 41, 45-46, 51-54, 58-59, 62, 65, 71, 74] while 19 reported training PCPs to deliver behavioral health treatment [10, 15-16, 18, 26-27, 30-31, 34, 37, 42, 53-54, 57, 59, 63, 67, 74-75]. Researchers of five studies reported using a manual for training providers in IPC program [18, 27-28, 33, 36].

Over a third of all researchers (28) reported some type of supervision [6, 14-16, 18, 24, 27, 33, 36-40, 42, 44-45, 47, 52, 57, 59-60, 62, 64, 67, 71, 74, 76], including with a psychiatrist (16) [6, 15, 18, 24, 33, 37, 40, 42, 45, 52, 57, 60, 62, 71, 74, 76], a psychologist (5) [14, 27, 36-37, 47], or on a team (6) [16, 44, 52, 59, 64, 67]. Most supervision occurred on a weekly basis (16) [6, 14-15, 18, 27, 33, 37, 40, 42, 45, 52, 57, 60, 62, 71, 76]. In addition, several researchers reported efforts to maintain treatment fidelity (11) [3, 12, 14, 19, 28, 31, 36, 41-42, 62-63].

Provider Type

What health providers are most frequently providing behavioral health treatment? The most frequent provider types reported were nurses (25) [1, 3, 6, 12, 15, 20, 22, 27-28, 36, 38-39, 41, 45-46, 52-54, 59, 63, 65, 67, 71, 74-75], psychiatrists (25) [3-5, 8, 12, 21-22, 26, 29-30, 32, 34-35, 41, 43-44, 48-49, 55-56, 61, 64, 73, 75-76], psychologists (21) [1, 5-6, 10, 12-13, 16, 21-23, 25-26, 31, 33, 41-42, 44, 47, 50, 58, 71], and social workers (12) [1, 6, 8, 12, 17, 21-22, 26, 33, 41, 44, 66]. Sixteen researchers reported using only BHPs with a nursing background [15, 20, 27-28, 36, 38-39, 45-46, 52-54, 59, 63, 65, 67, 74], while eleven reported using only psychiatrists [29-30, 32, 34-35, 43, 55-56, 61, 64, 73] and nine only psychologists [13, 16, 23, 25, 31, 42, 47, 50, 58]. Other provider types include master's level counselors (4) [12, 14, 41, 69], psychotherapists (4) [2, 19, 62, 68], and a chaplain (1) [21]. Several researchers did not include background descriptions of providers (10) [7, 9, 11, 18, 24, 37, 40, 57, 60, 72].

Many provider types were unique to a particular program including care managers (13) [1, 15-16, 40, 48-49, 51, 53-54, 60, 62, 75-76], behavioral health specialists (7) [4, 7, 11, 37, 48, 57, 72], behavioral health consultants (4) [9, 13, 23, 58], depression clinical specialists (3) [17, 36, 71], depression care managers (3) [6, 24, 52], nurse specialists [59, 74], care facilitator [18], clinical nurse specialist [67], depression nurse specialist [28], depression prevention specialist

[33], mental health specialist [51], nurse care coordinator [3], and nurse educator [20]. As mentioned before, the background descriptions of some of these distinctive BHP positions are unknown; it is unclear if some of these provider types are just named differently but have a similar background and training. Finally, we found that several researchers grouped nurses with traditional mental health providers (e.g., social workers, psychologists) (8) [1, 3, 6, 12, 22, 41, 71, 75]. This seemed significant since nurses typically have different training than traditional mental health providers.

Setting

What communities are being treated? As for communities, only a handful of researchers provided descriptions including Veteran's Affairs Medical Center (12) [3, 5, 12, 16, 21-22, 26, 41, 44, 49, 64, 67], rural (6) [1, 16, 49, 63, 66, 72], urban (5) [16, 25, 39, 63, 70], community health center (3) [4, 12, 41], outpatient hospital network (2) [12, 41], and suburban (2) [1, 39].

Discussion

Study Findings

Integrated primary care is the organized collaboration of medical and behavioral health providers in treating the biopsychosocial health of patients (Blount, 2003). Authors of past systematic reviews have concluded that IPC is effective but have narrowly focused on only experimental designs and depression treatment outcomes (Butler et al., 2008); moreover, it remains unclear how IPC is actually being practiced in many of these research programs. The purpose of this study was to expand upon the findings of past systematic reviews by including non-experimental and experimental studies and by focusing on the characteristics and practices of the various IPC programs. Overall, our findings suggest that researchers of IPC programs report much information about behavioral health interventions and not enough information about

collaboration between providers, training and/or supervision of behavioral health providers, program models, or patient communities.

As for clinical interventions, we found that a majority of IPC researchers reported utilizing psychoeducation (e.g., information about major depressive disorder or panic disorder), psychopharmacology (e.g., antidepressant medication), follow up contact (e.g., telephone call), psychotherapy (e.g., cognitive behavioral therapy, solution-focused therapy), and/or at least one care management strategy as part of treatment (e.g., contact to determine medication adherence). Our finding on the prevalence of care management practices is similar to that found in another study (Sanchez, Thompson, & Alexander, 2010). As far as we know, this is the first time a systematic review of IPC interventions has been conducted.

It is troubling to see a lack of family-centered interventions in many of these IPC programs. We only found one group of researchers reporting a family-systems component of care but did not find any mention of family therapists as providers in any of the IPC programs, which is especially concerning since primary care physicians may often treat more than one person within a family unit. It is surprising that the most basic unit of society does not receive more attention in IPC research especially considering the evidence of the bidirectional influence of relationships and health (Kiecolt-Glaser, 1999; Kiecolt-Glaser & Newton, 2001; McDaniel, Campbell, Hepworth, & Lorenz, 2005; Weihs, Fisher, & Baird, 2002). This lack of family-centered treatment in IPC programs may be a result of the lack of training in working with patients and family members (Rolland & Walsh, 2005); or it may be a result of the difficulty in measuring the effectiveness of a family-centered program or even receiving third-party reimbursement for such care (Martin et al., 2012). Nevertheless, family-centered health care is a

promising service (Rolland & Walsh, 2005) and may help to improve the effectiveness and long-lasting impact of future IPC programs.

As for communication between providers, slightly less than half of researchers reported general communication between providers while one out of six reported actual collaboration in patient care. Although our inclusion criteria were broad in accepting studies in which medical and behavioral health providers were sharing a location and the responsibility of treating patients, we were surprised to find that a significant number of researchers did not report collaboration between providers. We believe that there may be a few reasons for this. First, this may be a result of the lack of consensus on terms like “integrated primary care” and “collaborative care” (Miller et al., 2011; Peek & Oftedahl, 2010). There have been recent efforts made toward organizing components of integrated primary care (see Miller, Mendenhall, & Malik, 2009 for list of varied operational definitions; Peek & Oftedahl, 2010). According to Doherty et al. (1996), the inclusion of a behavioral health provider in a medical setting in any form was enough to label a care system as integrated; yet, according to these authors, a *fully* integrated system is one where behavioral and medical health professionals share the same site, the same system of care, and the same vision in treating all patients. According to this conceptualization, it appears that nearly 80% of IPC programs in our sample would be classified as including low levels of integration as characterized by the lack of collaboration between providers. Second, the low level of collaboration may also be a reflection of the cultural values embedded in each profession, setting, or program (Collins et al., 2010; Patterson, Peek, Heinrich, Bischoff, & Scherger, 2002). Indeed, Sanchez et al. (2010) found that barriers of integration can include limited training, stigmatizing attitudes about behavioral health, and culture and language differences. Finally, our findings are limited by the amount of information reported by

researchers. It is very possible that some IPC providers collaborated regularly with each other and those researchers failed to report such information.

Considering these significant barriers of integration (Sanchez et al., 2010), we were surprised to find that the training and supervision of PCPs and BHPs in integrated primary care were not more widespread among programs. Only a third of researchers reported training and /or supervising behavioral health providers. There may be a few reasons for this lack of ubiquitous training and supervision. First, this may be a reflection of the providers recruited for each study; some BPHs may have been long-time employees of a clinic (e.g., a social worker or a psychiatrist) and thus not needed additional training or supervision or assumed to know how to provide integrated care. Second, a lack of widespread training and supervision may also be a function of available resources (i.e., lack of funding or expert personnel) or reimbursement challenges (i.e., some BHPs, like psychologists, may be easier to bill for than others). Third, the lack of consensus about IPC core competencies may make it difficult to clearly identify the “best practices” of IPC (Miller et al., 2011). We also wonder if low communication and collaboration rates could be a function of the matchup of providers. We found that a third of all programs included nurses as BHPs. It is fairly plausible that the traditional hierarchy of medicine may be a factor in limiting the amount of collaboration with PCPs in some of these IPC programs.

We found that most behavioral health providers were, in order, nurses, psychiatrists, psychologists, and/or social workers; many of these programs included only nurse as BHPs. Nurses play a significant role in primary care and have obviously become integral in many IPC programs. One group of researchers stated that nurses were an advantage to traditional mental health providers “because [they] could also address issues about other medical conditions and discuss the patient’s overall health as well as his or her mental health” (Hunkeler et al., 2000, p.

702). Nurses are usually acclimated to the pace and culture of primary care, more so than traditional BHPs, and are accustomed to care management strategies like medication monitoring and care coordination. Yet, we wonder why some researchers apparently grouped nurses with other behavioral health providers. For example, some descriptions of providers would state that psychologists, social workers, and nurses were recruited as BHPs [6]. This is a confusing generalization of provider types; there is a stark contrast in training and background between a nurse and a psychologist (DiLillio, DeGue, Cohen, & Morgan, 2006). However, it seems that nurses will continue to be good candidates as BHPs in primary care especially for programs that incorporate care management strategies for chronic illnesses (Wagner, Austin, & Von Korff, 1996) and for areas in which there is a shortage of traditional mental health workers (Sanchez et al., 2010).

In gathering information about settings (i.e., patient communities), we found very little helpful information. Some researchers described integrating services into Veteran's Affairs systems or community health centers while others described rural, urban, and suburban communities. Overall, the spectrum of patient communities receiving these services seems unclear, which may be a direct result of researchers not reporting such relevant information (e.g., patient income level, population density, education level). This information will be important in determining what settings are a good fit for IPC. Some researchers strongly suggest that IPC is ideal for patient populations that lack access to behavioral health services (Proser & Cox, 2004; Davis, 2011). Indeed, there already seems to be growing evidence that IPC is a significant support to community health centers that have integrated behavioral health services (Auxier, Farley, & Seifert, 2011; Marlowe, Hodgson, Lamson, White, & Irons, 2011). However, it appears that the majority of IPC researchers who report patient information are not providing

enough information to capture the breadth of patient communities involved in IPC research. Furthermore, we found little information describing models and/or theoretical frameworks utilized in IPC research. Some programs we found include IMPACT and PRISM-E which appear to be based on Wagner's Chronic Care Model (Wagner, Austin, & Von Korff, 1996). We found several IPC programs with particular titles (e.g., Bridge Project, Collaborate Care for Anxiety and Panic) but no report of specific models or theoretical frameworks. This lack of underlying theory can make replication and conceptualization of an IPC program difficult. In experimental-type inquiry, a theory provides hypotheses, concepts, and constructs that can be observed, measured, and predicted (DePoy & Gitlin, 1998). In any type of research, theory provides the necessary direction and frame of reference for understanding and observing particular phenomena. Much of IPC research appears to lack to this theoretical structure.

Limitations

No effort was made to locate and include empirical studies that had not been peer-reviewed and/or published because a systematic and comprehensive strategy for doing so was beyond the scope of this article. Also, since our goal was not to extract the entire population of IPC studies, no effort was made to search the reference lists of extracted studies.

Future Research

Currently, there is a significant lack of information about how and where IPC is being practiced in primary care systems. Part of this void is because there has not been a concerted effort to review a large number of IPC studies. Our review helps to begin to address that void. However, a lack of clarity continues to remain regarding if and how providers are communicating and collaborating, what kinds of patient communities are receiving services, and what theories are guiding IPC practice. Future research should include a purposeful exploration

of how providers collaborate, what constitutes “best practices” in collaboration, and how a high level of integration (e.g., close collaboration) impacts treatment outcomes and costs. This kind of exploration may be best facilitated by qualitative research methods (e.g., natural observation, in-depth interviews, focus groups, etc.) that examine medical and behavioral health provider relationships in depth. Future researchers should also include more detailed information in reports about patient communities including income level, population density, education level, ethnicity, and geographical region. Furthermore, the paucity of theory in IPC research must be confronted. It can be argued that this lack of theoretical structure is contributing to the confusion of IPC vocabulary and concepts (e.g., integration, collaboration, behavioral health, mental health, etc.). Future researchers do not need to utilize the same theory but would certainly benefit from consistently applying theory in program development and from a general framework of shared concepts (e.g., integration, collaboration). Qualitative research methods (e.g., grounded theory) may help to develop theories for existing IPC programs.

Future research will also be helpful in determining what elements of IPC treatment and intervention (e.g., psychoeducation, psychotherapy, collaboration, follow up, care management) provide the best patient (e.g., improved mental health), financial (e.g., increased cost-offsets), provider (e.g., increased work satisfaction), organizational (e.g., improved workflow), and community (e.g., decreased mental health stigma) outcomes. This may also include the examination of other behavioral health treatments (e.g., Acceptance and Commitment Therapy, Mindfulness, Motivational Interviewing) as well as family-centered treatments (e.g., family therapy, couples therapy, parenting training). Future researchers of IPC will have to go beyond just examining if behavioral health interventions work to how and why they work. Again, these inquiries can be supported by sound theoretical frameworks and non-experimental research

methods. Finally, an organized set of core competencies for IPC training and supervision will help to standardize the introduction of new providers into integrated care systems. Future researchers can identify these competencies through qualitative research methods (e.g., Delphi study, expert panels) that highlight the required set of skills for new providers to successfully integrate into a system. They can also demonstrate the best methods (i.e., supervision) for teaching these skills.

REFERENCES

(*table references)

- *Alexopoulos, G. S., Katz, I. R., Bruce, M. L., Heo, M., Ten Have, T., Raue, P., . . . PROSPECT Group. (2005). Remission in depressed geriatric primary care patients: A report from the PROSPECT study. *The American Journal of Psychiatry*, *162*(4), 718-724.
doi:10.1176/appi.ajp.162.4.718
- American Psychology Association (2009). *Guidelines and principles for accreditation of programs in professional psychology*. Retrieved from
<http://www.apa.org/ed/accreditation/about/policies/guiding-principles.pdf>
- Auxier, A., Farley, T., & Seifert, K. (2011). Establishing an integrated care practice in a community health center. *Professional Psychology: Research and Practice*, *42*(5), 391-397. doi: 10.1037/a0024982
- *Ayalon, L., Areán, P. A., Linkins, K., Lynch, M., & Estes, C. L. (2007). Integration of mental health services into primary care overcomes ethnic disparities in access to mental health services between black and white elderly. *The American Journal of Geriatric Psychiatry*, *15*(10), 906-912. doi:10.1097/JGP.0b013e318135113e
- Badamgarav, E., Weingarten, S. R., Henning, J. M., Knight, K., Hasselblad, V., Gano, J., Anacleto, & Ofman, J. J. (2003). Effectiveness of disease management programs in depression: A systematic review. *The American Journal of Psychiatry*, *160*(12), 2080-2090. doi:10.1176/appi.ajp.160.12.2080

- *Bauer, M. S., McBride, L., Williford, W. O., Glick, H., Kinoshian, B., Altshuler, L., . . . and Coauthors for the Cooperative Studies Program 430 Study Team. (2006). Collaborative care for bipolar disorder: Part I. intervention and implementation in a randomized effectiveness trial. *Psychiatric Services, 57*(7), 927-936. doi:10.1176/appi.ps.57.7.927
- Bee, P. E., Bower, P., Lovell, K., Gilbody, S., Richards, D., Gask, L., & Roach, P. (2008). Psychotherapy mediated by remote communication technologies: A meta-analytic review. *BMC Psychiatry, 8*(1), 60-60. doi:10.1186/1471-244X-8-60
- *Begley, C. E., Hickey, J. S., Ostermeyer, B., Teske, L. A., Vu, T., Wolf, J., . . . Rowan, P. J. (2008). Integrating behavioral health and primary care: The Harris county community behavioral health program. *Psychiatric Services, 59*(4), 356-358.
- Blount, A. (1998). *Integrated primary care: The future of medical and mental health collaboration*. New York, NY: Norton.
- Blount, A. (2003). Integrated primary care: Organizing the evidence. *Families, Systems & Health, 21*(2), 121-133. doi: 10.1037/1091-7527.21.2.121
- *Brawer, P. A., Martielli, R., Pye, P. L., Manwaring, J., & Tierney, A. (2010). St. louis initiative for integrated care excellence (SLI2CE): Integrated-collaborative care on a large scale model. *Families, Systems, & Health, 28*(2), 175-187. doi:10.1037/a0020342
- *Bruce, M. L., Ten Have, T. R., Reynolds, Charles F., I,II, Katz, I. I., Schulberg, H. C., Mulsant, B. H., . . . Alexopoulos, G. S. (2004). Reducing suicidal ideation and depressive symptoms in depressed older primary care patients: A randomized controlled trial. *JAMA: Journal of the American Medical Association, 291*(9), 1081-1091. doi:10.1001/jama.291.9.1081

- *Brucker, P. S. & Shields, C. G. (2003). Collaboration between mental and medical healthcare providers in an integrated primary care medical setting. *Families, Systems, & Health, 21*(2), 181-191. doi:10.1037/1091-7527.21.2.181
- *Bryan, C. J., Morrow, C., & Appolonio, K. K. (2009). Impact of behavioral health consultant interventions on patient symptoms and functioning in an integrated family medicine clinic. *Journal of Clinical Psychology, 65*(3), 281-293. doi:10.1002/jclp.20539
- *Budin, J., Boslaugh, S., Beckett, E., & Winiarski, M. G. (2004). Utilization of psychiatric services integrated with primary care by persons of color with HIV in the inner city. *Community Mental Health Journal, 40*(4), 365-378.
doi:10.1023/B:COMH.0000035230.20900.59
- *Bush, T., Rutter, C., Simon, G., von Korff, M., Katon, W. J., Walker, E. A., . . . Ludman, E. (2004). Who benefits from more structured depression treatment? *International Journal of Psychiatry in Medicine, 34*(3), 247-258. doi:10.2190/LF18-KX2G-KT79-05U8
- Butler, M., Kane R. L., McAlpine D., Kathol, R. G., Fu S. S., Hagedorn H., Wilt T. J. (2008). *Integration of mental health/substance abuse and primary care*. (Prepared by the Minnesota Evidence-based Practice Center under Contract No. 290-02-0009.) AHRQ Publication No. 09- E003. Rockville, MD. Agency for Healthcare Research and Quality.
- Butler, M., Kane, R. L., McAlpine, D., Kathol, R., Fu, S. S., Hagedorn, H., & Wilt, T. J. (2011). Does integrated care improve treatment for depression? A systematic review. *The Journal of Ambulatory Care Management, 34*(2), 113. doi:10.1097/JAC.0b013e31820ef605

- *Chavira, D. A., Stein, M. B., Golinelli, D., Sherbourne, C. D., Craske, M. G., Sullivan, G., . . . Roy-Byrne, P. (2009). Predictors of clinical improvement in a randomized effectiveness trial for primary care patients with panic disorder. *Journal of Nervous and Mental Disease*, 197(10), 715-721. doi:10.1097/NMD.0b013e3181b97d4d
- *Chen, H., Coakley, E. H., Cheal, K., Maxwell, J., Costantino, G., Krahn, D. D., . . . Levkoff, S. E. (2006). Satisfaction with mental health services in older primary care patients. *The American Journal of Geriatric Psychiatry*, 14(4), 371-379. doi:10.1097/01.JGP.0000196632.65375.b9
- *Cigrang, J. A., Rauch, S. A. M., Avila, L. L., Bryan, C. J., Goodie, J. L., Hryshko-Mullen, A., & Peterson, A. L. (2011). Treatment of active-duty military with PTSD in primary care: Early findings. *Psychological Services*, 8(2), 104-113. doi:10.1037/a0022740
- *Clarke, G., Debar, L., Lynch, F., Powell, J., Gale, J., O'Connor, E., . . . Hertert, S. (2005). A randomized effectiveness trial of brief cognitive-behavioral therapy for depressed adolescents receiving antidepressant medication. *Journal of the American Academy of Child & Adolescent Psychiatry*, 44(9), 888-898. doi:10.1016/S0890-8567(09)62194-8
- Collins, C., Hewson, D. L., Munger, R., & Wade, T. (2010). *Evolving models of behavioral health integration in primary care*. Retrieved from <http://www.milbank.org/reports/10430EvolvingCare/10430EvolvingCare.html>
- Cooper, H. M. (2009). *Research synthesis and meta-analysis: A step-by-step approach* (4th Edition). Washington, DC: Sage.
- Croghan, T. W., & Brown, J. D. (2010). *Integrating mental health treatment into the patient centered medical home* (AHRQ Publication No. 10-0084-EF). Rockville, MD: Agency for Healthcare Research and Quality.

- Davis, K. (2011). *Pathways to integrated care: Strategies for African American communities and organizations*. Washington, DC: US Department of Health and Human Services Office of Minority Health. Retrieved from <http://www.minorityhealth.hhs.gov/Assets/pdf/Checked/1/PathwaystoIntegratedHealthCareStrategiesforAfricanAmericans.pdf>
- DePoy, E. & Gitlin, L. N. (1998). *Introduction to research: Multiple strategies for health and human services* (2nd ed.). St. Louis: Mosby. Retrieved from http://www.umdnj.edu/idsweb/shared/why_is_theory_important_chpt6_depoy.htm
- *Dietrich, A. J., Oxman, T. E., Williams, J., John W., Schulberg, H. C., Bruce, M. L., Lee, P. W., . . . Nutting, P. A. (2004). Re-engineering systems for the treatment of depression in primary care: Cluster randomised controlled trial. *BMJ (Clinical Research Ed.)*, 329(7466), 602-605. doi:10.1136/bmj.38219.481250.55
- DiLillio, D., DeGue, S., Cohen, L. M., & Morgan, R. D. (2006). The path to licensure for academic psychologists: How tough is the road? *Professional Psychology: Research and Practice*, 37(5), 567-586. doi:10.1037/0735-7028.37.5.567
- *Dobscha, S. K., Corson, K., Leibowitz, R. Q., Sullivan, M. D., & Gerrity, M. S. (2008). Rationale, design, and baseline findings from a randomized trial of collaborative care for chronic musculoskeletal pain in primary care. *Pain Medicine*, 9(8), 1050-1064. doi:10.1111/j.1526-4637.2008.00457.x
- Doherty, W., McDaniel, S., & Baird, M. (1996). Five levels of primary care - behavioral healthcare collaboration. *Behavioral Healthcare Tomorrow*, 5(5), 25-27.

- *Dwight-Johnson, M., Lagomasino, I. T., Hay, J., Zhang, L., Tang, L., Green, J. M., & Duan, N. (2010). Effectiveness of collaborative care in addressing depression treatment preferences among low-income latinos. *Psychiatric Services, 61*(11), 1112-1118. doi:10.1176/appi.ps.61.11.1112
- *Engel, C.C., Oxman, T., Yamamoto, C., Gould, D., Barry, S., Stewart, P. . . . Dietrich, A.A. (2008). RESPECT-Mil: Feasibility of a systems-level collaborative care approach to depression and post-traumatic stress disorder in military primary care. *Military Medicine, 173*(10), 935-940. Retrieved from <http://jproxy.lib.ecu.edu/login?url=http://proquest.umi.com/jproxy.lib.ecu.edu/pqdweb?did=1586796821&Fmt=2&clientId=15121&RQT=309&VName=PQD>
- *Escobar, J. (2007). Effectiveness of a time-limited cognitive behavior therapy type intervention among primary care patients with medically unexplained symptoms. *Annals of Family Medicine, 5*(4), 328-335. doi:10.1370/afm.702
- *Feinman, J. A., Cardillo, D., Palmer, J., & Mitchel, M. (2000). Development of a model for the detection and treatment of depression in primary care. *Psychiatric Quarterly, 71*(1), 59-78. doi:10.1023/A:1004666701711
- *Felker, B. L., Barnes, R. F., Greenberg, D. M., Chancy, E. F., Shores, M. M., Gillespie-Gateley, I., . . . Morton, C. E. (2004). Preliminary outcomes from an integrated mental health primary care team. *Psychiatric Services, 55*(4), 442-444. doi:10.1176/appi.ps.55.4.442
- *Funderburk, J. S., Sugarman, D. E., Maisto, S. A., Ouimette, P., Schohn, M., Lantinga, L., . . . Strutynski, K. (2010). The description and evaluation of the implementation of an integrated healthcare model. *Families, Systems, & Health, 28*(2), 146-160. doi:10.1037/a0020223

- Gensichen, J., Beyer, M., Muth, C., Gerlach, F. M., Von Korff, M., & Ormel, J. (2006). Case management to improve major depression in primary health care: A systematic review. *Psychological Medicine, 36*, 7-14. doi:10.1017/S0033291705005568
- Gilbody, S., Whitty, P., Grimshaw, J., & Thomas, R. (2003). Educational and organizational interventions to improve the management of depression in primary care: A systematic review. *JAMA : The Journal of the American Medical Association, 289*(23), 3145-3151. doi:10.1001/jama.289.23.3145
- *Goodie, J. L., Isler, W. C., Hunter, C., & Peterson, A. L. (2009). Using behavioral health consultants to treat insomnia in primary care: A clinical case series. *Journal of Clinical Psychology, 65*(3), 294-304. doi:10.1002/jclp.20548
- *Grypma, L., Haverkamp, R., Little, S., & Unützer, J. (2006). Taking an evidence-based model of depression care from research to practice: Making lemonade out of depression. *General Hospital Psychiatry, 28*(2), 101-107. doi:10.1016/j.genhosppsych.2005.10.008
- *Guck, T. P., Guck, A. J., Brack, A. B., & Frey, D. R. (2007). No-show rates in partially integrated models of behavioral health care in a primary care setting. *Families, Systems, & Health, 25*(2), 137-146. doi:10.1037/1091-7527.25.2.137
- Gunn, J., William B., & Blount, A. (2009). Primary care mental health: A new frontier for psychology. *Journal of Clinical Psychology, 65*(3), 235-252. doi:10.1002/jclp.20499
- Harkness, E. F. & Bower, P. J. (2009). On-site mental health workers delivering psychological therapy and psychosocial interventions to patients in primary care: Effects on the professional practice of primary care providers. *Cochrane Database of Systematic Reviews*, Issue 1. Art. No.: CD000532. doi: 10.1002/14651858.CD000532.pub2.

- *Hedrick, S. C., Chaney, E. F., Felker, B., Liu, C., Hasenberg, N., Heagerty, P., . . . Katon, W. (2003). Effectiveness of collaborative care depression treatment in veterans' affairs primary care. *Journal of General Internal Medicine, 18*(1), 9-16. doi:10.1046/j.1525-1497.2003.11109.x
- *Hunkeler, E. M., Meresman, J. F., Hargreaves, W. A., Fireman, B., Berman, W. H., Kirsch, A. J., . . . Salzer, M. (2000). Efficacy of nurse telehealth care and peer support in augmenting treatment of depression in primary care. *Archives of Family Medicine, 9*(8), 700-708. doi:10.1001/archfami.9.8.700
- Hunter, C. L., & Goodie, J. L. (2010). Operational and clinical components for integrated-collaborative behavioral healthcare in the patient-centered medical home. *Families, Systems, & Health, 28*(4), 308-321. doi:10.1037/a0021761
- Institute of Medicine [IOM] (U.S.). Committee on Quality of Health Care in America. (1996). *Crossing the quality chasm: A new health system for the 21st century*. Washington, D.C: National Academy Press.
- Institute of Medicine (U.S.) Committee on Quality of Health Care in America. (2001). *Crossing the quality chasm: A new health system for the 21st century*. Washington, D.C: National Academy Press. Retrieved from <http://www.iom.edu/~media/Files/Report%20Files/2001/Crossing-the-Quality-Chasm/Quality%20Chasm%202001%20%20report%20brief.pdf>

Institute of Medicine. (2002). *The Future of the Public's Health in the 21st Century*.

Washington, DC: National Academy of Sciences, National Academy Press. Retrieved from

<http://www.iom.edu/~media/Files/Report%20Files/2002/The-Future-of-the-Publics-Health-in-the-21st-Century/Future%20of%20Publics%20Health%202002%20Report%20Brief.pdf>

Institute of Medicine (U.S.). Committee on the Future of Rural Health Care. (2005). *Quality*

through collaboration: The future of rural health. Washington, D.C: National Academy

Press. Retrieved from [http://www.iom.edu/Reports/2004/Quality-Through-Collaboration-](http://www.iom.edu/Reports/2004/Quality-Through-Collaboration-The-Future-of-Rural-Health.aspx)

[The-Future-of-Rural-Health.aspx](http://www.iom.edu/Reports/2004/Quality-Through-Collaboration-The-Future-of-Rural-Health.aspx)

Institute of Medicine (U.S.). Committee on Crossing the Quality Chasm: Adaptation to Mental

Health and Addictive Disorders, & Institute of Medicine (U.S.). Committee on Crossing

the Quality Chasm: Adaptation to Mental Health and Addictive Disorders. (2006).

Improving the quality of health care for mental and substance-use conditions. Washington,

DC: National Academy Press.

*Jaycox, L. H., Miranda, J., Meredith, L. S., Duan, N., Benjamin, B., & Wells, K. (2003). Impact of a primary care quality improvement intervention on use of psychotherapy for depression.

Mental Health Services Research, 5(2), 109-120. doi:10.1023/A:1023233612022

*Katon, W., Robinson, P., Von Korff, M., Lin, E., Bush, T., Ludman, E., . . . Walker, E. (1996).

A multifaceted intervention to improve treatment of depression in primary care. *Archives of*

General Psychiatry, 53(10), 924-932. doi:10.1001/archpsyc.1996.01830100072009

*Katon, W., Rutter, C., Ludman, E. J., Von Korff, M., Lin, E., Simon, G., . . . Unützer, J. (2001).

A randomized trial of relapse prevention of depression in primary care. *Archives of*

General Psychiatry, 58(3), 241-247. doi:10.1001/archpsyc.58.3.241

- *Katon, W., Von Korff, M., Lin, E., Bush, T., Russo, J., Lipscomb, P., & Wagner, E. (1992). A randomized trial of psychiatric consultation with distressed high utilizers. *General Hospital Psychiatry, 14*(2), 86-98. doi:10.1016/0163-8343(92)90033-7
- *Katon, W. (1995). Collaborative care: Patient satisfaction, outcomes, and medical cost-offset. *Family Systems Medicine, 13*(3-4), 351-365. doi:10.1037/h0089387
- *Katon, W. J., Lin, E. H. B., Von Korff, M., Ciechanowski, P., Ludman, E., Young, B., . . . McCulloch, D. (2010). Collaborative care for patients with depression and chronic illnesses. *The New England Journal of Medicine, 363*(27), 2611-2620. doi:10.1056/NEJMoa1003955
- *Katon, W. J., Roy-Byrne, P., Russo, J., & Cowley, D. (2002). Cost effectiveness and cost offset of a collaborative care intervention for primary care patients with panic disorder. *Archives of General Psychiatry, 59*(12), 1098-1104. doi:10.1001/archpsyc.59.12.1098
- *Katon, W., Russo, J., Sherbourne, C., Stein, M. B., Craske, M., Fan, M., & Roy-Byrne, P. (2006). Incremental cost-effectiveness of a collaborative care intervention for panic disorder. *Psychological Medicine: A Journal of Research in Psychiatry and the Allied Sciences, 36*(3), 353-363. doi:10.1017/S0033291705006896
- *Katon, W., Russo, J., Von Korff, M., Lin, E., Simon, G., Bush, T., . . . Walker, E. (2002). Long-term effects of a collaborative care intervention in persistently depressed primary care patients. *Journal of General Internal Medicine, 17*(10), 741-748. doi:10.1046/j.1525-1497.2002.11051.x

- *Katon, W., Von Korff, M., Lin, E., Simon, G., Ludman, E., Bush, T., . . . Rutter, C. (2003).
Improving primary care treatment of depression among patients with diabetes mellitus: The
design of the pathways study. *General Hospital Psychiatry, 25*(3), 158-168.
doi:10.1016/S0163-8343(03)00013-6
- *Katon, W., Von Korff, M., Lin, E., Simon, G., Walker, E., Unützer, J., . . . Ludman, E. (1999).
Stepped collaborative care for primary care patients with persistent symptoms of
depression: A randomized trial. *Archives of General Psychiatry, 56*(12), 1109-1115.
doi:10.1001/archpsyc.56.12.1109
- Kessler, R., W. Chiu, O. Demler, and E. Walters. 2005. Prevalence, Severity, and Comorbidity
of Twelve-Month DSM-IV Disorders in the National Comorbidity Survey Replication.
Archives of General Psychiatry, 62(6):617–27. Available at [http://archpsyc.ama-
assn.org/cgi/reprint/62/6/617](http://archpsyc.ama-assn.org/cgi/reprint/62/6/617)
- Kiecolt-Glaser, J. K. (1999). Stress, personal relationships, and immune function: Health
implications. *Brain, Behavior, and Immunity, 13*, 61-72. doi:10.1006/brbi.1999.0552
- Kiecolt-Glaser, J. K., & Newton, T. L. (2001). Marriage and health: His and hers. *Psychological
Bulletin, 127*, 472-503. doi:10.1037/0033-2909.127.4.472
- Kilgore, C., Richter, R. R., Siler, W. L., & Sayre-Stanhope, D. (2008). Psychosocial issues in
primary care physician assistant practice: A descriptive study. *Journal of Physician
Assistant Education, 19*(4), 4-13.
- *Kolko, D. J., Campo, J. V., Kelleher, K., & Cheng, Y. (2010). Improving access to care and
clinical outcome for pediatric behavioral problems: A randomized trial of a nurse-
administered intervention in primary care. *Journal of Developmental and Behavioral
Pediatrics, 31*(5), 393-404. doi:10.1097/DBP.0b013e3181dff307

- *Kroenke, K., Shen, J., Oxman, T. E., Williams, J. W., Jr., & Dietrich, A. J. (2008). Impact of pain on the outcomes of depression treatment: Results from the RESPECT trial. *Pain, 134*(1-2), 209-215. doi:10.1016/j.pain.2007.09.021
- *Levkoff, S. E., Chen, H., Coakley, E., Herr, E. C. M., Oslin, D. W., Katz, I., . . . Ware, J. H. (2004). Design and sample characteristics of the PRISM-E multisite randomized trial to improve behavioral health care for the elderly. *Journal of Aging and Health, 16*(1), 3-27. doi:10.1177/0898264303260390
- *Lin, E. H., VonKorff, M., Russo, J., Katon, W., Simon, G. E., Unützer, J., . . . Ludman, E. (2000). Can depression treatment in primary care reduce disability? A stepped care approach. *Archives of Family Medicine, 9*(10), 1052-1058. doi:10.1001/archfami.9.10.1052
- *Lin, E. H. B., Simon, G. E., Katon, W. J., Russo, J. E., Von Korff, M., Bush, T. M., . . . Walker, E. A. (1999). Can enhanced acute-phase treatment of depression improve long-term outcomes? A report of randomized trials in primary care. *The American Journal of Psychiatry, 156*(4), 643-645. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&db=psyh&AN=1999-13232-022&site=ehost-live>
- *Liu, C., Hedrick, S. C., Chaney, E. F., Heagerty, P., Felker, B., Hasenberg, N., . . . Katon, W. (2003). Cost-effectiveness of collaborative care for depression in a primary care veteran population. *Psychiatric Services, 54*(5), 698-704. doi:10.1176/appi.ps.54.5.698

- *Lynch, D. J., Tamburrino, M. B., & Nagel, R. (1997). Telephone counseling for patients with minor depression: Preliminary findings in a family practice setting. *The Journal of Family Practice, 44*(3), 293-298. Retrieved from <http://go.galegroup.com.jproxy.lib.ecu.edu/ps/i.do?id=GALE%7CA19245259&v=2.1&u=gree96177&it=r&p=HRCA&sw=w>
- *Lynch, D., Tamburrino, M., Nagel, R., & Smith, M. (2004). Telephone-based treatment for family practice patients with mild depression. *Psychological Reports, 94*(3), 785-792. doi: 10.2466/pr0.94.3.785-792
- Marlowe, D., Hodgson, J., Lamson, A., White, M., & Irons, T. (2011). *Medical family therapy in a primary care setting: A model of integration*. (Unpublished doctoral dissertation). East Carolina University, Greenville, NC.
- Martin, M., White, M., Hodgson, J., Lamson, A., & Irons, T. (2012). *Integrated primary care: A systematic review of study design and characteristics*. Manuscript submitted for publication.
- McDaniel, S. H., Campbell, T. L., Hepworth, J., & Lorenz, A. (2005). *Family-oriented primary care*. New York: Springer.
- Miller, B. F., Mendenhall, T. J., & Malik, A. D. (2009). Integrated primary care: An inclusive three-world view through process metrics and empirical discrimination. *Journal of Clinical Psychology in Medical Settings, 16*(1), 21-30. doi:10.1007/s10880-008-9137-4

Miller B. F., Kessler R., Peek C. J., & Kallenberg, G.A. (2011). *A National agenda for research in collaborative care: Papers from the Collaborative Care Research Network Research Development Conference* (AHRQ Publication No. 11-0067). Rockville, MD: Agency for Healthcare Research and Quality. Retrieved from

<http://www.ahrq.gov/research/collaborativecare/collabcare.pdf>

*Mohr, D. C., Hart, S. L., Julian, L., Catledge, C., Honos-Webb, L., Vella, L., & Tasch, E. T. (2005). Telephone-administered psychotherapy for depression. *Archives of General Psychiatry*, 62(9), 1007-1014. doi:10.1001/archpsyc.62.9.1007

*Mukherjee, S., Sullivan, G., Perry, D., Verdugo, B., Means-Christensen, A., Schraufnagel, T., . . . Roy-Byrne, P. (2006). Adherence to treatment among economically disadvantaged patients with panic disorder. *Psychiatric Services*, 57(12), 1745-1750. doi:10.1176/appi.ps.57.12.1745

National Center for Health Statistics (2011). *Health, United States, 2010: In brief*. Hyattsville, MD: U.S. Department of Health and Human Services.

National Institute of Mental Health (NIMH). 2005. *Mental Illness Exact Heavy Toll, Beginning in Youth*. Bethesda, MD: National Institute of Mental Health. Retrieved from <http://www.nimh.nih.gov/science-news/2005/mental-illness-exacts-heavy-toll-beginning-in-youth.shtml>

Patterson, J., Peek, C. J., Heinrich, R. L., Bischoff, R. J., & Scherger, J. (2002). *Mental health professionals in medical settings: A primer*. New York: Norton.

Peek, C. & Oftedahl, G. (2010). *A consensus operational definition of patient-centered medical home (PCMH)*. Unpublished Manuscript, Institute for Clinical Systems Improvement, University of Minnesota, Minneapolis, MN.

- *Pomerantz, A., Cole, B. H., Watts, B. V., & Weeks, W. B. (2008). Improving efficiency and access to mental health care: Combining integrated care and advanced access. *General Hospital Psychiatry, 30*(6), 546-551. doi:10.1016/j.genhosppsych.2008.09.004
- *Price, D., Beck, A., Nimmer, C., & Bensen, S. (2000). The treatment of anxiety disorders in a primary care HMO setting. *Psychiatric Quarterly, 71*(1), 31-45.
doi:10.1023/A:1004662600803
- Proser, M. & Cox, L. (2004). *Health centers' role in addressing the behavioral health needs of the medically underserved*. (Special Topics Issue Brief #8). Retrieved from http://nachc.com/client/documents/publications-resources/ib_8_04.pdf
- Reeves, W. C., Strine, T. W., Pratt, L. A., Thompson, W., Ahluwalia, I., Dhingra, S. S., & McKnight-Eily, L. R., ... Safran, M. A. (2011). Mental illness surveillance among adults in the United States. *Morbidity and Mortality Weekly Report, 60*(03), 1-32. Retrieved from http://www.cdc.gov/mmwr/preview/mmwrhtml/su6003a1.htm?s_cid=su6003a1_w
- *Reiss-Brennan, B., Briot, P., Savitz, L., Cannon, W., & Staheli, R. (2010). Cost and quality impact of Intermountain's Mental Health Integration program. *Journal of Healthcare Management, 55*(2), 97-113.
- *Richardson, L., McCauley, E., & Katon, W. (2009). Collaborative care for adolescent depression: A pilot study. *Gen Hosp Psychiatry, 31*(1), 36-45.
doi:10.1016/j.genhosppsych.2008.09.019
- Robinson, P. J., & Reiter, J. T. (2007). *Behavioral consultation and primary care: A guide to integrating services*. New York, NY: Springer.

- Rolland, J. S. & Walsh, F. (2005). Systemic training for healthcare professionals: The Chicago Center for Family Health Approach. *Family Process*, 44(3), 283-301. doi:10.1111/j.1545-5300.2005.00060.x
- *Rost, K., Nutting, P., Smith, J. L., Dickinson, M., & Elliott, C. E. (2002). Managing depression as A chronic disease: A randomised trial of ongoing treatment in primary care. *BMJ: British Medical Journal*, 325(7370), 934-937. doi:10.1136/bmj.325.7370.934
- *Rost, K., Nutting, P., Smith, J., Werner, J., & Duan, N. (2001). Improving depression outcomes in community primary care practice: A randomized trial of the quest intervention. *Journal of General Internal Medicine*, 16(3), 143-149. doi:10.1111/j.1525-1497.2001.00537.x
- *Roy-Byrne, P., Craske, M. G., Stein, M. B., Sullivan, G., Bystritsky, A., Katon, W., . . . Sherbourne, C. D. (2005). A randomized effectiveness trial of cognitive-behavioral therapy and medication for primary care panic disorder. *Archives of General Psychiatry*, 62(3), 290-298. doi:10.1001/archpsyc.62.3.290
- *Roy-Byrne, P., Katon, W., Cowley, D. S., & Russo, J. (2001). A randomized effectiveness trial of collaborative care for patients with panic disorder in primary care. *Archives of General Psychiatry*, 58(9), 869-876. doi:10.1001/archpsyc.58.9.869
- *Roy-Byrne, P., Russo, J., Cowley, D. S., & Katon, W. J. (2003). Unemployment and emergency room visits predict poor treatment outcome in primary care panic disorder. *Journal of Clinical Psychiatry*, 64(4), 383-389. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&db=psyh&AN=2003-03944-005&site=ehost-live>

- *Runyan, C. N., Fonseca, V. P., Meyer, J. G., Oordt, M. S., & Talcott, G. W. (2003). A novel approach for mental health disease management: The air force medical service's interdisciplinary model. *Disease Management*, 6(3), 179-188. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&db=rzh&AN=2004038029&site=ehost-live>
- Sanchez, K., Thompson, & Alexander, L. (2010). Current strategies and barriers in integrated health care: A survey of publicly funded providers in Texas. *General Hospital Psychiatry*, 32, 26-32. doi:10.1016/j.genhosppsych.2009.10.007
- Schlosser, R. W. (2007). Appraising the quality of systematic reviews. *Focus*, Technical Brief No. 17, 1-8. Retrieved from <http://www.ncddr.org/kt/products/focus/focus17/>
- *Sherbourne, C. D., Wells, K. B., Duan, N., Miranda, J., Unützer, J., Jaycox, L., . . . Rubenstein, L. V. (2001). Long-term effectiveness of disseminating quality improvement for depression in primary care. *Archives of General Psychiatry*, 58(7), 696-703. doi:10.1001/archpsyc.58.7.696
- *Simon, G. E., Katon, W. J., VonKorff, M., Unützer, J., Lin, E. H. B., Walker, E. A., . . . Ludman, E. (2001). Cost-effectiveness of a collaborative care program for primary care patients with persistent depression. *The American Journal of Psychiatry*, 158(10), 1638-1644. doi:10.1176/appi.ajp.158.10.1638
- *Simon, G. E., Ludman, E. J., Tutty, S., Operskalski, B., & Korff, M. V. (2004). Telephone psychotherapy and telephone care management for primary care patients starting antidepressant treatment: A randomized controlled trial. *JAMA: The Journal of the American Medical Association*, 292(8), 935-942. doi:10.1001/jama.292.8.935

- *Simon, G. E., VonKorff, M., Rutter, M., & Wagner, E. (2000). Randomised trial of monitoring, feedback, and management of care by telephone to improve treatment of depression in primary care. *BMJ: British Medical Journal*, 320(7234), 550-554.
doi:10.1136/bmj.320.7234.550
- *Smith, J. L., Rost, K. M., Nutting, P. A., Elliott, C. E., & Duan, N. (2000). A primary care intervention for depression. *The Journal of Rural Health*, 16(4), 313-323. Retrieved from http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&dopt=Citation&list_uids=11218319
- *Snyder, K., Dobscha, S. K., Ganzini, L., Hoffman, W. F., & Delorit, M. A. (2008). Clinical outcomes of integrated psychiatric and general medical care. *Community Mental Health Journal*, 44(3), 147-154. doi:10.1007/s10597-007-9117-4
- *Solberg, L. I., Fischer, L. R., Wei, F., Rush, W. A., Conboy, K. S., Davis, T. F., & Heinrich, R. L. (2001). A CQI intervention to change the care of depression: A controlled study. *Effective Clinical Practice*, 4(6), 239. Retrieved from http://www.acponline.org/clinical_information/journals_publications/ecp/novdec01/solberg.pdf
- *Speer, D. C., Dupree, L. W., Vega, C., Schneider, M. G., Hanjian, J. M., & Ross, K. (2004). Age and mental health status differences in medical service utilization in an integrated primary care setting. *Clinical Gerontologist*, 27(4), 71-82. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&db=rzh&AN=2010364351&site=ehost-live>

Substance Abuse and Mental Health Services Administration (2012). *Results from the 2010 National Survey on Drug Use and Health: Mental Health Findings*. NSDUH Series H-42, HHS Publication No. (SMA) 11-4667. Rockville, MD. Retrieved from http://www.samhsa.gov/data/NSDUH/2k10MH_Findings/

*Swindle, R. W., Rao, J. K., Helmy, A., Plue, L., Zhou, X. H., Eckert, G. J., & Weinberger, M. (2003). Integrating clinical nurse specialists into the treatment of primary care patients with depression. *International Journal of Psychiatry in Medicine*, 33(1), 17-37.
doi:10.2190/QRY5-B61V-QE4R-8141

*Todahl, J. L., Linville, D., Smith, T. E., Barnes, M. F., & Miller, J. K. (2006). A qualitative study of collaborative health care in a primary care setting. *Families, Systems, & Health*, 24(1), 45-64. doi:10.1037/1091-7527.24.1.45

*Tutty, S., Simon, G., & Ludman, E. (2000). Telephone counseling as an adjunct to antidepressant treatment in the primary care system. A pilot study. *Effective Clinical Practice*, 3(4), 170. Retrieved from http://www.acponline.org/clinical_information/journals_publications/ecp/julaug00/telephone_counseling.pdf

*Uebelacker, L. A., Smith, M., Lewis, A. W., Sasaki, R., & Miller, I. W. (2009). Treatment of depression in a low-income primary care setting with colocated mental health care. *Families, Systems & Health*, 27(2), 161-171. doi:10.1037/a0015847

*Unützer, J., Katon, W., Callahan, C. M., Williams, J. W., Jr., Hunkeler, E., Harpole, L., . . . Langston, C. (2002). Collaborative care management of late-life depression in the primary care setting: A randomized controlled trial. *JAMA: Journal of the American Medical Association*, 288(22), 2836-2845. doi:10.1001/jama.288.22.2836

- *Valleley, R. J., Kosse, S., Schemm, A., Foster, N., Polaha, J., & Evans, J. H. (2007). Integrated primary care for children in rural communities: An examination of patient attendance at collaborative behavioral health services. *Families, Systems & Health*, 25(3), 323-332.
- Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&db=rzh&AN=2009705412&site=ehost-live>
- Wagner, E., Austin, B., & Von Korff, M. (1996). Organizing care for patients with chronic illness. *Milbank Quarterly Journal*, 74, 511-544.
- *Walker, E. A., Katon, W. J., Simon, G., Lin, E., Ludman, E., Unützer, J., . . . Russo, J. (2000). Predictors of outcome in a primary care depression trial. *Journal of General Internal Medicine*, 15(12), 859-867. doi:10.1046/j.1525-1497.2000.91142.x
- Weih, K., Fisher, L., & Baird, M. (2002). Families, health, and behavior. *Families, Systems, & Health*, 20(1), 7-47. Retrieved from www.cinahl.com/cgi-bin/refsvc?jid=1539&accno=2002061321
- *Wells, K. B., Sherbourne, C., Schoenbaum, M., Duan, N., Meredith, L., Unützer, J., . . . Rubenstein, L. V. (2000). Impact of disseminating quality improvement programs for depression in managed primary care: A randomized controlled trial: 1. *JAMA : The Journal of the American Medical Association*, 283(2), 212-220. doi:10.1001/jama.283.2.212
- *Yeung, A., Kung, W. W., Chung, H., Rubenstein, G., Roffi, P., Mischoulon, D., & Fava, M. (2004). Integrating psychiatry and primary care improves acceptability to mental health services among Chinese Americans. *General Hospital Psychiatry*, 26(4), 256-260. doi:10.1016/j.genhosppsy.2004.03.008

*Yeung, A., Shyu, I., Fisher, L., Wu, S., Yang, H., & Fava, M. (2010). Culturally sensitive collaborative treatment for depressed Chinese Americans in primary care. *American Journal of Public Health, 100*(12), 2397-2402. doi:10.2105/AJPH.2009.184911

Table 1

Four Step Search Strategy

Databases			
Medline via PUBMED	PsychINFO	Cochrane Register	CINAHL via EBSCO
Step One: Titles and Abstracts			
<i>Integrated primary care</i>	<i>Integrated primary care</i>	<i>Integrated primary care</i>	<i>Integrated health care delivery</i>
Yield: 99	Yield: 156	Yield: 13	Yield: 79
Found 8 possible	Found 28 possible	Found 2 possible	Found 6 possible
<i>Collaborative care AND primary care</i>	<i>Collaborative care AND primary care</i>	<i>Collaborative care AND primary care</i>	<i>Collaborative care</i>
Yield: 342	Yield: 318	Yield: 95	Yield: 137
Found 86 possible	Found 39 possible	Found 6 possible	Found 14 possible

Medical home AND primary care

Yield: 231

Found 3 possible

Medical home AND primary care

Yield: 66

Found 5 possible

Medical home AND primary care

Yield: 5

Found 0 possible

Colocation AND primary care

Yield: 2

Found 0 possible

Colocation AND primary care

Yield: 8

Found 0 possible

Colocation AND primary care

Yield: 0

Found 0 possible

*Colocated Service AND primary
care*

Yield: 6

Found 0 possible

*Colocated Service AND primary
care*

Yield: 11

Found 1 possible

*Colocated Service AND primary
care*

Yield: 0

Found 0 possible

*Embedded Service AND primary
care*

*Embedded Service AND primary
care*

*Embedded Service AND primary
care*

Yield: 47

Found 2 possible

*Collaboration AND primary care
AND mental health*

Yield: 531

Found 10 possible

*Integrated Service AND primary
care AND mental health*

Yield: 537

Found 16 possible

Yield: 73

Found 0 possible

*Collaboration AND primary care
AND mental health*

Yield: 466

Found 13 possible

*Integrated Service AND primary
care AND mental health*

Yield: 601

Found 15 possible

Yield: 0

Found 0 possible

*Collaboration AND primary care
AND mental health*

Yield: 9

Found 0 possible

*Integrated Service AND primary
care AND mental health*

Yield: 1

Found 0 possible

Step Two: Method Sections

Integrated primary care

Integrated primary care

Integrated primary care

Integrated health

Found 2 of 8

Found 12 of 28

Found 2 of 2

care delivery

Found 0 of 6

Collaborative care AND primary care

Collaborative care AND primary care

Collaborative care AND primary care

Collaborative care

Found 54 of 86

Found 16 of 39

Found 5 of 6

Found 1 of 14

Medical home AND primary care

Medical home AND primary care

Medical home AND primary care

Found 1 of 3

Found 1 of 5

Found 0 of 5

Colocation AND primary care

Colocation AND primary care

Colocation AND primary care

Found 0 of 2

Found 0 of 0

Found 0 of 0

Colocated Service AND primary care

Colocated Service AND primary care

Colocated Service AND primary care

Found 0 of 6

Found 1 of 1

Found 0 of 0

Embedded Service AND primary care

Found 0 of 2

Embedded Service AND primary care

Found 0 of 0

Embedded Service AND primary care

Found 0 of 0

Collaboration AND primary care AND mental health

Found 3 of 10

Collaboration AND primary care AND mental health

Found 7 of 13

Collaboration AND primary care AND mental health

Found 0 of 9

Integrated Service AND primary care AND mental health

Found 4 of 16

Integrated Service AND primary care AND mental health

Found 4 of 15

Integrated Service AND primary care AND mental health

Found 0 of 1

Total: 64 of 1795

Total: 39 of 1699

Total: 7 of 123

Total: 1 of 216

Step Three: Systematic Reviews

Found 19 studies not found during first three steps

Total: 130 studies

Step Four: Duplicate Studies and Secondary Data Analyses

Removed 18 and 36 (respectively)

Final Total: 76 studies

Table 2

Description of Table Categories

Category	Description
Integration	<p>Those patterns (e.g., “curbside” consultations, treatment recommendations) and modalities (e.g., electronic medical records) of communication, collaboration, and recommendation between medical and behavioral health providers in the service of implementing integrated care:</p> <ul style="list-style-type: none"> • Communication: sharing of any patient or treatment information (i.e., verbal, written, or electronic) between providers • Collaboration: any process of shared decision making between providers whether formal (e.g., scheduled meetings) or informal (e.g., hallway conversations) • Recommendations: specific suggestions for treatment from BHPs
Program Model	<p>Those programs or manualized treatments that have been designed for integrating behavioral health services into primary care (e.g., Wagner Chronic Care Model)</p>
Interventions	<p>Those techniques or strategies used by BHPs to support, inform, or directly treat patients in improving health:</p>

-
- Psychotherapy: intervention specifically named psychotherapy or either associated with a specific model (e.g., Cognitive-Behavioral Therapy, Problem-Solving Therapy, Solution-Focused Therapy)
 - Behavioral Instructions: Several programs included behavioral strategies (e.g., exercise, scheduling pleasurable activities) that were more akin to instructions than therapeutic interventions or advice; thus, we did not consider every behavioral intervention to be psychotherapy unless it was directly named so.
 - Psychopharmacology: any psychotropic medication for mental health whether prescribed by a PCP or a psychiatrist
 - Individualized: therapy designed to meet specific patient needs (e.g., creating a personal care plan)
 - Treatment options: various behavioral health treatment options offered to patient (e.g., medication versus psychotherapy)
 - Stepped care: service for treatment-resistant patients (e.g., increasing medication dosage)

Training & Supervision

Experiences given to BHPs (We also identified examples where researchers trained PCPs) in an effort to organize and streamline treatment (e.g., workshops, treatment manuals, case

	<p>reviews, team meetings, role plays, telephone conferences, didactic teaching, and other similar activities)</p>
Behavioral Health Provider Type	<p>Information about the background of providers (e.g., nurse, psychiatrist, psychologist) that were either already working at a setting or were trained to work in a particular program.</p> <p>Some researchers only used titles particular to a program role (e.g., depression care manager) without disclosing the training background (e.g., psychologist, social worker, nurse).</p>
Community	<p>Data regarding the communities in which these IPC programs were placed (e.g., population density, education level, income level). This included whether the primary care clinic was located in a rural, urban, or suburban area.</p>

Table 3

Article Two Code Key

Levels of Collaboration

BHP-C: BHP consultation with PCP

BHP-R: BHP offers recommendations to PCP

CIS: clinical information system used by BHP and PCP to make treatment decisions

COLL (Type): collaboration, (e.g., SDM: shared decision making)

COMM (Type): communication between BHP and PCP, type of contact (verbal, written)

CONJ: conjoint sessions of PCP and BHP with patient

CURB: “curbside”, corridor, or hallway consultation

EMR: electronic medical record shared

LIA: BHP facilitate communication between PCP and pt (liaison)

MR: non-electronic medical record

PCP-P: PCP consultation with psychiatrist

PCP-R: referral from PCP to BHP

PCP-WH: PCP warm handoff patient to BHP

TEAM: interdisciplinary treatment team

TEAM-C: interdisciplinary case conference

Models

AHCPR: operationalized collaboration guidelines proposed by Agency for Health Care Policy and Research

BRIDGE: Bridge Project

CBHP: Community Behavioral Health Program

CCAP: collaborative care for anxiety and panic

CCC: co-located collaborative care model

CCTP: collaborative care treatment programs

CSCT: culturally sensitive collaborative treatment

IMPACT: (Improving Mood-Promoting Access to Collaborative) collaborative and stepped care management for depression

PIC: Partners in Care

PONI: Protocol for On-Site, Nurse-Administered Behavioral Intervention

PRISM-E: (Primary Care Research Study in Substance Abuse and Mental Health Services for the Elderly) collaborative primary care for substance abuse and mental health

PROSPECT: depression treatment guidelines for primary care of older adults (Prevention of Suicide in Primary Care Elderly: Collaborative Trial)

QUEST: Quality Enhancement by Strategic Teaming

RESPECT-MIL: Re-Engineering Systems for Primary Care Treatment of Depression-Military

SLI2CE: St. Louis Initiative for Integrated Care Excellence

TRANS: trans theoretical model of behavior change

WAGNER: Wagner Chronic Care Model

Interventions

BEH-C: BHP non-therapy consultation with patient

BEH-T: behavioral therapy interventions (behavioral activation, self-management skills,

exercise)

BHP-S/A: behavioral health provider screened or assessed patients

CC: care coordination

CM (type): case management, contact type (telephone, in-person visit)

CP: care planning

EDUCATE (type): patient given psychoeducation about illness, type of material

EPT: emotional processing therapy

FU (Time): intervals or amount of time used to follow up on patient

HOUSE: BHP made house calls to house-bound patients

IND: individualized or tailored treatment

MANUAL: manualized treatment

MM: medication monitoring for adherence or side effects or support

OPT: care options given to patient

PEER: peer support

PCP-S/A: PCP screened or assessed patients

PHARM: psychopharmacology treatment

PS (type): patient support, type of communication

PST-PC: problem solving therapy for primary care

PSYCHI-S: psychiatric services

REF-SMH: referral to specialty mental health if needed

RPP: relapse prevention plan

SFT: solution focused therapy

SM: BHP symptom or mood monitoring either through in-person visit (V) or telephone contact

(T)

STEP: stepped treatment

T-AL: treatment algorithm

THERAPY-B (Type): brief (less than 8 sessions) therapy offered to patient, type of therapy

THERAPY (Type): therapy offered to patient, type of therapy (e.g., CBT, motivational, SEFT-supportive emotion focused therapy)

TM: treatment monitoring

Training and Supervision

BHP-T (type): behavioral health provider trained, type

GENERAL-T: non-descriptive training of BHPs

MANUAL-TR: manual used in training

MF: model or treatment fidelity efforts

PCP-T: primary care physician trained

SUPER-PI (Frequency, Type): supervision provided by psychiatrists

SUPER-TEAM (Frequency): supervision by team

SUPER-PO (Frequency, Type): supervision by psychologist

Provider Type

BHC: behavioral health consultants

BHS: behavioral health specialists

CF: care facilitator

CHAP: chaplains

CM: care manager

CNS: clinical nurse specialist

DCS: depression clinical specialist

DCM: depression care manager

DNS: depression nurse specialist

DPS: depression prevention specialist

LMHP: licensed mental health providers

MHS: mental health specialists

MS-C: master's level counselors

NCC: nurse care coordinator

NE: nurse educator

NU: nurse

NP: nurse practitioner

NS: Nurse Specialist

PN: psychiatric nurse

PSYCHI: psychiatrists

PSYCHO: psychologist

SW: social worker

THERAPISTS: psychotherapists

Community

AF-PCC: Air Force Primary Care Clinic

CHC: Community health center

OHN: outpatient health network

MIL: military base

PCC: primary care clinics

RUR: rural

SUB: suburban

UCSF: University of California San Francisco

URB: urban

VAMC: Veteran's Affairs Medical Center

Other

F: family

G: group

I: individual

M: monthly

T: telephone

V: in-person visit

W: weekly

Table 4

Program Characteristic Frequencies

Integration Level	<i>n</i> (%)
Communication between providers	36 (47.3)
Verbal	9 (11.8)
Written	16 (21.0)
Both verbal and written	5 (6.57)
Non-descript communication	11 (14.5)
BHP recommendations to PCPs	14 (18.4)
Psychiatrist consultations with PCPs	13 (17.1)
Collaboration between providers (Shared decision making process)	12 (15.7)
PCP referrals to BHPs	21 (27.6)
PCP “warm handoff” to BHP	4 (5.26)
Team meetings	9 (11.8)
Electronic medical records	9 (11.8)

Non-electronic medical record	2 (2.63)
Clinical information system	4 (5.26)
“Curbside”, hallway consultations	7 (8.03)
Conjoint sessions (PCP and BHP) with patients	3 (3.94)
Program Model	
<hr/>	
IMPACT	4 (5.26)
PRISM-E	3 (3.94)
PROSPECT	2 (2.63)
AHCPR Depression Care Guidelines	5 (6.57)
Bridge Project	1 (1.31)
Collaborative Care for Anxiety and Panic	3 (3.94)
Collaborative Care Treatment Program	1 (1.31)
Community Behavioral Health Program	1 (1.31)
Culturally Sensitive Collaborative Treatment	1 (1.31)
Partners in Care	2 (2.63)
Protocol for On-Site Nurse-Administered Behavioral	1 (1.31)

Intervention	
Quality Enhancement by Strategic Teaming	1 (1.31)
Re-Engineering Systems for Primary Care Treatment of Depression – Military	2 (2.63)
St. Louis Initiative for Integrated Care Excellence	1 (0.89)
Wagner Chronic Care Model	1 (1.31)
Intervention	
Psychoeducation	43 (56.5)
Medication	43 (56.5)
Follow-Up	40 (52.6)
BHP screen/assess patients	11 (14.4)
PCP screen/assess patients	7 (9.21)
BHPs provide non-therapy consultations	16 (21.0)
Care Management Strategies	
Medication monitoring	27 (35.5)
Symptom monitoring	9 (11.8)

Treatment monitoring	13 (17.1)
Non-therapy patient support	12 (15.7)
Care Coordination	5 (6.57)
Non-descriptive care management	19 (25.0)
At least one care management strategy	46 (60.5)
Relapse Prevention Plans	4 (5.26)
Psychotherapy	46 (60.5)
Brief therapy	22 (28.9)
Group therapy	6 (7.89)
Family therapy	1 (1.31)
Behavioral interventions	25 (32.8)
Cognitive-behavioral therapy	24 (31.5)
Problem-solving therapy	4 (5.26)
Solution-focused therapy	2 (2.63)
Supportive-emotion focused therapy	1 (1.31)
Motivational enhancement	1 (1.31)

Emotional processing therapy	1 (1.31)
Psychiatrist services	13 (17.1)
Referrals to specialty mental health	20 (26.3)
Care planning	2 (2.63)
House visits	1 (1.31)
Peer support	1 (1.31)
Individualized care	10 (13.1)
Treatment options for patients	24 (31.5)
Manualized treatment	12 (15.7)
Treatment algorithm	8 (10.5)
Training and Supervision	
<hr/>	
BHP Training	26 (34.2)
Manual	5 (6.57)
Physician training	19 (25.0)
Supervision overall	28 (36.8)
Supervision by psychiatrist	16 (21.0)

Supervision by psychologist	5 (6.57)
Supervision by team	6 (7.89)
Weekly supervision	16 (21.0)
Treatment fidelity	11 (14.4)
Provider Type	
<hr/>	
Nurse	25 (32.8)
Only nurse as BHP	17 (22.3)
Nurses in addition to other BHPs	8 (10.5)
Psychologist	21 (27.6)
Psychologist only as BHP	9 (11.8)
Psychiatrist	25 (32.8)
Psychiatrist only as BHP	11 (14.4)
Social Worker	12 (15.7)
Master's Level Counselors	4 (5.26)
Psychotherapists	4 (5.26)
Chaplain	1 (1.31)

Non-descriptive BHPs 10 (13.1)

Provider types particular to a program

Depression clinical specialist 3 (3.94)

Care manager 13 (17.1)

Behavioral health specialist 7 (9.21)

Depression care manager 3 (3.94)

Behavioral health consultant 4 (5.26)

Nurse specialist 2 (2.63)

Care facilitator 1 (1.31)

Clinical nurse specialist 1 (1.31)

Depression nurse specialist 1 (1.31)

Depression prevention specialist 1 (1.31)

Mental health specialist 1 (1.31)

Nurse care coordinator 1 (1.31)

Nurse educator 1 (1.31)

Setting

Veteran's Affairs Medical Center	12 (15.7)
Rural	6 (7.89)
Urban	5 (6.57)
Community health center	3 (3.94)
Outpatient hospital network	2 (2.63)
Suburban	2 (2.63)

Total number of studies = 76

Table 5

Program Characteristics

	Study Name, Year	Integration Level	Intervention	BH Training	Provider Type
1	Alexopoulos, 2005	BHP-R	BHP-S/A, FU (T, V), HOUSE, MM, PHARM, SM, THERAPY, OPT, T-AL, TM		CM (SW, NU, PSYCHO)
2	Ayalon, 2007	COMM	CM		THERAPISTS
3	Bauer, 2006	COLL (SDM)	MANUAL, PHARM, SM, EDUCATE, CM (T), T-AL	MF, BHP-T	PSYCHI, NCC
4	Begley, 2008	CURB, PCP-P	THERAPY, PSYCHI-S		PSYCHI, BHS
5	Brawer, 2010	COMM (V), CURB, EMR, PCP-P, PCP-R	THERAPY-B, FU, BEH-T, REF-SMH		PSYCHI, PSYCHO,
6	Bruce, 2004	BHP-R, PCP-P, COLL (SDM), PCP-R,	PHARM, THERAPY, CM (T, V), SM, MM, T-AL, FU, TM	SUPER-PI (W)	DCM (SW, NU, PSYCHO)
7	Brucker, 2003	COMM (W), CURB, CONJ	PCP-S/A, REF-SMH,		BHS
8	Budin, 2004	MR, CURB, TEAM, BHP-R, PCP-WH, PCP-R	PHARM, THERAPY, PSYCHI-S,		PSYCHI, SW
9	Bryan, 2009	PCP-R, COLL (SDM), BHP-R, COMM (V)	BHP-S/A, THERAPY-B, BEH-T, FU		BHC

10	Bush, 2004	PCP-R, TEAM, PCP-P, COMM, BHP-R	PHARM, EDUCATE, BEH-T, MM, TM, PSYCHI-S, THERAPY (CBT), FU (T)	TEAM-C, PCP-T	PSCYHI, PSYCHO
11	Chavira, 2009	LIA, COMM, PCP-P	PHARM, THERAPY-B (CBT), EDUCATE, FU (T), OPT, T-AL		BHS
12	Chen, 2006	COMM (V, W)	BHP-S/A, CP, CM, THERAPY, PHARM, BHP-C,	MF,GENERAL-T	PSYCHO, SW, PN, PSYCHI, MS-C
13	Cigrang, 2011		MANUAL, EDUCATION (book), BEH-T, IND, THERAPY-B (CBT, EPT)		BHC (PSYCHO)
14	Clarke, 2005	PCP-R, COMM (W)	THERAPY-B (CBT), FU (T), BHP-C, IND, OPT, MM, STEP	MF, BHP-T, SUPER-PO (W)	MS-C
15	Dietrich, 2004	COMM (W), PCP-P	TM, BEH-T, FU (M, T), PS (T)	SUPER-PI (W), BHP-T, PCP-T	CM (NU)
16	Dobscha, 2008	BHP-R, COMM (W), CIS, EMR, TEAM	EDUCATE, CM, SM, IND, OPT, THERAPY (G, CBT), FU (T), STEP, REF-SMH, BHP-S/A	PCP-T, BHP-T, SUPER- TEAM	CM (PSYCHO)
17	Dwight-Johnson, 2010	COMM	EDUCATE, OPT, PHARM, THERAPY (CBT), CM, MM, FU		DCS (SW)
18	Engel, 2008	COMM, PCP-P	BEH-T, TM, PCP-S/A, MANUAL, PHARM, OPT, PS (T)	SUPER-PI (W), PCP-T, BHP-T, MANUAL-TR	CF
19	Escobar, 2007	COMM (W), PCP-R	THERAPY (CBT), MANUAL,	MF, GENERAL-T	THERAPISTS

20	Feinman, 2000	PCP-WH, MR, CIS	CM (T), FU (T), EDUCATE, BEH-T, MM		NE
21	Felker, 2004	COMM (V), EMR, TEAM	REF-SMH, OPT, THERAPY (G), MM, EDUCATE	TEAM-C	PSYCHI, PSYCHO, SW, CHAP
22	Funderburk, 2010	PCP-R, EMR, CURB, COMM	THERAPY-B, BHP-C, EDUCATE, BEH-T		BHP (PSYCHO, PSYCHI, PN, SW)
23	Goodie, 2009	PCP-R	BHP-S/A, BEH-T, THERAPY-B, EDUCATE, IND		BHC (PSYCHO)
24	Grypma , 2006	CIS, PCP-R	EDUCATE, MM, PST-PC, THERAPY-B, RPP, CM (T, V), PHARM	SUPER-PI	DCM
25	Guck, 2007	PCP-WH	THERAPY (CBT)		PSYCHO
26	Hedrick, 2003	EMR	MANUAL, IND, PHARM, THERAPY-B (CBT, G), REF-SMH, EDUCATE, CM (T), MM, PSYCHI-S, STEP,	PCP-T, TEAM-C	PSYCHO, PSYCHI, SW
27	Hunkeler, 2000	COMM, PCP-R	PCP-S/A, PHARM, CM (T), MM, BEH-T, PEER, FU (T)	PCP-T, MANUAL-TR, BHP-T, SUPER-PO (W)	NU
28	Jaycox, 2003	COLL (SDM)	EDUCATE, OPT, PHARM, THERAPY (CBT, MOT, G), BHP-C,	MANUAL-TR, MF	DNS
29	Katon, 1992	CONJ, COLL (SDM)	BHP-C, PHARM, REF-SMH, FU, OPT		PSYCHI
30	Katon, 1995	TEAM-C, COMM (W)	EDUCATE, PHARM, MM, IND	PCP-T	PSYCHI

31	Katon, 1996	COMM (W)	RPP, EDUCATE, MANUAL, THERAPY-B (CBT, SFT), FU, PHARM	PCP-T, MF	PSYCHO
32	Katon, 1999	COMM (V, W)	EDUCATE, BHP-C, FU (T), PHARM, IND, MM		PSYCHI
33	Katon, 2001		PHARM, EDUCATE, FU (T, V), MM, IND, BEH-T, TM	MANUAL-TR, BHP-T, SUPER-PI (W)	DPS (PSYCHO, SW, NP)
34	Katon & Roy- Byrne, 2002		PHARM, BHP-C, EDUCATE, FU, IND, T-AL	PCP-T	PSYCHI
35	Katon & Russo, 2002	BHP-R, COMM (V, W)	STEP, EDUCATE, BHP-C, FU (T, V),		PSYCHI
36	Katon, 2003	TEAM-C, CIS,	STEP, OPT, PHARM, THERAPY-B, PST-PC, FU (T, V)	BHP-T, MANUAL-TR, MF, SUPER-PO (W)	DCS (NU)
37	Katon & Russo, 2006	BHP-R	OPT, PHARM, THERAPY-B (CBT), FU (T), SM, MM	PCP-T, BHP-T, SUPER- PI (W), SUPER-PO (W)	BHS
38	Katon, 2010	BHP-R	BEH-T, PHARM, STEP, MM, EDUCATE, CM, FU (T)	BHP-T, SUPER (W)	NU
39	Kolko, 2010	PCP-R	IND, THERAPY-B (CBT, F), FU (V), MANUAL, REF-SMH, CM	BHP-T, SUPER	NU
40	Kroenke, 2008	PCP-P	CM (T), FU (T), TM, BEH-T, PCP-S/A	SUPER-PI (W)	CM
41	Levkoff, 2004	COMM (V, W)	BHP-S/A, CP, CM, THERAPY, PHARM, BHP-C,	MF, GENERAL-T	PSYCHO, SW, PN,

			REF-SMH, EDUCATE		PSYCHI, MS-C
42	Lin, 1999	MR, COMM (W)	EDUCATE, MANUAL, THERAPY-B (CBT, SFT), PHARM, BHP-S/A, FU (V), BEH-T, RPP, MM	PCP-T, SUPER-PI (W), MF	PSYCHO
43	Lin, 2000	BHP-R, PCP-P	STEP, EDUCATE, BEH-T, BHP-C, REF-SMH, PHARM, PSYCHI-S		PSYCHI
44	Liu, 2003	COLL (SDM), BHP-R, EMR	EDUCATE, CM, PS (T), FU (T), MANUAL, OPT, PHARM, THERAPY (CBT), BHP-C, STEP, REF-SMH	SUPER-TEAM	PSYCHO, PSYCHI, SW
45	Lynch, 1997		THERAPY-B (PST, T), EDUCATE, FU(T)	BHP-T, SUPER-PI (W)	NU
46	Lynch, 2004		THERAPY-B (PST, T), BEH-T	BHP-T	NU
47	Mohr, 2005		THERAPY (CBT, SEFT, T), EDUCATE	SUPER-PO (W)	PSYCHO
48	Mukherjee, 2006		THERAPY (CBT), PHARM, PS (T), TM, MM, EDUCATE		CM, BHS, PSYCHI
49	Pomerantz, 2008		BHP-S/A, REF-SMH, PS (T), FU (T), PSYCHI-S		THERAPIST, PSYCHI, CM
50	Price, 2000	CURB, COLL (SDM), TEAM-C, BPH-C, PCP-P	THERAPY-B (CBT), EDUCATE, REF-SMH, PCP-S/A, FU, TM, PHARM, OPT		PSYCHO
51	Reiss-Brennan, 2010	COLL (SDM), EMR	BEH-T, THERAPY (F), CM	GENERAL-T	MHS, CM

52	Richardson, 2009	EMR, PCP-R	EDUCATE, BEH-T, OPT, PHARM, THERAPY-B, PST-PC, FU, MANUAL	GENERAL-T, SUPER-PI (W), MANUAL-T, SUPER-TEAM	DCM (NU)
53	Rost, 2001		OPT, PHARM, REF-SMH, EDUCATE, BEH-T, FU (T)	PCP-T, BHP-T	CM (NU)
54	Rost, 2002	COMM (W), PCP-P	OPT, PHARM, REF-SMH, EDUCATE, BEH-T, FU (T), SM (T), TM (T), CC	PCP-T, BHP-T	CM (NU)
55	Roy-Byrne, 2001	COMM (W)	EDUCATE, PHARM, BHP-C (T), MM, PSYCHIS, FU (T)		PSYCHI
56	Roy-Byrne, 2003	COMM (W)	EDUCATE, PHARM, BHP-C (T), MM, PSYCHIS, FU (T)		PSYCHI
57	Roy-Byrne & Craske, 2005	BHP-R, PCP-P, LIA, COMM (V,W)	THERAPY-B (CBT), PHARM, OPT, T-AL, FU (T), PS (T), TM (T), EDUCATE, CC, SM (T),	PCP-T, SUPER-PI (W)	BHS
58	Runyan, 2003	TEAM, EMR, COMM (V), PCP-R	BHP-S/A, OPT, BEH-T, THERAPY-B (CBT), REF-SMH, MANUAL,	GENERAL-T, MANUAL-T	BHC (PSYCHO)
59	Sherbourne, 2001	PCP-R, COLL (SDM)	PHARM, THERAPY (CBT, G), PS (T), MM, EDUCATE, OPT, BHP-S/A, CC	PCP-T, BHP-T, SUPER-TEAM	NS
60	Simon, 2000	BHP-R, COMM (W)	FU (T), PHARM, T-AL, MM, SM (T), CC, PS (T)	SUPER-PI (W)	CM
61	Simon, 2001	COMM, PCP-P	EDUCATE, MM, FU (T), T-AL, REF-SMH,		PSYCHI

			PSYCHI-S		
62	Simon, 2004	LIA, COMM (W), BHP-R	PS (T), MM, EDUCATE, CC, THERAPY-B (CBT), CM (T), BEH-T, BHP-S/A, REF-SMH	BHP-T, SUPER-PI (W), MF	CM, THERAPISTS
63	Smith, 2000	PCP-R, COMM (W)	PCP-S/A, EDUCATE, BHP-C, OPT, PHARM, FU (T, V), BEH-T	PCP-T, MANUAL-T, MF,	NU
64	Snyder, 2008		BHP-C	SUPER-TEAM	PSYCHI
65	Solberg, 2001	PCP-R, COLL (SDM), TEAM	OPT, PS (T), BEH-T, REF-SMH, MANUAL, EDUCATE, PHARM	BHP-T, MANUAL-T,	NU
66	Speer, 2004	PCP-R	THERAPY –B		SW
67	Swindle, 2003	COMM, MR, LIA	TM (T, V), PHARM, OPT, REF-SMH, SM, MM,	PCP-T, SUPER-TEAM (M)	CNS
68	Todahl, 2006	PCP-R, COMM	THERAPY		THERAPISTs
69	Tutty, 2000	COMM (W)	THERAPY (CBT,T), PS (T), MM, PCP-S/A, PHARM, EDUCATE		MS-C
70	Uebelacker, 2009	PCP-R	THERAPY, PSYCHI-S		MHP
71	Unützer, 2002	COLL (SDM)	EDUCATE, BHP-C, PHARM, PST-PC, THERAPY-B, FU,CM (T, V), RPP	GENERAL-T, SUPER- PI (W)	DCS (NU, PSYCHO)
72	Valleley, 2007	PCP-R, CURB, CONJ, PCP-WH	THERAPY		BHS
73	Walker, 2000	COMM (V, W)	EDUCATE, PSYCHI-S, FU (T), PHARM, REF-		PSYCHI

			SMH, MM		
74	Wells, 2000	COLL (SDM)	OPT, PHARM, THERAPY (CBT, G), MM, EDUCATE	SUPER-PI, PCP-T, BHP-T,	NS
75	Yeung, 2004		PSYCHI-S	PCP-T	CM (NU), PSYCHI
76	Yeung, 2010	COMM (W), LIA	PSYCHI-S, OPT, CM, EDUCATE, PS (T), TM, BEH-T	SUPER-PI (W)	PSYCHI, CM

Figure 1

Article Two Search Strategy Flowchart

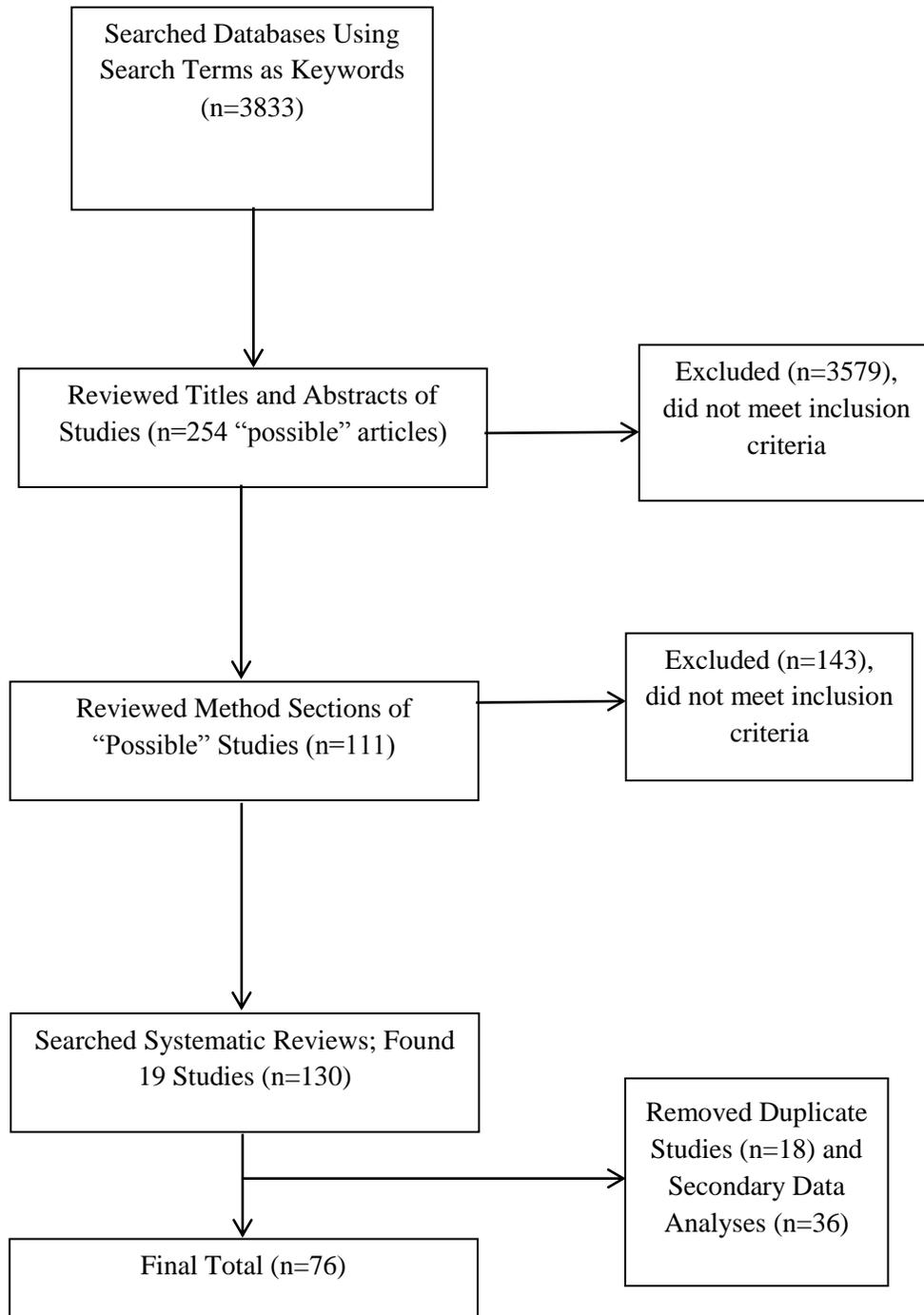


Figure 2

Data Extraction Flowchart

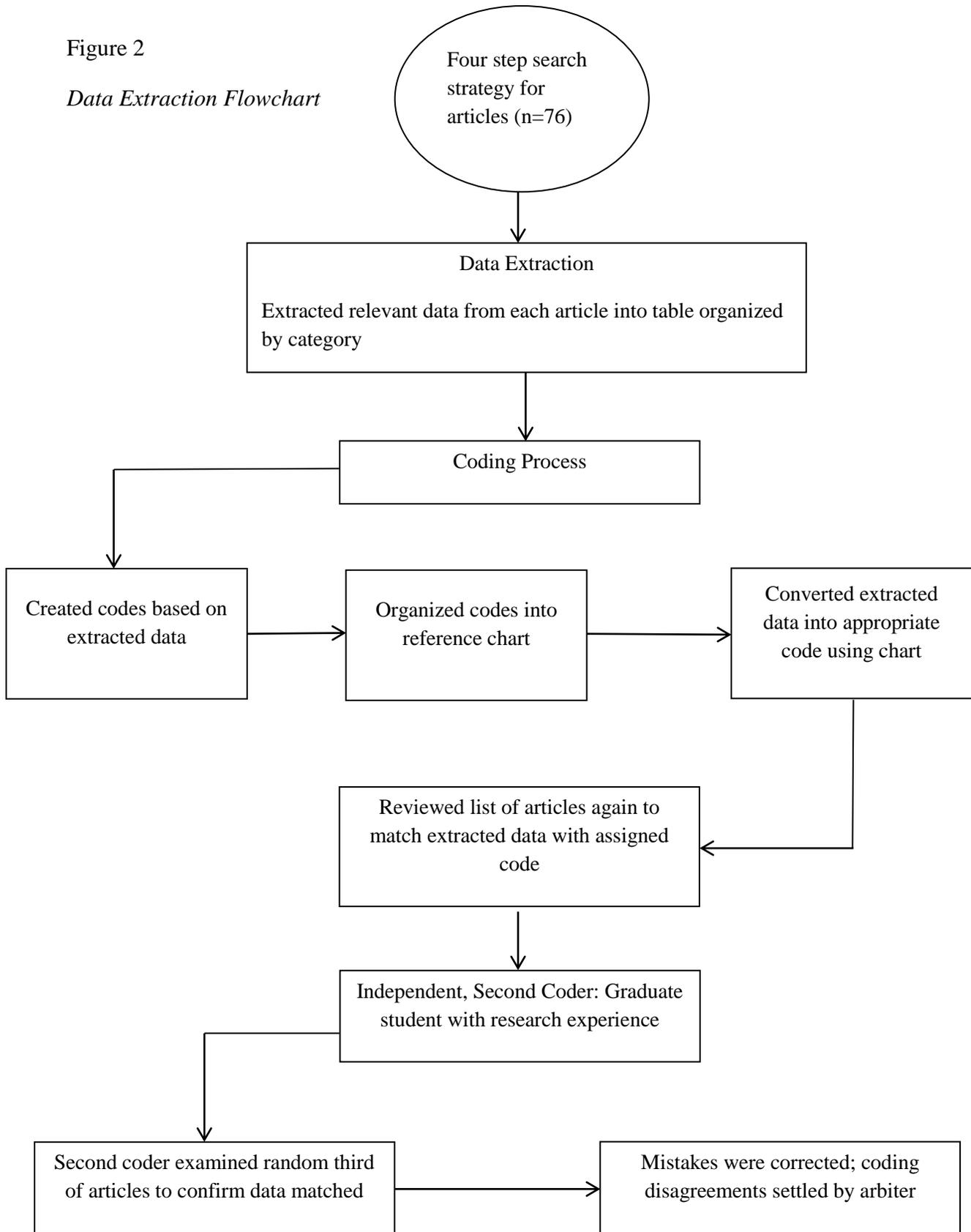
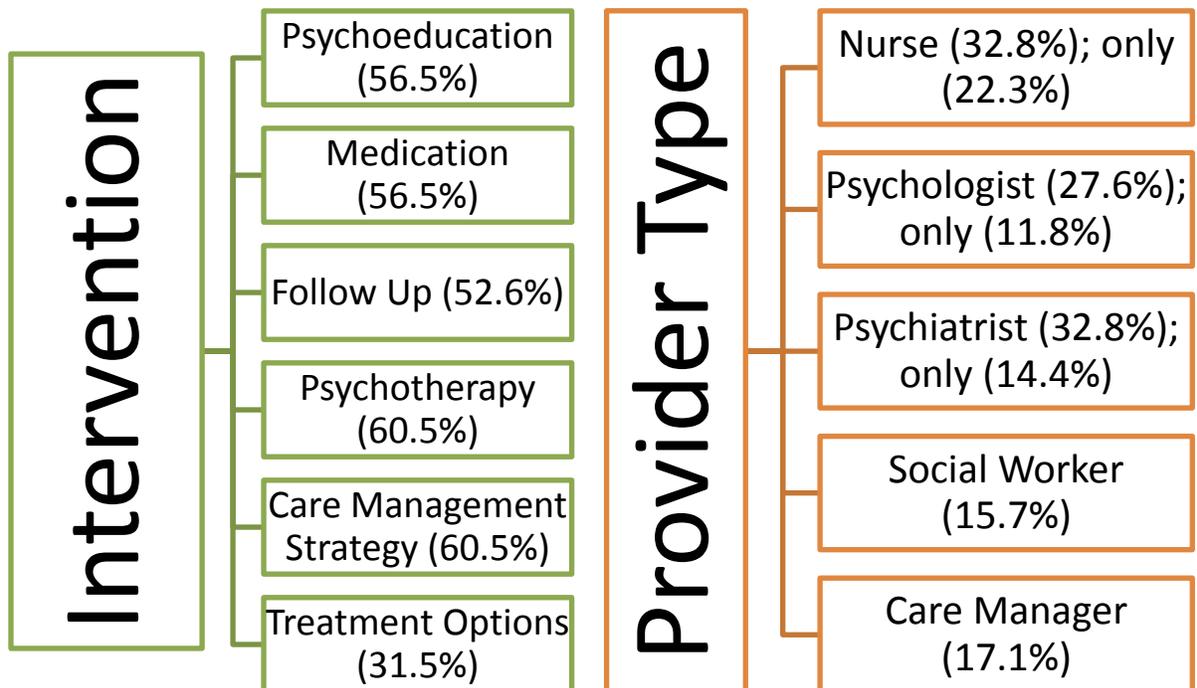
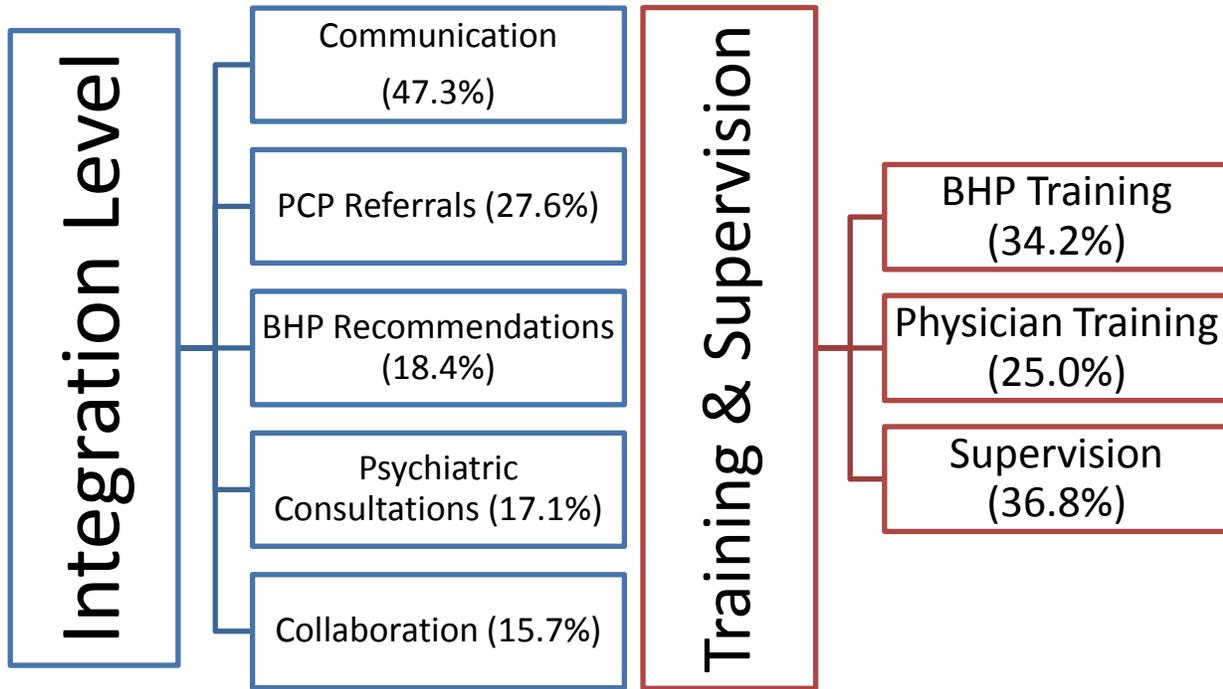


Figure 3

Article Two Study Findings



CHAPTER 6: DISCUSSION

Introduction

Two general conclusions can be made from the findings of this dissertation. First, there is significant interest in the integration of medical and behavioral health providers in the service of primary care patients struggling with behavioral health issues (e.g., mental health problems, substance use, treatment adherence, health behavior change). The sample for this dissertation included 112 studies of integrated primary care (IPC) programs in which medical and behavioral health providers shared a location and the responsibility for treating patients. A bar graph, representing the number of articles in our sample published during the past 20 years, illustrates the growing interest of IPC research (see Figure 1). The literature search for this dissertation was conducted in 2011, which is why there is a significant drop in the bar graph of published articles that year. It is unclear how many articles have been published since 2011, but Figure 1 suggests that the interest in IPC research has been fairly strong for the past decade. There were fifteen studies from our sample published in 2006 alone. Recent efforts to organize the evidence of IPC effectiveness (Butler et al., 2011) and specific models of integration (Collins, Hewson, Munger, & Wade, 2010) also illustrate this growing interest in IPC.

The second conclusion that can be drawn is that the current literature of IPC needs a more comprehensive synthesis of findings as well as an examination of best practices in order to determine the common factors of effective IPC practice and implementation. Such a synthesis will help future researchers to navigate the variety of IPC programs. This dissertation represents part of that effort to more fully understand the research trends in the IPC literature and demonstrates that many gaps still exist in the literature. In 2003, Blount, an expert on IPC, stated that “the evidence for bringing behavioral health services into primary care is scattered and can

be confusing” (p. 121). Although much has been written about IPC since then, there still exists a great deal of uncertainty regarding a consensus of IPC vocabulary (e.g., collaboration, integration), the effectiveness of IPC for different populations (e.g., minority and underserved populations) and behavioral health conditions (e.g., treatment adherence, health behavior change), best IPC practices (e.g., behavioral health interventions, collaboration practices), and effective training guidelines for primary care providers (PCP) and behavioral health providers (BHP; e.g., psychologists, social workers, family therapists, nurses). IPC will continue to grow and improve as researchers move beyond effectiveness studies to examinations of common factors for successful IPC practice and implementation. This last chapter will include a discussion of the gaps in the IPC literature as well as recommendations for future research (see Figure 2 for an illustration of the most significant dissertation findings; see Table 1 for a list of research gaps and future research ideas).

Research Implications

Study Design

There is a strong need for more non-experimental research. More than half of the researchers in our sample reported using experimental study designs to determine the efficacy or effectiveness of a particular IPC program while less than a fifth of researchers reported using non-experimental methods. Experimental studies (e.g., randomized clinical trials) are designed to examine clinical effectiveness of a specific intervention (e.g., cognitive and behavioral therapy) for a specific population (e.g., patients with depression) while reducing bias as much as possible (Kaptchuk, 2001). They are designed to answer one question: is one intervention (e.g., cognitive and behavioral therapy) statistically more significant than another (e.g., waiting or control group, another therapy treatment) in reducing or increasing a certain outcome? However,

primary care patients often don't present in such a clear, linear fashion (Peek, Baird, & Coleman, 2009); moreover, there are many more questions remaining about IPC than can be answered through non-experimental research methods (Kaptchuk, 2001; Verhoef, Casebeer, & Hilsden, 2002). For example, a qualitative analysis of collaborative conversations between medical and behavioral health providers in IPC can help to identify the best practices of collaboration. Such an analysis does not currently exist in the literature; but, if done, would help to fill the literature gap about the process of collaboration including what patient information should be shared, what questions are usually asked by providers, how providers can collaboratively create a patient treatment plan, and how long such conversations should last.

Non-experimental research could also help to illuminate the best method for implementing IPC into a naïve primary care system, which seems to reflect another gap in the literature. Such a study could include participatory inquiry methods or even focus groups that involve medical staff members in successfully implementing a program (Crabtree & Miller, 1999). Participatory inquiry, a qualitative method that has been explicitly used for empowering research participants, may be an excellent tool for engaging patients in designing and implementing an IPC program (1999). Non-experimental research methods represent an important part of the tools that researchers must use in further examining IPC. The development and improvement of IPC will only be limited by the questions asked and the tools used by researchers.

Although IPC may greatly benefit underserved patient populations since it provides immediate access to behavioral health services, there is little evidence from our findings that researchers have examined the impact of IPC on patients who have little access to behavioral health services. We found that well over half of participants in reviewed studies were female,

while two-thirds were Caucasian. According to the National Center for Health Statistics, medically underserved populations tend to be non-Caucasian whether in rural or urban settings (2011); some authors report that as much as 70% of patients from underserved populations present in primary care with a behavioral health disorder (Proser & Cox, 2004). Moreover, many primary care patients have social and environmental factors that increase the complexity of health treatment (Institute of Medicine, 2002) especially in underserved populations (Proser & Cox, 2004); such patients can be high utilizers of medical services and may not respond appropriately to a standardized program that is geared towards a specific disease (Peek et al., 2009) or majority population. It seems that current IPC researchers have not yet focused on underserved populations, which is surprising considering that IPC represents a system of holistic care that can greatly serve populations that struggle to get adequate medical care, much less behavioral health care.

A recent publication of an expert panel discussion supported by the Office of Minority Health provides strategies for integrating behavioral health services into medical settings for African Americans (Davis, 2011). The experts agree that behavioral health disparities exist for African Americans compared to other populations, partially because many African Americans seek support and services from a local church or house of worship and not a medical center. Reductions in these disparities, according to the panel, are dependent on the quality, quantity, and skill of behavioral health providers working with this population and upon the implementation of holistic care that addresses the multiple problems that some African American patients face (e.g., substance use, poverty, diabetes, heart disease, HIV/AIDS, stigma; Davis, 2011). Considering the great need for available and adequate behavioral health services described by this report, future researchers of IPC can design programs that match the needs of

this population. Community members like church leaders should be involved in the development and advertisement of such programs.

Young adults between the ages of 18 and 25 are another population that IPC researchers have largely missed. According to the Substance Abuse and Mental Health Services Administration [SAMHSA] (2012), over 13 million US adults between the ages of 18-25 reported in 2010 having a mental health disorder; much less than half of those young adults received mental health services. Researchers supported by the National Institute of Mental Health (NIMH) report that mental illness begins early in life with evidence showing that half of all lifetime cases begin by age fourteen and three-quarters by age twenty-four (NIMH, 2005). Our findings suggest that this population of young adults have not been included in IPC research; yet, this population may benefit from integrated services especially considering the evidence of the early onset of behavioral health problems (NIMH, 2005). Future research may include targeting specific populations (e.g., homeless, low income populations, migrant workers, and young adults) that have little to no access to behavioral health services and can determine how best to implement IPC programs tailored to these populations. For example, behavioral health services could be implemented at a primary care clinic that is specifically designed for young adults (e.g., university campus health center) to include screenings for behavioral health issues and brief interventions (e.g., solution-focused therapy, referral for therapy services) by a behavioral health provider. IPC is a promising system of delivering behavioral health treatment especially for underserved populations; future IPC research should help determine how best to serve these population.

In addition to more diverse research methods and populations, there is a significant need for IPC researchers to move beyond depression treatments and outcomes to include other

behavioral health issues (e.g., health behavior change, serious mental illness, relationship conflict). We found that a majority (62.5%) of IPC studies in our sample were designed to examine patient depression outcomes. Although depression is often reported and treated in primary care, recent surveillance data shows that national rates of anxiety disorders are similar to depression disorders (Reeves et al., 2011); however, current IPC research does not reflect this. Future IPC research can examine, for example, the impact of an IPC intervention designed to help a patient implement a new health behavior (e.g., meal planning, medication adherence), a treatment protocol for screening, assessing, and referring for serious mental illness (e.g., bipolar disorder), and an intervention for relationship conflict by a family therapist all represent new research ideas that can help to expand the breadth of IPC research outcomes.

Program Characteristics

The purpose of this dissertation was to systematically review, in addition to research method trends, those program characteristics that reflect the actual practice and implementation of IPC (see Figure 2). Our findings suggest that communication and collaboration between providers is more the exception than the norm. Specifically, we found that less than half of researchers reported communication (i.e., written, verbal, or non-descript) between providers; almost a fifth reported recommendations from BHPs to PCPs about patient care; and less than a sixth reported collaboration between providers. Communication between providers seems as practical as to be almost a standard part of all modern healthcare systems. Our results are surprising considering the extensive support of provider collaboration in the literature (Blount, DeGirolamo, & Mariani, 2006; Miller & Cohen-Katz, 2010; Robinson & Reiter, 2007; Ruddy, Borresen, & Gunn, 2008; Seaburn, Lorenz, Gunn, Gawinski, & Mauksch, 2003). A recent report by the Interprofessional Education Collaborative provides a framework for developing core

competencies of interprofessional collaborative practice (2011). According to this report, core competencies are important for the following reasons, among others: to embed essential content and training protocol into the curricula of education programs for healthcare professionals; to help guide the development of learning approaches and assessment strategies related to collaboration; to support the scholarship of collaboration research; to encourage dialogue about the fit between core competencies and idiosyncratic practice needs (p. 7, 2011). Indeed, core competencies allow educators, researchers, and providers to systematically disseminate and evaluate the skills of interprofessional collaboration in primary care. Future IPC research should be a part of developing this knowledge base.

In addition to core competencies, what may also be a missing link in the implementation of collaboration practices is a clearer conceptualization of IPC terminology (e.g., integration, collaboration, behavioral health) including shared operational definitions of these terms (Miller et al., 2011; Peek & Oftedahl, 2010). According to Miller et al. (2011), a mutual lexicon of shared concepts and elements allows policy makers and funding agencies to make focused investments in collaborative care; moreover, a lexicon allows patients to know what they are “buying” into. Moreover, such a lexicon will help IPC researchers to maintain consistency in measuring and reporting similar constructs as well as to help administrators and directors develop IPC programs that implement clear protocols for provider collaboration.

There are two forms of confusion right now in the field of collaborative care (which is understood as a broader term than integrated primary care) that may be impeding research development (2011). First, the meanings of commonly used terms are not clear. What is the difference between mental health and behavioral health? What are the differences between collaborative care, coordinated care, co-located care, consultation/liaison, integrated care,

integrated primary care, and shared care? Although each term may be connected with the underlying concept of collaborative care, the usage of each term without a shared definition of the terms is confusing and sometimes even misleading. Second, the integral components of collaborative care are unclear. What elements are required for a program to be considered an integration of medical and behavioral health services? Do the placement of a social worker in a medical center and the recruitment of a psychiatrist across town qualify as collaborative care? A common language helps to answer these questions and create a national research agenda that is meaningful and useful across many locations. Without such a language, according to Miller et al. (2011), research “would take place slowly in isolated pockets using localized dialects” (p. 29).

Additionally, future IPC researchers, utilizing a shared operational definition of collaboration, should examine what makes such collaboration work effectively (i.e., best practices), what components of collaboration are integral for improved care and communication (e.g., electronic medical records, shared mission plan, formal and information communication, treatment planning), and if and how varying levels of integration (i.e., low, partial, high; Doherty, McDaniel, & Baird, 1996) compare in effectiveness and implementation. An increase in provider communication may have latent effects, in addition to improved patient outcomes, including a decrease in behavioral health stigmatization. For example, a physician who collaborates regularly with a behavioral health provider may begin to not only feel more comfortable in assessing for behavioral health issues but also feel more prepared to provide treatment. Conversely, patients who recognize that behavioral health assessment is an integral component of a clinic’s treatment repertoire may more easily disclose behavioral health concerns. Researchers have found that stigma regarding behavioral health diagnoses and treatment can be experienced by both providers and patients (Hardcastle & Hardcastle, 2003) and

may be stronger for underserved populations (Menke & Flynn, 2009); it can create a significant barrier for patients and PCPs to utilize behavioral health services and may be overcome through an integration of BHP services such that behavioral health is seen by all stakeholders (i.e., patients, providers, administrators) as being a standard and expected component of care. IPC researchers may help to illuminate the impact of provider collaboration on decreasing behavioral health stigma.

Another program characteristic examined in this dissertation was IPC training and supervision. In our sample, we found that a third of researchers reported training BHPs for a particular IPC program; a fourth reported training PCPs; and a third reported providing supervision for BHPs. Training and supervision are important components for all providers in IPC (Blount, DeGirolamo, & Mariani, 2006) and help to maintain quality and consistency in treatment. Training and supervision also help to bridge the dichotomy of medical and behavioral health cultures that exists in the healthcare system as well as in training institutions. However, our findings suggest that most IPC programs do not include standard training protocols for integrating providers and services. This kind of gap may result in low integration that prevents providers from appreciating the unique and important training that each maintains (Doherty, McDaniel, & Baird, 1996). Future IPC programs will need core competencies (i.e., standard and evidence-based training protocols) for providers working within an IPC program such that integration and collaboration are more easily implemented. As mentioned before, the training framework offered by the Interprofessional Education Collaborative Expert Panel (2011) may serve as a starting point for developing collaborative skills. However, training for integration into primary care requires more than just the ability to collaborate with other professionals (Patterson, Peek, Heinrich, Bischoff, & Scherger, 2002); it requires an understanding of primary

care culture and practice as well as a basic understanding of medical terminology. Future IPC research may also include an examination of the difference between and similarities of traditional BHPs (e.g., psychologists, family therapists, social workers) and non-traditional BHPs (e.g., nurses). This research may supply important information about the benefits and limitations of integrating particular provider types into an IPC program.

Finally, there is a severe lack of family-oriented IPC research, which is disappointing considering the evidence of the bi-directional nature of relationships and health including the impact of a patient's illness on family members (e.g., impact of diabetes management on family members who live with the patient) (Kiecolt-Glaser, 1999; Kiecolt-Glaser & Newton, 2001; McDaniel, Campbell, Hepworth, & Lorenz, 2005; Weihs, Fisher, & Baird, 2002). This research gap may be a result of the lack of training in working with patients and family members (Rolland & Walsh, 2005); or it may be a result of the difficulty in measuring the effectiveness of a family-centered program. Nevertheless, it is fair to say that the potential of IPC may never be fully reached unless the families of patients are involved in addressing behavioral health issues, which makes sense considering how influential this basic unit of society is toward creating and extinguishing health behaviors (e.g., tobacco use, weight management) (McDaniel et al., 2005).

Already, some researchers are designing family-centered behavioral health interventions for primary care (Conis, 2009). One organization, Patient and Family Centered Care Partners, advocates for the partnering of patients, family members, and providers and connects researchers and clinicians with funding resources and training opportunities for family-centered care (<http://www.pfccpartners.com>). Another organization, the National Alliance on Mental Illness, recently published an attractive, readable guide for families being treated in IPC medical centers (2011). This guide provides an introduction to pediatric patients and their families about

integrated care, what it means for children's health, and how it offers comprehensive care for patients. It can also provide a nice template for developers of a new IPC program seeking to introduce providers and patients to a family-centered, integrated care service. In summary, future IPC researchers will need to determine what role IPC providers play in delivering family-centered care, create protocols and interventions oriented towards involving family members, and what impact family-centered IPC has on patient outcomes.

Conclusion

There is growing interest in the integration and collaboration of providers from the traditionally distinct and separate disciplines of medical and mental health care. This interest reflects an important change in the currently fragmented health care system and relies on pertinent, ongoing information from clinicians and researchers. The findings of this dissertation contribute important information about the trends of study design and program characteristics and demonstrate that future IPC research must include more diverse methods and populations. Moreover, these findings suggest that current IPC programs offer a combination of therapy, medication, and care management but little shared decision making between providers. See Table 1 for a list of specific suggestions for future researchers. The future of Integrated Primary Care is as bright as the hope and passion of the clinicians, researchers, and program developers involved in the evolution of the health care. Although the findings of this dissertation highlight gaps in the literature, these findings also reveal the enormous energy behind the symbiosis of medical and behavioral health providers.

REFERENCES

- Blount, A. (2003). Integrated primary care: Organizing the evidence. *Families, Systems & Health, 21*(2), 121-133. doi: 10.1037/1091-7527.21.2.121
- Blount, A., DeGirolamo, S., & Mariani, K. (2006). Training the collaborative care practitioners of the future. *Families, Systems, & Health, 24*(1), 111-119. doi:10.1037/1091-7527.24.1.111
- Butler, M., Minnesota Evidence-based Practice Center, & United States, Agency for Healthcare Research and Quality. (2008). *Integration of mental health/substance abuse and primary care*. Rockville, MD: Agency for Healthcare Research and Quality.
- Butler, M., Kane, R. L., McAlpine, D., Kathol, R., Fu, S. S., Hagedorn, H., & Wilt, T. (2011). Does integrated care improve treatment for depression? A systematic review. *The Journal of Ambulatory Care Management, 34*(2), 113-125. doi:10.1097/JAC.0b013e31820ef605
- Collins, C., Hewson, D. L., Munger, R., & Wade, T. (2010). *Evolving models of behavioral health integration in primary care*. Retrieved from <http://www.milbank.org/reports/10430EvolvingCare/10430EvolvingCare.html>
- Conis, E. (2009). A model for mental health integration. *Health Policy Monitor*, October. Retrieved at <http://www.hpm.org/survey/us/a14/4>
- Crabtree, B. F. & Miller, W. L. (Eds.) (1999). *Doing qualitative research* (2nd ed.). Thousand Oaks, CA: Sage.
- Davis, K. (2011). *Pathways to integrated care: Strategies for African American communities and organizations*. Washington, DC: US Department of Health and Human Services Office of Minority Health. Retrieved from <http://www.minorityhealth.hhs.gov/Assets/pdf/Checked/1/PathwaystoIntegratedHealthCareStrategiesforAfricanAmericans.pdf>

- Doherty, W., McDaniel, S., & Baird, M. (1996). Five levels of primary care - behavioral healthcare collaboration. *Behavioral Healthcare Tomorrow*, 5(5), 25-27.
- Hardcastle, M., & Hardcastle B. (2003). Stigma from mental illness in primary care. *Practice Nurse*, 26(10), 14.
- Institute of Medicine. (2002). *The Future of the Public's Health in the 21st Century*. Washington, DC: National Academy of Sciences, National Academy Press. Retrieved from <http://www.iom.edu/~media/Files/Report%20Files/2002/The-Future-of-the-Publics-Health-in-the-21st-Century/Future%20of%20Publics%20Health%202002%20Report%20Brief.pdf>
- Interprofessional Education Collaborative Expert Panel (2011). *Core competencies for interprofessional collaborative practice: Report of an expert panel*. Washington, DC: Interprofessional Education Collaborative. Retrieved from <http://www.aacn.nche.edu/education-resources/IPECReport.pdf>
- Kaptchuk, T. J. (2001). The double-blind, randomized, placebo-controlled trial: Gold standard or golden calf? *Journal of Clinical Epidemiology*, 54(6), 541-549. doi:10.1016/S0895-4356(00)00347-4
- Kiecolt-Glaser, J. K. (1999). Stress, personal relationships, and immune function: Health implications. *Brain, Behavior, and Immunity*, 13, 61-72. doi:10.1006/brbi.1999.0552
- Kiecolt-Glaser, J. K., & Newton, T. L. (2001). Marriage and health: His and hers. *Psychological Bulletin*, 127, 472-503. doi:10.1037/0033-2909.127.4.472
- McDaniel, S. H., Campbell, T. L., Hepworth, J., & Lorenz, A. (2005). *Family-oriented primary care*. New York, NY: Springer.

- Menke, R., & Flynn, H. (2009). Relationships between stigma, depression, and treatment in White and African American primary care patients. *The Journal of Nervous and Mental Disease*, 197(6), 407-411. doi:10.1097/NMD.0b013e3181a6162e
- Miller B. F., Kessler R., Peek C. J., & Kallenberg, G.A. (2011). *A National agenda for research in collaborative care: Papers from the Collaborative Care Research Network Research Development Conference* (AHRQ Publication No. 11-0067). Rockville, MD: Agency for Healthcare Research and Quality. Retrieved from <http://www.ahrq.gov/research/collaborativecare/collabcare.pdf>
- Miller, W. L., & Cohen-Katz, J. (2010). Creating collaborative learning environments for transforming primary care practices now. *Families, Systems, & Health*, 28(4), 334-347. doi:10.1037/a0022001
- National Center for Health Statistics [NCHS] (2011). *Health, United States, 2010: In brief*. Hyattsville, MD. Retrieved from <http://www.cdc.gov/nchs/hus.htm>
- National Alliance on Mental Illness (2011). *A Family Guide: Integrating Mental Health and Pediatric Primary Care*. Arlington, VA. Retrieved from http://www.nami.org/Template.cfm?Section=child_and_teen_support&template=/ContentManagement/ContentDisplay.cfm&ContentID=131028
- National Institute of Mental Health (NIMH). 2005. *Mental Illness Exact Heavy Toll, Beginning in Youth*. Bethesda, MD: National Institute of Mental Health. Retrieved from <http://www.nimh.nih.gov/science-news/2005/mental-illness-exacts-heavy-toll-beginning-in-youth.shtml>
- Patterson, J., Peek, C. J., Heinrich, R. L., Bischoff, R. J., & Scherger, J. (2002). *Mental health professionals in medical settings: A primer*. New York, NY: Norton.

- Peek, C. & Oftedahl, G. (2010). *A consensus operational definition of patient-centered medical home (PCMH)*. Unpublished Manuscript, Institute for Clinical Systems Improvement, University of Minnesota, Minneapolis, MN.
- Peek, C. J., Baird, M. A., & Coleman, E. (2009). Primary care for patient complexity, not only disease. *Families, Systems & Health*, 27(4), 287-302. doi:10.1037/a0018048
- Proser, M. & Cox, L. (2004). *Health centers' role in addressing the behavioral health needs of the medically underserved*. (Special Topics Issue Brief #8). Retrieved from http://nachc.com/client/documents/publications-resources/ib_8_04.pdf
- Reeves, W. C., Strine, T. W., Pratt, L. A., Thompson, W., Ahluwalia, I., Dhingra, S. S., & McKnight-Eily, L. R., ... Safran, M. A. (2011). Mental illness surveillance among adults in the United States. *Morbidity and Mortality Weekly Report*, 60(03), 1-32. Retrieved from http://www.cdc.gov/mmwr/preview/mmwrhtml/su6003a1.htm?s_cid=su6003a1_w
- Rolland, J. S. & Walsh, F. (2005). Systemic training for healthcare professionals: The Chicago Center for Family Health Approach. *Family Process*, 44(3), 283-301. doi:10.1111/j.1545-5300.2005.00060.x
- Ruddy, N. B., Borresen, D. A., & Gunn, W. B., Jr. (2008). *The collaborative psychotherapist: Creating reciprocal relationships with medical professionals*. Washington, DC US: American Psychological Association. doi:10.1037/11754-000
- Substance Abuse and Mental Health Services Administration (2012). *Results from the 2010 National Survey on Drug Use and Health: Mental Health Findings*. NSDUH Series H-42, HHS Publication No. (SMA) 11-4667. Rockville, MD. Retrieved from http://www.samhsa.gov/data/NSDUH/2k10MH_Findings/

- Verhoef, M. J., Casebeer, A. L., & Hilsden, R. J. (2002). Assessing efficacy of complementary medicine: Adding qualitative research methods to the "gold standard". *Journal of Alternative and Complementary Medicine*, 8(3), 275-281. doi:10.1089/10755530260127961
- Weihs, K., Fisher, L., & Baird, M. (2002). Families, health, and behavior. *Families, Systems, & Health*, 20(1), 7-47. Retrieved from www.cinahl.com/cgi-bin/refsvc?jid=1539&accno=2002061321

Figure 1

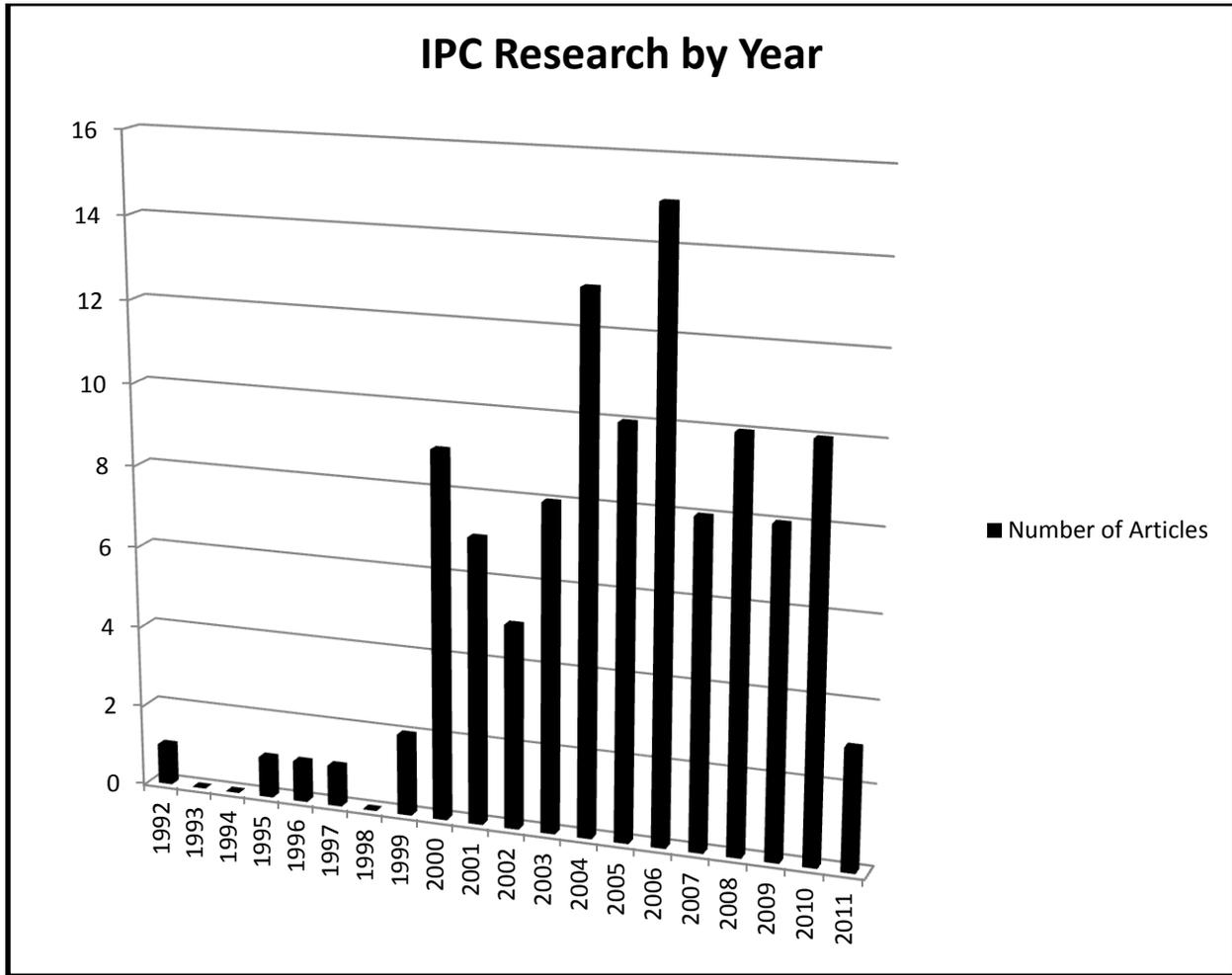


Figure 2 Model of Dissertation Findings

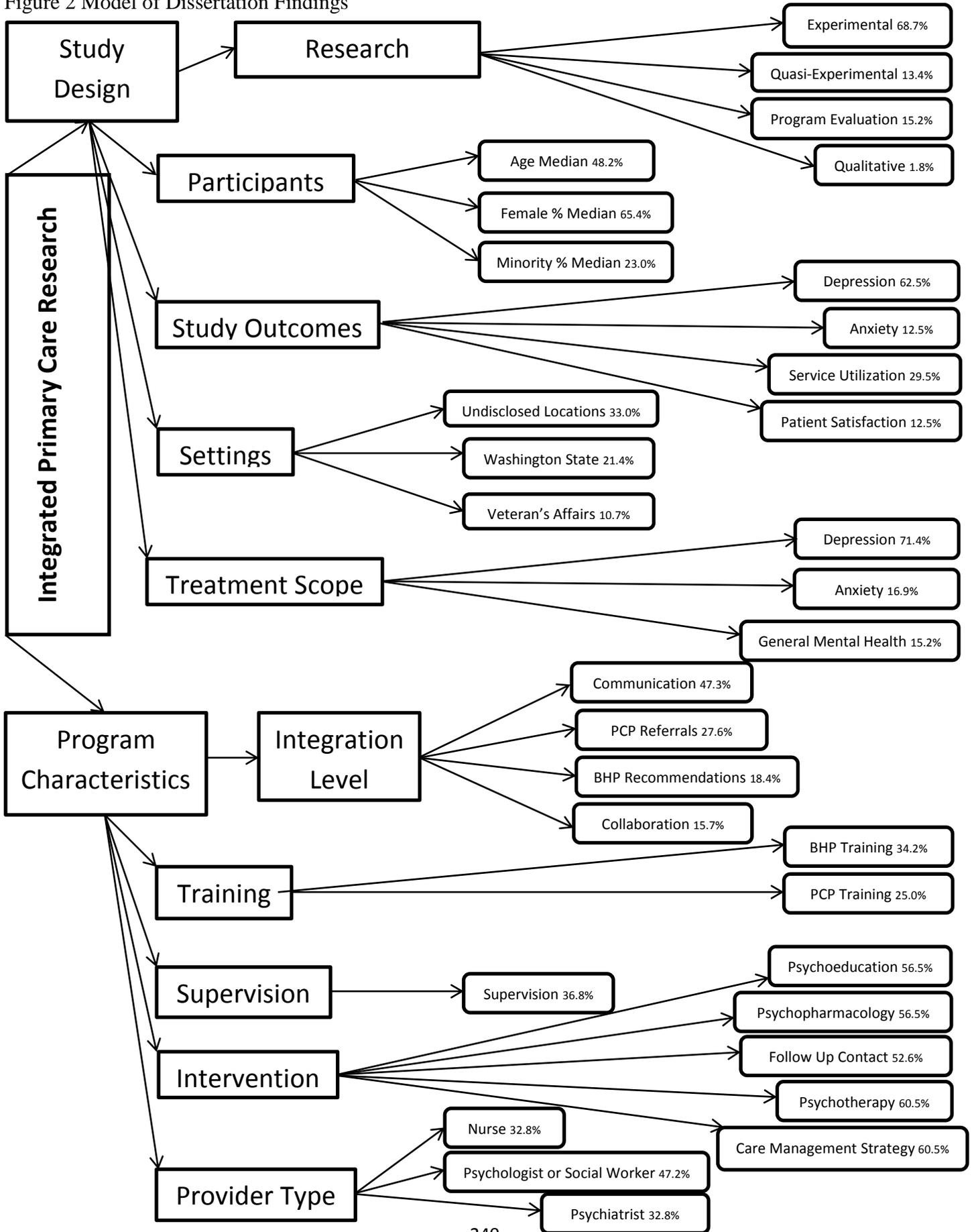


Table 1

Research Gaps and Specific Ideas for Future Researchers

Research Gaps	Specific Ideas for Future Researchers
<p><u>Study Design</u></p> <ul style="list-style-type: none"> Majority of IPC studies appear to be experimental design. There are few non-experimental design studies that examine the experience of patients and providers in IPC, the inclusion of patient and provider feedback into improving a program, etc. Future research should comprise more diverse research methods including non-experimental design studies (e.g., phenomenological interviewing, participatory inquiry, naturalistic observation, ethnography, content analysis, focus groups, and grounded theory analysis) that answer questions beyond clinical efficacy. 	<p><u>Study Design</u></p> <ul style="list-style-type: none"> Provide a naturalistic observation of IPC being practiced in an experienced (or even naïve) primary care system to obtain an unobtrusive perspective of IPC in real-time Organize focus groups with patients and providers that examine the experience of working or being treated in an IPC program in an effort to improve the quality of service and to highlight the attitudes and behaviors of IPC utilizers Conduct a grounded theory analysis of interviews with patients or providers to identify themes of IPC treatment and service
<p><u>Patient Populations</u></p>	

- The average participant in this review was a middle-aged, Caucasian female. There seems to be little research regarding younger, non-Caucasian, or underserved patient populations. IPC may be especially helpful for those patients who struggle to access behavioral health services (e.g., rural or urban areas, low-income or uninsured individuals, migrant workers). Future researchers can determine how IPC models fit with other populations and settings.

Treatment Outcomes

- IPC researchers have focused almost exclusively on depression outcomes. Future researchers should examine the impact of IPC on other behavioral health issues including health behavior change, treatment adherence, serious mental illness, relationship conflict, life stress

Patient Populations

- Develop, through the lens of participatory inquiry research, an IPC program situated in an urban, low income neighborhood and involve the active participation of key stakeholders, including patients, providers, administrators, and researchers who meet together on a regular basis
- Integrate a behavioral health provider into a university campus health center for students
- Design an integrated outreach program that directs medical and behavioral health providers to the homes of migrant workers who have little access to healthcare services

Treatment Outcomes

- Create an IPC intervention designed to help a patient implement a new health behavior (e.g., meal planning, medication)
- Design a treatment protocol for screening, assessing, and/or referring patients with serious mental illness (e.g., bipolar disorder, personality

management, as well as other common mental health diagnoses.

Collaboration Practices

- Collaborative communication does not seem to be a standard practice for IPC programs. This may be a reflection of the types of providers involved, the training available for interprofessional communication, a lack of consensus regarding integration and collaboration, or the stigma attached to mental health disorders. Future researchers of IPC should determine how collaboration works best in improving patient care and provider communication.

Training and Supervision

disorder)

- Determine, through empirical study, the impact of IPC on Attention-Deficit/Hyperactivity Disorder, Conduct Disorder, Impulse Control, Obsessive-Compulsive Disorder, Personality Disorders

Collaboration Practices

- Provide a platform, through either an expert panel or Delphi study, for discussing and creating a shared operational definition of collaboration
- Create an ethnographic inquiry into the effects of IPC implementation on provider stigma toward mental health treatment
- Organize a focus group of providers to determine the best practices of collaboration including specific components that are integral for communication (e.g., face-to-face conversation, shared records, treatment planning, follow up)

- Training and supervision also do not seem to be standard practice for IPC programs, which may be a result of the lack of consensus regarding IPC as well as the lack of core competencies. However, training and supervision are important components for bridging the cultural gap between medical and behavioral health providers as well as for maintaining quality and consistent treatment. Future research will need core competencies for IPC training that allow models to be replicated in various sites.

Family-Oriented IPC

- There is a severe lack of family-oriented IPC research including interventions for involving family members in treatment planning, outcome research for family-oriented IPC interventions, and protocol for training providers to work with patients and family members.

Training and Supervision

- Develop evidence-based training competencies that are a result of qualitative research findings (e.g., expert panel, participatory inquiry), evidence in the literature, and conceptual and operational constructs
- Develop evidence-based supervision protocol that supplements the training of providers to work in an IPC program

Family-Oriented IPC

- Design treatment protocols that involve family members in behavioral health consultations, treatment planning, and follow up contact; analyze treatment outcomes of these interventions (e.g., survey, semi-structured interviewing)
- Design core competencies for training providers to work with families

Appendix A: Pre-Dissertation Research Approval Form

Form L

Pre-Thesis or -Dissertation Research Approval Form

Before beginning thesis or dissertation research, this check list should be completed by the master's or doctoral candidate in conjunction with the thesis or dissertation director. Please NOTE: All thesis and dissertation research must be approved by the thesis or dissertation director and the Unit Graduate Program Director. All students whose thesis or dissertation projects involve human subjects must have their proposed research approved by the University and Medical Center Institutional Review Board (UMCIRB) before beginning the studies involving those subjects. Likewise, all students whose projects involve animals must have their proposed research approved by the Institutional Animal Care and Use Committee (IACUC) before beginning those studies. A copy of the appropriate IRB, IACUC or Biosafety approval must be included in the Appendix of the completed thesis or dissertation.

Date 4/8/12 Student name, phone number, and email address:

Matthew Martin, (801) 494-9541 matt.p.martin@gmail.com

Working Title of Thesis or Dissertation Research:

Integrated Primary Care: A Systematic Review of Study Design and Program Characteristics

Have you selected an appropriate director for your master's or doctoral work?

Name Mark B. White

Have you selected an appropriate committee for your master's or doctoral work? If so, please list:

Jennifer L. Hodgson
Angela L. Lamson
Tom G. Irons

ACT 4/2/12

Has your proposed research been reviewed and approved by your thesis or dissertation director?

NO Does your research involve human subjects?
Has it been approved by the UMCIRB?
If not, when will it be reviewed for approval?

NO Does your research involve animals?
Has it been approved by the IACUC?
If not, when will it be reviewed for approval?

NO Does your research involve potential biohazards such as recumbent DNA, viral vectors, infectious agents, human blood products etc?
Has it been approved by the by the Biosafety Committee?
If not, when will it be reviewed for approval?

Approvals:

Mark B. W. 11/8/2011
Thesis or Dissertation Director Signature Date

Angela Simon 11/8/2011
Program Director Signature Date

Acknowledgement of Receipt by Graduate School:

[Signature] 4-3-12
Dean of the Graduate School or designee Date

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