Interprofessional Care in a Community Mental Health Outpatient Program: Client Outcomes at Discharge and Follow-Up

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Abstract

Increased collaboration between health professionals has been identified as a means of improving the quality of client care while operating within the constraints of a publicly funded health care system. One such model of collaboration is the interprofessional care (IPC) model. IPC features a high degree of collaboration between a team of providers from varying health professions that coordinate services for each client, conceptualized to result in holistic and client-centred care. These features have intuitive appeal for treating the range of affected functioning in severe and comorbid disorder. As a result, the model has been increasingly used across medical and mental health care settings, perhaps best exemplified by its identification as the strategy for Ontario health care renewal. However, this growth has occurred despite the lack of a necessary evidence base demonstrating the effectiveness of the model in actual practice. The current study assessed the statistical and clinical significance of IPC in a community outpatient mental health setting, treating 183 adults with severe and comorbid disorder. Of interest was the change in clients' reported symptoms and functioning over the course of treatment and at follow-up. Clients demonstrated statistically and clinically significant change in symptoms (depression and anxiety, impulsive and addictive behaviours, and psychosis) and functioning (relation to self and others, daily living) at discharge associated with IPC, while analysis of follow-up assessment identified areas for future research. Results provide foundational evidence supporting the use of IPC in mental health care. Implications for clinicians and directions for future research are provided.

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Canadian Mental Health Care

The Ontario health care system has experienced difficulty in meeting the demands of the population with available resources (HealthForceOntario, Interprofessional Care Steering Committee [HFO], 2007) and reliance on hospital and physician care for mental health services may contribute to this burden (Craven, Cohen, Campbell, Williams & Kates, 1997; Kirby, 2008; Romanow & Marchildon, 2003). Primary care is the first point of contact for individuals seeking health services and Canadians utilize primary care more than any other available form of support when seeking treatment for mental disorder (Barrett, Curran, Glynn, & Godwin, 2007; Paulter & Gagné, 2005). The importance of physicians to the delivery of mental health services in Canada is evident from the literature: Physicians are the first point of contact for roughly 85% of Canadian clients seeking mental health services (Kirby, 2008; Statistics Canada, 2004), mental health issues have been reported to occupy 25% to 50% of Ontario physicians' time (Craven et al., 1997), and physicians are often clients' sole resource for mental health services (Craven et al., 1997; Macfarlane, 2005; Slomp, Bland, Patterson, & Whittaker, 2009; Watson, Heppner, Roos, Reid, & Katz, 2005). Physicians have reported that they may not possess the necessary resources to provide appropriate treatment to the breadth of functioning affected by mental disorder due to less mental health training relative to that of mental health professionals (Grenier, Chomienne, Gaboury, Ritchie, & Hogg, 2008), especially with consideration of the time constraints, demand for services, and overall burden placed on these oft-cited gate-keepers to health care (Craven et al., 1997; Gagné, 2005; Kazdin & Blase, 2011; Macfarlane, 2005). These potential limitations to mental health quality of care means that many Canadians seeking services

often do not receive adequate care to address their difficulties (Mental Health Commission of Canada [MHCC], 2009). However, with publicly funded coverage for mental health services largely limited to hospitals, physicians and psychiatrist referral, there are few options available to individuals requiring more intensive services but who cannot afford private care (Craven et al., 1997; Grenier et al., 2008; MHCC, 2009). This limited funding is associated with increased client reliance on physician care, underutilization of mental health professions, increased pressure on an already strained health care system, and limited treatment of mental disorder and the range of affected functioning (Grenier, et al., 2008; Kirby, 2008).

The proposed inadequacy of mental health services available to many individuals seeking care is exacerbated when one considers the range of affected functioning that may accompany mental disorder, with severe psychopathology often associated with greater impairment and the need for more comprehensive services (Anthony, 1993). Lesage (2010) describes the spectrum of mental disorder severity and associated affected functioning. Mild mental disorder lies at one end of the spectrum, with less disability and transient duration, followed by moderate mental disorder, which is episodic in nature yet may persist intermittently; these levels encompass the majority of the population experiencing mental disorder. While significantly affected functioning may accompany mild and moderate levels, increased disability and chronicity is associated with serious, severe, and severe and persistent levels of mental disorder, notably in instances of comorbid pathology. For the purposes of this study, these latter levels of severity will be referred to as *more severe and comorbid* mental disorder, representing both the increased severity and chronicity associated with these levels of mental disorder. The need for a breadth of services for individuals experiencing more severe and comorbid mental disorder may be best addressed by an intervention impacting multiple areas of sufferers' lives. As such, a comprehensive

conceptualization of clients' experience, including and beyond symptoms, could allow for the development of an appropriately holistic intervention (Rossen, Barlett, & Herrick, 2008).

However, engaging in such a holistic perspective is difficult in the context of the current demand in Canadian health care for mental health services and the funding that is available. Research has estimated that over 10% of Canadians over the age of 15 meet criteria for some form of mental disorder, where only 40% of these individuals access some form of available service (Statistics Canada, 2004). Such untreated suffering is exasperated by suggestions that mental disorder prevalence is underestimated (Kazdin, 2001) and that treatment provided to individuals is typically inadequate (MHCC, 2009). Inconsistency between client need for mental health services and available funding for service provision is consistent with government spending on mental health, where Canada's allocation of 7.2% of all health expenditures to mental health is lower than most other developed nations (Jacobs et al., 2010).

Mental health has achieved greater prominence in the conception of general health over the past decade (Kirby, 2008); however, inadequate funding often forces sufferers seeking mental health treatment to cover costs through private coverage (i.e., insurance), if available, or out of pocket (MHCC, 2009). In addition, the limited publicly funded outpatient mental health care sporadically available to Canadians fails to fill the large gaps in Canadian mental health services, where long wait lists delay intervention (MHCC, 2009). Individuals without insurance or the means to finance additional mental health treatment must make due with what Canadian health care can provide, which may not be adequately comprehensive. This has resulted in disparity between those with the means or private coverage to receive proper treatment for mental disorder and those reliant upon traditional health care coverage (Standing Senate Committee on Social Affairs, Science and Technology [SSCSA], 2006; Steele, Glazier, & Lin,

2006) in what has been identified as a two-tier mental health system (Dobson, 2002); a system contrary to equitable access (MHCC, 2009) and the Canadian health care system's tenets of universality and accessibility (Canada Health Act, 1985). The continued inadequacy of traditional approaches to address the increasing burden of mental disorder has created a need to consider alternative strategies of mental health service delivery (MHCC, 2009; Kazdin & Blase, 2011).

The focus of this thesis is on collaborative approaches to mental health care. In the following sections, the development of collaboration in the Canadian mental health system is described, followed by a discussion of definitions and terminology associated with collaborative care. The literature and theory behind collaborative care is drawn upon to present a case for utilizing collaborative approaches in mental health. Outcomes associated with collaborative care are reviewed separately for medical and mental health outcomes, followed by a summary of shortcomings and future directions for this approach.

Collaborative Approaches to Care

In striving to meet the demands on health care systems, collaborative approaches to health care service provision have emerged provincially (HFO, 2007) and globally (World Health Organization [WHO], 2010) as a potentially sustainable solution. Although there is not a definitive model of a collaborative approach to care, collaboration generally entails the coordination of services from varying health professionals in order to provide treatment that is tailored to the needs of individual clients and the environment (Gagné, 2005; Health Canada, 2004b; Herbert, 2005; Nolte & Tremblay, 2005). In contrast to traditional approaches to client care, where professionals typically associate with the client independently, the inclusion of multiple professions in a collaborative approach is theorized to improve care through

coordination and collaboration between services (Nolte & Tremblay, 2005; Rossen et al., 2008). The tailored nature of collaborative care puts the focus on clients and their unique situation, where the individual is an expert on his or her own experience (Paulter & Gagné, 2005). With regard to more severe and comorbid mental disorder and its associated affected functioning, collaboration between varying health professionals may result in increased intervention comprehensiveness, and has demonstrated success when working with this population (Barrett et al., 2007; Nolte & Tremblay, 2005; WHO, 2010, p. 15).

The Development of Collaborative Care in Mental Health

The increased recognition of the importance of mental health in Canadian culture over the past decade has been accompanied by an identified need for reform to current approaches to mental health service provision (Gagné, 2005; Kazdin & Blase, 2011; MHCC, 2009). The emphasis in health care on collaboration between professions has paralleled the future direction envisioned for mental health, where the holistic, streamlined, and client-focused orientation of a collaborative care approach has been proposed as a means of addressing shortcomings in the provision of mental health services (Kates, Gagné, & Whyte, 2008; Kazdin & Blase, 2011; MHCC, 2009).

A commitment to achieving collaborative health care was exemplified by the creation of the Primary Health Care Transition Fund, and its stated objectives of comprehensive care, collaborative teams providing specialized care, and coordination between professions, as well as through the creation of the National Strategy on Collaborative Care, established to supply funding to appropriate initiatives (Health Canada, 2004a). In mental health, this funding brought the development of the Canadian Collaborative Mental Health Initiative (CCMHI) and the Enhancing Interdisciplinary Collaboration in Primary Health Care Initiative (EICP). While the

work of the EICP touched upon collaboration in mental health, the CCMHI was established with the specific goal of improving client access to mental health services through investigation of the benefits of increased collaboration in primary care settings between primary health care providers and mental health professionals (CCMHI, 2006).

Although collaboration between various health professionals is common in health care (Statistics Canada, 2004), it has been suggested that mental health professionals are likely not being optimally utilized in primary care settings to assist in reducing the burden on physicians in addressing mental health (Grenier et al., 2008). Services are typically limited to physician-psychiatrist referral relationships, if any referral is made for mental health services (SSCSA, 2006). While this traditional physician-psychiatrist referral dyad is beneficial to mental health care, the CCMHI examined the efficacy of improving client access to mental health services through increased integration of health professionals in primary care settings. As primary care is the most common point of contact for clients seeking mental health services (Kirby, 2008; Statistics Canada, 2004), benefits were theorized to result from increased collaboration and coordination between providers and increased access to services at clients' first point of contact (CCMHI, 2006). Research was conducted with the premise that increased mental health service integration in primary care settings provided the potential to both alleviate strain on the health care system and to provide clients with more holistic mental health care, appropriate to the range of functioning affected by mental disorder (Gagné, 2005).

The creation of *Out of the Shadows at Last* (SSCSA, 2006) exemplified Canada's recognition of the importance of mental health in Canada and resulted in a list of recommendations for transforming mental health care. Included in the recommendations was an expansion of aforementioned, traditional, models of physician-psychiatrist collaboration with the

integration of community-based collaborative care, "improving the range, affordability, quality, and accessibility of services" (SSCSA, 2006 p. 7). From the perspective of the client, this expanded model of service delivery would result in a continuum of care for individuals seeking mental health services, maintaining the popular physician-based contact for presenting clients while allowing for available services to range to more comprehensive, community-based mental health resources when needed (SSCSA, 2006). For health service providers, this integrated community-based care could relieve some of the pressure to provide mental health care from primary care providers; for the client, referral to holistic and tailored mental health care would be seamless. The report also emphasized recovery as the desired client outcome for mental health service providers, encompassing the achievement of a satisfying quality of life within, or regardless of, symptomatology (Kirby, 2008). This recovery-oriented focus of treatment outcome is relevant to collaborative care approaches, where the inclusion of multiple professionals and their associated specialties offer an opportunity for holistic care directed toward improvement of various facets of clients' existence, regardless of symptomatology.

Finally, the creation of the Mental Health Commission of Canada brought about the development of *Toward Recovery and Well-Being* (MHCC, 2009), an outline of the strategy to reform Canadian mental health care based upon seven goals. Emphasized in the goals of the framework, and concordant with the aforementioned developments in Canadian mental health care, is the importance of recovery in the conceptualization of client care, where the functioning of the individual and achievement of maximal quality of life are key (goal one), as well as seamless integration of collaborative mental health services that are accessible and appropriate to the needs of the individual client (goal five). The potential benefits of a collaborative approach are consistent with these strivings.

Benefits of Collaborative Care

Traditionally, one-on-one psychotherapy has been the dominant approach to mental health service delivery (Kazdin & Blase, 2011). While the benefits and relevance of this approach are undeniable, the limited capabilities of individual providers operating from single training modalities (Gagné, 2005) may not be able to significantly ameliorate the aforementioned gaps in mental health care (Kazdin & Blase, 2011). As addressed, the breadth of affected functioning that may accompany mental disorder extends beyond the symptom experience of the sufferer; all areas of functioning are potentially subject to the effects of the sufferer's diminished capabilities, resulting in multiple areas that could benefit from intervention. Collaborative approaches allow for the integration of professions less commonly associated with health service provision (e.g., occupational therapist, spiritual care; Macfarlane, 2005), with each profession addressing client difficulties relevant to its field. The inclusion of a range of professions provides the opportunity for a more comprehensive intervention than is possible through contract with a single provider (Gagné, 2005; Kazdin & Blase, 2011; MHCC, 2009).

Collaborative approaches to client care are conceptualized as dynamic compositions (Nolte & Tremblay, 2005; Paulter & Gagné, 2005; Schofield & Amodeo, 1999) and can take on different models based on the professions included in the team, the degree of collaboration between the team's professionals (Schmitt, 2001), the needs of the population and the individual client (Health Canada, 2004b), the accessibility and setting of the services, and limitations stemming from funding, policies, and available resources (Gagné, 2005). However, examination of past conceptualizations of collaborative approaches to health care reveals a problematic inconsistency regarding the terminology used to describe the various approaches (Nolte & Tremblay, 2005; Reeves et al., 2011; Schmitt, 2001; Schofield & Amodeo, 1999), with research

often using an oversimplified conceptualization of collaboration as being dichotomous, either existing or not (Schmitt, 2001, p. 51), as well as interchangeable usage of the terms *interprofessional*, *interdisciplinary*, *multidisciplinary*, and collaborative care when describing multiple health professions working concurrently. This lack of consistency and specificity in the literature increases the difficulty in both quantifying the potential outcomes achievable with each unique collaborative approach and in understanding of the efficacy of each approach in various treatment conditions (Reeves et al., 2011), necessitating the need for clarity.

An Interprofessional Model of Collaborative Care

Past attempts to clarify the essential components representative of collaborative care have noted the difficulty in identifying core characteristics, often resulting in broad inclusion criteria (e.g., Bower, Gilbody, Richards, Fletcher, & Sutton, 2006). Recent advances have conceptualized collaborative care as an overarching general approach to service provision, in contrast to independent practice, where different models of collaboration represent varying degrees of collaboration between professionals (Schmitt, 2001). Following this approach, interprofessional care (IPC) exists as one model of a collaborative approach to health service delivery. In contrast to a multidisciplinary care (MDC) model, where providers of various health professions are coordinated but work in parallel with little interaction (D'Amour, Ferrada-Videla, Rodriguez, & Beaulieu, 2005; Nolte & Tremblay, 2005; Opie, 1997; Schofield & Amodeo, 1999), the IPC model involves a higher degree of collaboration between members of varying health professions throughout the provision of care (Health Canada, 2004b; Nolte & Tremblay, 2005). For this study, IPC is defined as "the provision of comprehensive health services to clients by multiple health caregivers, who work collaboratively to deliver quality care within and across settings" (HFO, 2007, p. 7). IPC is expected to offer the potential for both

improved care for the individual client, through elimination of service gaps with holistic care, and decreased costs to health care, through a streamlined and coordinated approach to intervention (HFO, 2007; Nolte & Tremblay, 2005). IPC was identified as a potential solution to the burden on Canadian health care at the start of the past decade (Commission on the Future of Health Care in Canada [CFHCC], 2002) and has since been deemed the "gold standard for care" in the Ontario health care system, with provincial implementation underway (HFO, Interprofessional Care Strategic Implementation Committee [HFO], 2010, p. vi). These developments mirrored an increased emphasis on IPC in health service delivery over the past decade within Canada and beyond (Nolte & Tremblay, 2005; Opie, 1997; Schmitt, 2001; WHO, 2010).

As previously stated, utilization of appropriate terminology in collaborative care research is essential to establishing understanding and an evidence base for IPC (Nolte & Tremblay, 2005; Reeves et al., 2011; Schofield & Amodeo, 1999). Striving to provide further clarity to interprofessional intervention, Reeves et al. (2011) provided preliminary categorization of the components comprising interprofessional models of care, delineating between IPC and interprofessional education (IPE), where IPE "occurs when students from two or more professions learn about, from and with each other to enable effective collaboration and improve health outcomes" (WHO, 2010, p. 7). IPC encompasses both interprofessional practice (IPP), or the provision or practice of health services through an interprofessional structure, and interprofessional organization (IPO), or the underlying organizational structure that facilitates IPP. As such, the *care* of IPC suggests the actual provision of services while the *education* of IPE suggests the acquisition of knowledge or skills required to competently engage in IPC. For the purposes of this study, the term IPC will be used in order to represent both IPP and IPO, thus

representing the organization of multiple health professionals into a team engaged in collaborative and coordinated practice. Furthermore, this term is consistent with the language used by HFO (2007; 2010) in documentation of IPC in Ontario's health care strategy.

Interprofessional vs. Interdisciplinary

It is necessary to differentiate between the terms *interdisciplinary* and *interprofessional* due to their inconsistent and interchangeable use in the literature. It has been proposed that the terms *discipline* and *profession* respectively distinguish between the realms of knowledge and practice, where "each discipline is based on a sum of organized knowledge" and "each profession owns a professional jurisdiction or scope of practice, which impacts the delivery of services" (D'Amour & Oandasan, 2005, p. 9). In the literature, however, this theoretical distinction between a discipline and a profession is largely ignored, evidenced by their interchangeable use when labelling collaboration between different health professionals (e.g., Health Canada, 2004b). This is demonstrated in D'Amour et al.'s (2005) synthesis of the literature on collaborative care terminology, where an interdisciplinary team is conceptualized as "a greater degree of collaboration between team members…. based on an integration of the knowledge and expertise of each professional" (p. 120) and the two terms are seemingly used arbitrarily throughout the article. This problem is further corroborated by the contemporary ubiquity of the term *interprofessional* and relative absence of the term *interdisciplinary* in the program evaluation research of recent years, despite the initial popularity of the term *interdisciplinary* in older research attempting to describe a greater degree of collaboration between professionals. These factors suggest a shift in the culture's popular terminology as opposed to a recognized distinction between the two terms and their associated models of collaboration. HFO (2007; 2010) has provided researchers with a provincially recognized

conceptualization of *interprofessional* that exemplifies the shift in contemporary terminology toward the integration of individual *professionals* (as opposed to disciplines) and their specialized areas of practice. Thus, when viewing the research on interprofessional care, it is appropriate to include research labelled as interdisciplinary as this difference is likely the result of a shift in popular terminology rather than a true distinction in models of collaboration.

The Case for IPC in Mental Health

The push toward collaboration in health service provision provincially (HFO, 2007; 2010) and nationally (Barrett et al., 2007) reflects larger global trends (WHO, 2010), suggesting the potential seen for IPC to ameliorate long-standing shortcomings in mental health care. A caveat to any potential benefit of IPC, however, results from the aforementioned limitations on practitioners to engage in such an approach within the boundaries of publicly funded or private coverage for mental health treatment in Canada (Gagné, 2005; MHCC, 2009). Mental health's alignment with provincial health care strategies may decrease barriers to funding often experienced by mental health service providers and assist in reducing medical and mental health dualism, moving the system toward a united conceptualization of *health*.

The vision for a reformed Canadian mental health system outlined by the MHCC (2009) describes the need for "a comprehensive, integrated, and person-centred system" (p. 69) through the goals of fair access to comprehensive and seamless services which are tailored to the needs of the individual client (goal five), client engagement in the process of recovery (goal one), and usage of evidence based interventions established from practice and outcome evidence (goal six). These aspirations may be addressed respectively through IPC's holistic and seamless client-centred service provision, potential for recovery-oriented care, and outcome evidence for the use of IPC in health settings. While solutions to the difficulties of the Canadian mental health system

should not focus on a single approach (SSCSA, 2006), IPC may provide the characteristics necessary to assist in achieving the goals of the MHCC and positively impacting the provision of mental health services.

Holistic and Seamless Client-Centred Care

An appropriate conceptualization of the structure of IPC is a team of health professionals united in cause and interdependent in their practice with individual clients. The "deeper degree of collaboration" (Health Canada, 2004b, p. 68) between professions in IPC capitalizes on the competencies of various professions through increased communication (Macfarlane, 2005) and coordination between these providers, resulting in health professionals providing comprehensive service that is seamlessly organized to minimize overlap (D'Amour & Oansasan, 2005; HFO, 2007). Thus, the IPC model results in holistic mental health care, addressing several aspects of the clients' functioning which may not be accessible to the individual professional operating independently (Kazdin & Blase, 2011; MHCC, 2009). Under the IPC model, the team of health professionals work as closely as possible with the client, identifying areas of the client's life which require intervention, setting appropriate goals for treatment, developing a treatment plan for all team members to follow, and coordinating services to best facilitate achievement of the client's goals (HFO, 2010). Thus, intervention is tailored to the range of difficulties across the client's experience and directed toward the client's identified areas of desired change, resulting in client-centred practice (HFO, 2007; MHCC, 2009). Also important is the client's active engagement throughout treatment, allowing the client to be both developer and recipient of treatment (D'Amour et al., 2005; Health Canada, 2004b) and granting a sense of responsibility for recovery from their presenting condition (McLoughlin & Geller, 2010).

Recovery in More Severe and Comorbid Mental Disorder

Mental health care systems have been increasingly oriented toward facilitating *recovery* in clients suffering from mental disorder (Davidson & Roe, 2007; MHCC, 2009). Despite this emphasis, the literature has been somewhat inconsistent in conceptualizing recovery (Jacobson & Greenley, 2001). Davidson and Roe (2007) proposed a conceptualization of recovery as classifying the relationship between clients' and their illness, describing both *recovery from* and *recovery in* mental disorder. Recovery is typically associated with cure, or the complete alleviation of symptoms and restoration of pre-afflicted functioning (Davidson, O'Connell, Tondora, Lawless, & Evans, 2005; MHCC, 2009; SSCSA, 2006); this outcome is classified as *recovery from* mental disorder and is typically associated with more acute illness. In cases of more severe and comorbid symptomatology and affected functioning, mental disorder may become a disability, as with physical illness (Anthony, 1993; Davidson et al., 2005). Here, *recovery in* mental disorder is conceptualized as altering or diminishing the illness as the primary focus and meaning in clients' lives (Anthony, 1993), empowering clients and helping them build control over their lives (Davidson & Roe, 2007; Jacobson & Greenley, 2001), and improving the clients' overall quality of life, despite the presence and limitations of symptoms (MHCC, 2009; SSCSA, 2006). This conceptualization of recovery in more severe and comorbid mental disorder has been deemed the primary meaning of the term in mental health (Davidson & Roe, 2007).

Based on this conceptualization, recovery-oriented care involves provider facilitation of the process of recovery through utilization of a client's existing strengths or capacities (Anthony, 1993; Davidson & Roe, 2007). IPC fits well with recovery-oriented practice in more severe and comorbid mental health service provision and may serve as a beneficial facilitator for clients' ongoing recovery. The process of recovery involves active participation by the client,

collaborating with professionals in both identifying the desired goals for recovery and selecting the necessary services available to meet those goals, resulting in client-centred care (Jacobson & Greenley, 2001; MHCC, 2009). This process is conceptualized as instilling a sense of empowerment in the client, responsibility for the recovery process (Anthony, 1993; Davidson et al., 2005; Jacobson & Greenley, 2001; McLoughlin & Geller, 2010; MHCC, 2009; SSCSA, 2006), and development of the self-management skills that may be beneficial in coping with persistent illness (Wagner et al., 2001). The client-centred and tailored treatment of recovery-oriented care is concordant with the features of IPC, notably in the context of more severe and comorbid mental disorder, where focus on symptom reduction may not produce changes in clients' lives. The increased collaboration between several different professions in IPC provides an opportunity for comprehensive intervention in more severe and comorbid mental disorder (WHO, 2010), allowing providers to work with the client in areas that are difficult to address with a single provider. Furthermore, IPC provides an opportunity for the inclusion of professions that are less commonly associated with mental health care, such as leisure skills or spiritual care, but may be beneficial to client recovery (Anthony, 1993) through their ability to address the range of dysfunction associated with mental disorder.

Evidence Supporting IPC

Despite an identified need for increased research into IPC (CFHCC, 2002, p. 87) and the model's intuitive potential in mental health, its uptake has been justified largely on the model's theoretical benefits rather than an overwhelming evidence base. Recent years have brought increased recognition to the importance of empirically based practice in mental health, where service providers should be able to demonstrate empirical support for an intervention in order to justify its utilization in practice (Schofield & Amodeo, 1999). The efficacy of an intervention is

gauged through client outcome assessment, with associated consequences for both policy and funding (American Psychological Association [APA], 2006). The importance of establishing intervention efficacy is epitomized by the recent implementation of the *Excellent Care for All Act* (2010) in Ontario health care. Created to facilitate evaluation and improvement of the quality of health services, the Act holds all providers in receipt of public funding responsible for ensuring the use of the best available and scientifically evidenced practices for care and the use of client-focused care, among other quality assurance procedures. The utilization of IPC in mental health means that the intervention should fulfill these requirements and, while IPC indeed meets the latter emphasis on client-centred practice, the necessary empirical evidence of its purported benefits is insufficient (Nolte & Tremblay, 2005).

The paucity of empirical evidence for IPC may be due to several methodological shortcomings evident throughout collaborative care research. The many characteristics of treatment that can vary between settings make it difficult to synthesize findings, including the professions represented in the team, the setting in which IPC is used, and the type of disorder being addressed with IPC, among others (Nolte & Tremblay, 2005). In addition, shortcomings have plagued collaborative care research, including inconsistent terminology usage and insufficient methodological description. These shortcomings have made it difficult to synthesize findings and establish an evidence base for the efficacy of IPC in achieving positive client outcomes (Nolte & Tremblay, 2005; Lemieux-Charles & McGuire, 2006), notably in mental health care. The absence of widely recognized operationalization of the various collaborative approaches to health service provision (e.g., MDC and IPC) resulted in somewhat arbitrary terminology usage in the past, where studies often use terms interchangeably despite the theoretical differences between models of a collaborative approach (Barrett et al., 2007;

Lemieux-Charles & McGuire, 2006; Nolte & Tremblay, 2005; Schofield & Amodeo, 1999; Schmitt, 2001). While issues with terminology could be ameliorated with a thorough methodology outlining the characteristics of service provision and the degree of collaboration present (e.g., professions represented, amount of communication and coordination between professionals, client-centredness, setting, population served), this level of detail is absent in a large proportion of past collaborative care research. Such situations of concurrent terminology and methodological inadequacy occur throughout the literature, limiting the number of studies eligible for inclusion in a synthesis of IPC research.

While past attempts at synthesizing the literature on IPC have reported these difficulties, these summaries often contain similar shortcomings. This is exemplified by Barrett et al. (2007) in their synthesis of research on IPC in primary health care settings. In establishing definitions for the various collaborative approaches to care, MDC was conceptualized as what is presently considered to be IPC, and the two terms were used interchangeably during their review of the literature when defining criteria for research eligible for inclusion. Consequently, this synthesis of findings from two distinct models of collaboration, under the heading of IPC evidence, compromises the rigorousness of included research and makes interpretation of their findings difficult. Such a melting pot of outcomes stemming from distinct models of collaborative care does not provide the specified knowledge required in order to quantify the client outcomes of the IPC model. The difficulty is furthered when later research cites syntheses based on such overgeneralized methodology as support for the efficacy of specifically the IPC model. For example, in describing evidence for an interdisciplinary (i.e., IPC) model, Rossen et al. (2008) cited a synthesis of research by Lemieux-Charles and McGuire (2006) as constituting IPC evidence, despite this synthesis consisting largely of findings from research using decreased

degrees of collaboration, such as MDC and single provider care. On a larger scale, this synthesis was again cited by HFO (2007) in their foundational document on the future IPC structure envisioned for Ontario health care as an example of the "mounting evidence that an interprofessional care environment may offer multiple benefits" (p. 8), again despite this synthesis containing little, if any, research from the IPC model. It is important that such influential and shifting health care policy documents are based on a stronger foundation of evidence for the efficacy of IPC (Reeves, Goldman, & Zwarenstein, 2009).

IPC and Clinically Significant Change

In evaluating evidentiary support for the IPC model of mental health service provision, it is necessary to identify both the type of evidence (i.e., research findings) that is of interest, as well as what qualifies as a significant finding in support of the model. For this study, client outcomes stemming from mental health treatment delivered through the IPC model are of interest, particularly treatment outcomes for clients experiencing more severe and comorbid mental disorder. In client outcome assessment, delineation between clinical and statistical significance is necessary. Traditionally in the evaluation of treatment efficacy, demonstration of statistical significance has been sought, where statistical criteria are used to gauge the importance of a demonstrated change on an outcome of interest (Kazdin, 2001). However, relying solely on statistically based change to understand the efficacy of a treatment approach in achieving a meaningful change in client outcome may not accurately represent clients' true experience; clients' benefit from treatment may not mirror this statistical significance (Jacobson, Roberts, Berns, & McGlinchey, 1999). Although statistically an individual's score may have changed on a measure of interest, the individual may not perceive an associated change in their experience (Kazdin, 2001). Alternatively, there may be no statistical change on an outcome measure of

interest, ostensibly suggesting a lack of important change, and yet from the client's experience meaningful change may have occurred, resulting in an oversight of the client's subjective experience. Similarly, large effect sizes, while more likely to be clinically significant, may not represent true clinical change associated with treatment (Jacobson et al., 1999). ttClinical significance strives to capture the true clinical utility of an intervention, or the ability of an intervention to result in "a real (e.g., genuine, palpable, practical, noticeable) difference in everyday life to the clients or to others with whom the clients interact" (Kazdin, 1999, p. 332), also referred to as the benefit clients' derive from treatment (Jacabson et al., 1999).

In striving to facilitate clinically significant client outcomes, the holistic intervention available through IPC may possess a unique potential in achieving the meaningful life changes represented by clinical significance. As addressed, the potential for holistic treatment through IPC derives from the inclusion of multiple professions which allows for comprehensive assessment and intervention in various areas of the client's life (Paulter & Gagné, 2005), an approach that may be more difficult to provide in the traditional one-on-one intervention approach. As several areas of functioning may be positively impacted by IPC, it is reasonable to hypothesize that IPC may facilitate clinically significant treatment outcomes. This is especially relevant to recovery in more severe and comorbid mental disorder, where symptoms may persist and statistical significance may not detect any difference at the end of treatment, despite the experience of true, clinically significant change within the client. Indeed, it has been proposed that clients may experience very real change in their lives associated with treatment, regardless of any variation in their symptoms (Kazdin, 1999). As such, appropriately measuring clinical significance is aided by the use of assessments that examine client functioning beyond solely symptom experience (Kazdin, 2001). While this does not discount the importance of symptoms

to clients' overall experience and their treatment outcomes, it attempts to account for and appropriately identify outcomes where clients may improve their general existence despite the persistence of symptoms, such as recovery in more severe and comorbid mental disorder.

The literature on clinical significance generally strives to ensure criteria reflect actual change in clients' outcomes and that outcome measures assess areas relevant to clients' true functioning, as opposed to traditional reliance on symptom assessment. As such, clinical significance is concerned with ensuring findings are representative of clients' true functioning through the utilization of more stringent statistical criteria and conscientious selection of outcome measures which properly account for the client change associated with treatment. These criteria are consistent with the unique strengths of the IPC model of service provision and efforts to establish evidence for this model of care may benefit from consideration of these factors.

IPC Client Outcome Evidence

Drawing on Schofield and Amodeo's (1999) classification of personnel, management, and patient care outcomes (Lemieux-Charles & McGuire, 2006), this study is concerned with the patient (i.e., client) care outcomes achievable through the IPC model. While research has hinted at the potential efficacy of IPC in achieving positive client outcomes, there is a paucity of empirical support using the detailed and descriptive methodology described above and thus representative of true IPC (Barrett et al., 2007; Nolte & Tremblay, 2005; Schmitt, 2001; Schofield & Amodeo, 1999).

Ideal Model of IPC

In the proceeding summary of research on client outcomes in IPC, effort was made to present findings based on their similarity to an idealized conceptualization of IPC (i.e., HFO, 2007), with research increasingly approximating this ideal presented later in each section. This

conceptualization of IPC is based on the aforementioned core features that the model represents, summarized as the collaboration of multiple health professionals to seamlessly coordinate holistic service provision around the client's identified needs and goals. More specifically, the IPC ideal is conceptualized as a team comprising individuals from as many health professions as necessary to provide as holistic care as possible, collaboration and communication between all team members and the client throughout treatment, the development of a single treatment plan that is followed by each team member engaged in service provision and that is unique to the individual client's identified needs and goals (e.g., Naar-King, Siegel, & Smyth, 2002), and collaborative coordination of service and engagement in practice to best facilitate the achievement of these goals with minimal service overlap. As addressed, there are varying degrees of collaboration possible between health professionals and clients (Schmitt, 2001), resulting in a continuum ranging from professionals operating in parallel practice to complete integration between service providers (Boon, Verhoef, O'Hara, & Findlay, 2004); the ideal of IPC is conceptualized as this latter degree of integration between providers and between providers and the client. Due to the lack of findings from research utilizing such a degree of collaboration, the following summary also includes research utilizing lesser degrees of collaboration in order to inform the potential of IPC.

Inclusion Criteria

While seemingly contradictory to the IPC tenet of holistic care, the traditional separation in health care between medical and mental health and the emphasis on medical health is reflected in the literature on IPC. The aforementioned lack of IPC outcome research necessitates consideration of IPC client outcomes in any health care setting in order to establish understanding of its potential in health service provision. Furthermore, a contemporary

conceptualization of holistic health in general, as opposed to anachronistic physical and psychological health dualism, warrants consideration of IPC client outcomes in medical research. The research on collaborative care and the IPC model has been largely focused in primary health care settings, or clients' first contact with health services when seeking care, and research in this area comprises the bulk of findings presented.

The following is not be intended to be a comprehensive review of the available literature on IPC client outcomes, however effort was made to achieve thoroughness and ameliorate past difficulties in the evidence base for IPC. A major source of the included articles was past syntheses of the literature in order to tease apart mental health findings from medical findings, where combined, and IPC evidence from all other approaches to service provision. The heterogeneity in the methodology of collaborative care research often makes it difficult to pool past findings, and often results in the need for individual study analysis. Again, findings from treatment most approximating the degree of collaboration represented by IPC are presented later in each section.

Studies were excluded if there was no coordination or no communication between professionals in a team, if client outcomes were not assessed, and if research included less than two professions. In addition, research with terminological and methodological inadequacies were excluded, most often consisting of studies containing an inadequate description of the team characteristics and intervention in order to determine the true degree of collaboration. A thorough description of each study included in the proceeding sections is also included (see Appendix A).

Medical Health Outcomes

Research on collaborative approaches to client care in medical settings has provided insight into the potential efficacy of the IPC model. While not addressing mental health issues, client outcomes derived from IPC in medical health can inform expectations for IPC in mental health.

Primary care. Aforementioned in the difficulty with past syntheses of the literature on IPC is research by Nolte and Tremblay (2005) and Barrett et al. (2007). In attempting to summarize the findings on IPC, the actual methodologies of the individual studies included in both analyses varied, resulting in more general findings representing collaborative care rather than any specific model. Findings from the syntheses demonstrated increased client satisfaction with collaborative care as well as positive client outcomes in quality of life and general health when compared to treatment as usual. Clients receiving collaborative care were also found to exhibit positive outcomes in the areas of quality of care and medication adherence (Nolte & Tremblay, 2005), in addition to increased personal care and expression of a positive treatment experience (Barrett et al., 2007).

Hospital-based IPC. Research conducted by Naar-King et al. (2002) in a population of children with special needs warrants consideration based on the IPC model utilized by the study's health care team. The structure of care employed was very harmonious with the ideal IPC model presented earlier, with factors such as client- and family-centred care, holistic care provided by individuals from multiple professions, team treatment planning, and team meetings with all professionals and the child and family present. Although only satisfaction was reported as a client outcome, with a large proportion of parents expressing satisfaction with the IPC care, Naar-King et al. (2002) provide an example of the structure of care of interest to this study as well as the need for a breadth of client outcome assessment. In contrast, several of the following

studies discussed feature collaboration which is limited to a single professional or a team of professionals providing consultation or recommendations to the actual service providers, but not engaging in practice. Naar-King et al. (2002) illustrate the idealized IPC alternative to this isolated collaboration, evidenced by the authors' clear description of the shift in the role of included psychologists from consultative to team integration, where the team was engaged with the client throughout practice.

Mixed Medical and Mental Health Outcomes

In a review of the literature on team approaches to health service provision, including studies addressing both medical and mental health, Lemieux-Charles and McGuire (2006) examined research with varying degrees of collaboration and conducted largely with a geriatric population. In comparison to single provider care, collaborative care resulted in increased client functioning, mental health, satisfaction, and health-related quality of life, in addition to decreased client dependency and mortality. As addressed, these findings have been used to support recent health care strategy (HFO, 2007; 2010) despite the lack of rigor used in selecting research utilizing the IPC approach, necessitating increased specificity in future analyses of the literature.

Primary care. In a recent review of the literature on collaborative care in treating major depression with a coexisting chronic medical condition, Katon, Unützer, Wells, and Jones (2010b) synthesized research featuring degrees of collaboration ranging from MDC to IPC. In primary care settings featuring physicians augmented with nurses, psychiatrists, or other mental health professionals, clients receiving collaborative care approaches demonstrated increased quality of care and depression scores, in comparison to treatment as usual. In other research utilizing a similar degree of collaboration and working with a similar population, in comparison to clients receiving treatment as usual, findings suggested increases in social functioning, quality

of life, client service utilization, and satisfaction with services, as well as improved depression symptoms and physical health outcomes (Katon et al., 2010a; Vera et al., 2010).

Intensive IPC and chronic pain. In viewing the efficacy of a model of service provision which approximated IPC, clients experiencing chronic pain were assessed for outcomes stemming from an intensive treatment program, receiving care from several professions 5 days a week for 3 to 4 weeks (McCracken, Vowles, & Eccleston, 2005). Post-treatment, clients demonstrated significantly decreased pain intensity and physical disability, with significantly improved physical functioning. Clients also showed improvement in several areas relevant to mental health, with significant reduction in depression scores, pain-related anxiety, psychosocial disability, and rest required due to pain. This research was also unique in its assessment of maintenance of treatment gains post-discharge, where all significant differences were maintained at a follow-up assessment 3 months after completing treatment. This IPC model included team meetings three times per week to monitor client progress, although the use of manualized treatment resulted in less client centred practice and the intensity of treatment is less common typical of available mental health services. The design and associated findings of the research were replicated by Vowles and McCracken (2008), providing evidence for the positive client outcomes achievable through administration of an intensive IPC model in chronic pain populations.

Mental Health Outcomes

Despite suggestion of "high-quality evidence supporting positive outcomes for patients/clients … in specialized areas such as interprofessional collaboration in mental health care" (Barrett et al., 2007, p. i), this is less conclusive in the literature. Consistent with clients' tendency to present to primary care physicians for mental health concerns, a large proportion of

the research on IPC in mental health settings has focused on the augmentation of primary care with the IPC model of service provision. Despite the recent proliferation of IPC Family Health Teams in Ontario primary care service provision (Goldman, Meuser, Lawrie, Rogers, & Reeves, 2010), much of the research in this setting has focused on team functioning and its improvement, with a paucity of client outcome analysis. The degree of collaboration engaged in by the professionals in each study varies widely and falls somewhere between MDC and IPC, with communication and collaboration between professions below the criteria characterized by the IPC ideal but above what is characteristic of the parallel practice of MDC.

Primary care.

Research syntheses. Funded by the Primary Health Care Transition Fund, the Canadian Collaborative Mental Health Initiative strove to summarize the available evidence for collaborative care approaches to mental health service provision (Craven & Bland, 2006). With wide inclusion criteria, including varying degrees of collaboration, and largely populations suffering from depression, findings demonstrated collaboration was more effective with major depression as opposed to less severe depression, supporting past research (Katon et al., 1996; Katon et al., 1997). It was also proposed that the degree of collaboration between providers was not predictive of client outcomes, directly in contrast to more recent research that implicated a lack of collaboration between health service providers in negative client events (Fewster-Thuente & Velsor-Friedrich, 2008).

Past examination of the literature has identified the paucity of knowledge pertaining to the long-term client outcomes of IPC treatment (Schmitt, 2001). Research has provided initial understanding, where a review of the literature demonstrated significant improvements in depression outcomes that were maintained at a 1 year follow-up, with a positive trend continuing

at 5 years post-treatment (Gilbody, Bower, Fletcher, Richards, & Sutton, 2006). These findings stemmed from a synthesis of research employing varying degrees of collaboration between professionals and utilizing outcome standardization, thus lacking the specificity needed for IPC evidence and the range of client outcomes that must be assessed in order to better understand the impact of the increased degree of collaboration in IPC. Further analysis of the long-term client outcomes of IPC in mental health is required.

Approaching IPC: Decreased features of collaboration. Research often features MDC in practice and IPC in treatment planning and client progress evaluation. While findings from research utilizing such approaches lack the degree of collaboration between health care professionals throughout all stages of treatment in IPC, examination may inform the potential outcomes achievable through such increased collaboration.

IMPACT is a program designed to increase collaborative care intervention in the treatment of major depression and dysthymia in geriatric populations. While syntheses of the literature (Barrett et al., 2007) have classified the IMPACT program as IPC, the degree of collaboration is closer to MDC in practice and less holistic than IPC. Despite its decreased degree of collaboration, research has demonstrated the potential efficacy of the model. Care is primarily provided by depression care specialists (i.e., nurse, social worker, or psychologist), with a psychiatrist and a liaison primary care physician as advisors. The IMPACT program has demonstrated improvements in client outcomes compared to treatment as usual, with significantly increased satisfaction with care, service utilization, symptom reduction and remission, physical functioning, quality of life, and self-efficacy (Utützer et al., 2002), significantly maintained up to 12 months post-treatment (Hunkeler et al., 2006). However, other research with the IMPACT program has demonstrated less discernable client outcomes, with no

significant differences between intervention and control populations discernable from measured outcomes (McCusker et al., 2008). In accounting for this variation, the latter study featured a briefer intervention, at a maximum of 2 months, and decreased collaboration between professionals as the study progressed. Overall, the IMPACT program has demonstrated positive client outcomes with a degree of collaboration and service provision holism that is less than that characterized by the IPC model. Of particular interest is the potential offered by increased collaboration and the inclusion of additional professions in an IPC treatment team, with an increased ability to impact areas of client functioning.

Research of physician-psychologist or -psychiatrist dyads has demonstrated efficacy in working with depression. These studies feature collaboration straddling a line between MDC and IPC, with the presence of IPC features such as treatment planning and occasional case review, but to a lesser degree and concurrent with generally decreased collaboration, client-centredness, and care holism than found in IPC. Nevertheless, research has demonstrated positive client outcomes from the increased collaboration, when compared to treatment as usual, with significant improvements in client satisfaction with care, satisfaction with medication usage or treatment adherence, and depression outcomes in clients suffering from major depression (Katon et al., 1996; Katon et al., 1997). Findings were stronger in clients with more severe major depression than for what was termed minor depression. Other research implementing physician-clinical psychologist dyads featuring increased collaboration and communication between professionals throughout each client's treatment showed positive outcomes across a range of psychopathology, with significantly improved outcomes post-treatment in scores of depression, anxiety, stress, general health, and general well being (Vines et al., 2004).

Outlined above and earlier in the literature review, Wayne Katon has played a large role in the proliferation of collaborative care approaches in the treatment of depression, often pairing primary care physicians with a nurse or a mental health professional in order to augment care. While these approaches have demonstrated efficacy in client outcomes, this study is focused on a more holistic team model, featuring the addition of multiple professionals rather than a pairing, and increased collaboration and coordination between professionals, where the team decides on the best treatment approach and the best way to utilize the specialized services of each professional.

Approximating IPC: Increased features of IPC. Research in geriatric populations has utilized models of care that more closely approximate that of the IPC model. In a hospital outreach intervention following discharge from emergency services, nurses, as the primary care providers, physicians, geriatricians, physiotherapists, and occupational therapists engaged in collaborative treatment planning and weekly assessment of geriatric clients followed by MDC for a maximum of 4 weeks (Caplan, Williams, Daly, & Abraham, 2004). Compared to a control group, clients treated with the collaborative intervention had a decreased need for hospital services and a significantly reduced decline in physical functioning 6 months post-treatment when compared to a control group, with cognitive functioning maintained up to 18 months. Other studies have examined a longer treatment program with geriatric populations possessing more stable physical functioning. Utilizing a similar model of collaboration with older adults, a psychiatrist, clinical psychologist, social worker, and psychological technician conducted collaborative treatment planning and client progress tracking that was then communicated to the primary care providers (Liu et al., 2003). In comparison to consult-liaison care (i.e., independent practice with referral or consultation as required), clients treated with the intervention exhibited a

modest increase in depression free days. Other research employing the same professions and, ostensibly, the same model of care resulted in significantly faster improvement in depression symptoms3 months into treatment, with significantly greater general mental health status compared to clients receiving consult-liaison care (Hedrick et al., 2003). The contrast in findings of these methodologically similar studies is difficult to account for without additional information regarding the degree of collaboration and communication between professionals used in each, exemplifying the difficulty in organizing the findings of the literature.

Research approximating the IPC model has demonstrated the positive client outcomes associated with increased client-centredness, collaboration, communication, and intervention holism. Analysis of the research on IPC in geriatric populations delivered through team treatment planning based on individual client needs and regular client progress meetings with a physician, nurse practitioner, social worker, psychologist, and pharmacist demonstrated significantly greater depression symptom reduction at 12 months when compared to treatment as usual (Skultety & Zeiss, 2006). While no longer significantly different, average symptom reduction in IPC clients remained lower than those who had received treatment as usual at a 2-year follow-up. Other research featuring a range of professions, active involvement of all professionals, team meetings, and explicit attempts to avoid service overlap when working with chronic and severe mental disorder resulted in high client satisfaction, decreased use of in-patient services, as well as a program outcome of decreased client wait time for access to needed services (Sharma, Wilkinson, Dowrick, Church, & White, 2001).

Perhaps the closest approximation to the potential efficacy of IPC in achieving positive client outcomes comes from research on the Tidal Model of Mental Health Recovery and Reclamation. Outlined by Barker and Buchanan-Barker (2010), the IPC and Tidal models share a

focus on team-based care that is tailored to the client's identified needs, resulting in client-centred practice. Research has utilized this team functioning and client-centredness, where the client and all professionals included in the team collaboratively constructed treatment goals and a single treatment plan from which all providers operated (Berger, 2006). In addition, the Tidal model's focus on facilitating the recovery of clients from the repercussions of mental disorder is consistent with the potential utilization of the IPC model in recovery-orientated care, as discussed. While research has demonstrated improved client satisfaction associated with this degree of collaboration (Berger, 2006), further analysis of client outcomes is required in order to begin to understand the potential impact of IPC on client outcomes.

Secondary care. Research on collaborative care in mental health has predominantly assessed intervention in primary care settings, consistent with the provincial emphasis on ameliorating primary health care service provision. However, collaborative care in a secondary care setting is still an important part of provincial mental health service provision and understanding the potential of IPC in achieving client outcomes in this setting is also required. Examination of an intervention with IPC features in secondary care has suggested positive client outcomes at this level of service provision, with significantly improved depression, anxiety, and somatoform disorder scores demonstrated at client discharge, maintained at both 3 and 6 month follow-up (Haggarty, Klein, Chaudhuri, Bourdeau, & McKinnon, 2008).

Shortcomings in IPC Evidence

Evident is the range of collaboration possible in health care settings, with degrees of communication and collaboration varying widely between studies and, at times, limited to dyadic collaborations (Craven & Bland, 2006). A common design in past research on collaborative care consists of a team of health professionals collaboratively creating a treatment plan and passing it

down to a primary care provider for practice. Alternatively, in many cases, a single professional or a team of professionals operates as a consult for the primary care provider, receiving updates from the primary care provider and offering treatment recommendations. In these designs, the collaborative aspect of care has no involvement in actual practice or engagement in the treatment plan with the client. In comparison to the IPC model emphasized by the HFO (2007; 2010) and adopted for this study, this diminished degree of collaboration in practice is less characteristic of the IPC approach, where a single provider may be less likely to provide the holistic care offered by multiple professionals engaging in practice with the client. Indeed, this model of IPC, and its degree of collaboration, is not extensively measured in mental health care and client outcomes have not been adequately demonstrated. While the summarized research has suggested the potential of collaborative approaches to care through findings based on statistical significance, there is no current understanding of the clinical significance of the IPC model in achieving positive client outcomes. In addition, the literature largely focused on depression in geriatric populations, with little assessment of collaborative approaches to care in diverse populations addressing a range of mental disorder.

Future Directions for IPC Evidence

Future research in collaborative care models must use appropriate terminology to define the model of collaboration being examined to allow for proper identification of relevant findings. Furthermore, appropriately thorough description of methodology is required, which optimally includes factors such as the professions included in the team, the degree of collaboration between professionals (Lemieux-Charles & McGuire, 2006), the degree of client involvement, the point of team involvement (Schofield & Amodeo, 1999), the overarching organizational structure, the length of treatment, the population served, and the setting in which treatment occurred.

Appropriate methodological description will assist in teasing out the intricacies of IPC, allow for the establishment of an appropriate evidence base, and facilitate understanding of how variations in models of IPC (e.g., the inclusion of different professions in teams, degree of client involvement) affect client outcomes (Barrett et al., 2007).

Outlined by Schmitt (2001) a decade ago, and still not adequately addressed, are the shortcomings of IPC research where "research is needed that provides knowledge not only about whether collaboration generally makes a difference, but, also, more specifically what mix of collaborators for what purposes for whom makes a difference for what outcomes and at what costs" (p. 47); increasingly specified research that addresses past shortcomings is a necessary step toward achieving this goal (Lemieux-Charles & McGuire, 2006). With regard to client outcomes stemming from IPC, it is beneficial to include assessments that measure a range of outcomes, consistent with the diversity of the professions included in the team and the multiple areas of the client's experience these professions may be able to address. In addition, there is very little understanding of IPC client outcomes post-discharge, as few studies have examined outcome maintenance over an extended period, such as a year (Schmitt, 2001).

The Present Study

The identification of IPC as the dominant strategy of Ontario health care raises interest in the model's potential benefit in mental health care settings. To the authors' knowledge, client outcomes associated with an IPC model that is concordant with Ontario's health care strategy (HFO, 2007; 2010) are unknown, despite the frequent use of this model in mental health settings. The increased use of IPC necessitates a better understanding of the effectiveness of the model in clinical practice and the development of an adequate base of evidence to support its use.

The purpose of this study was to establish an initial understanding of clients' immediate (discharge) and long-term (follow-up) mental health outcomes associated with the use of IPC in a mental health setting. Furthermore, this study hoped to identify the percentage of clients returning to a normal range of mental health functioning in order to establish initial understanding of the clinical significance of IPC in clients' mental health outcomes. Client and program characteristics were also of interest to provide context to outcome findings, to elucidate common characteristics of clients receiving IPC, and to demonstrate the methodological thoroughness needed in IPC research.

Hypotheses

Several factors suggest the potential benefit stemming from the use of IPC in health service delivery. With regard to mental health specifically, research investigating the use of collaborative care models in mental health has reported associated improvements in clients' symptoms, though largely with depression (Gilbody et al., 2006; Katon et al, 1996; Katon et al., 1997; Katon et al., 2010a; Katon et al., 2010b; McCracken et al., 2005; Skultety & Zeiss, 2006; Unützer, 2002; Vera et al., 2010), suggesting the potential effectiveness of collaboration between health professionals in mental health settings. In addition, research demonstrating an increased treatment response in clients with more severe disorder treated with various collaborative care approaches (Craven & Bland, 2006; Haggarty et al., 2008; Katon et al., 1996; Katon et al., 1997) may bode well for the use of IPC in the treatment of more severe and comorbid disorder. Collaborative care research has also demonstrated the maintenance of client gains as long as 12 months post-discharge (Gilbody et al., 2006; Hunkeler et al., 2006), suggesting the potential for maintenance of treatment outcomes over time. It is hypothesized that utilization of the IPC model in the provision of mental health services will result in positive mental health outcomes

for clients, through a statistically significant improvement in symptoms and functioning from intake to discharge and from treatment planning to discharge. Furthermore, it is hypothesized that clients will demonstrate reductions in symptoms and functioning difficulty during the course of treatment that meet criteria for clinically significant treatment outcomes, with some clients achieving non-clinical (i.e., normal) symptoms and functioning at discharge. Secondly, for the follow-up portion, it is hypothesized that clients will maintain their symptoms and functioning outcomes up to one year post-discharge.

Method

With consideration of the outlined shortcomings in methodology often found in the collaborative care literature, this study strived to exemplify the specificity necessary to appropriately delineate the methodology of research investigating health service provision through a collaborative care model such as IPC.

Setting

Research was conducted with data stemming from former clients of the IPC team at St. Joseph's Care Group's (SJCG) Mental Health Outpatient Program (MHOP), located in Thunder Bay, Ontario. MHOP provided referral-based secondary care to urban and rural adults. Treatment was provided with a team of health professionals operating under the IPC model that was concordant with the conceptualization of IPC outlined by HFO (2007; 2010) described above. The IPC team was composed of a psychologist, a social worker, a recreational therapist, an occupational therapist, a dietician, and a nurse. Over the seven years the program operated, each profession experienced turnover, leaves of absence, and the inclusion of various student providers completing practicum placements. Treatment through the IPC team also offered clients

access to group therapy, and depending upon their concerns, a chronic pain management program, a dialectical behaviour therapy group, and an anxiety management group.

All clients were required to have a family physician or psychiatrist for medication management while in the program, establishing a baseline of medication support. As this study is interested in the psychotherapeutic effects of IPC rather than any pharmacotherapy impacts, and because all clients received appropriate support in this realm of care, appointments for medication management with psychiatry and medicine were not included in the present study.

IPC Intervention

The health professionals in the team collaborated with one another and with the client throughout all stages of treatment and developed an evolving treatment plan around each client's identified needs, resulting in client-centred and collaborative care throughout treatment. The IPC team was oriented toward addressing more severe and comorbid disorder, and the associated range of affected functioning. As such, the team provided services from a recovery orientation and facilitated client strivings toward improved functioning and overall existence regardless of symptom experience. Treatment consisted of one to three weekly sessions with clients, depending on their treatment plan, initially set for a period of 6 months, at which time clients were assessed for discharge or continued treatment.

Intake. Clients were referred to MHOP through a physician, a mental health or social service provider, or self-referral. At intake, clients were assessed by a clinician and given the option of individual or IPC treatment, as well as a description of the intervention approach offered by the IPC team. Admission to IPC was also based on need and the estimated potential benefit to each client from receiving coordinated care from more than one health profession. Clients were excluded from the program if in need of emergency care, intensive case

management, marital counselling, if the referral was a third party assessment, or if consent could not be obtained. Initially clients were assigned to the IPC team based on their presenting symptoms, with the team focused toward treating clients with addiction and chronic pain disorders. This practice was eventually discontinued in response to the number of clients presenting with comorbid mental health and addiction issues.

Orientation. Following intake and assignment to the IPC team, clients attended an orientation session that described the concept of IPC, the structure of treatment, confidentiality, expectations of the client, as well as psychoeducation on the stages of change, more severe mental disorder, and goal setting. Clients were assigned homework to identify potential goals and entered the waitlist for treatment.

Treatment planning. At clients' next meeting, each client collaborated with the IPC team to delineate the client's desired treatment goals, establish a personal treatment plan oriented toward goal attainment, and to coordinate services to best facilitate goal attainment. In delineating treatment goals, the team assisted in translating client-identified areas of desired change into 1 to 4 practical goals based upon the RUMBA format; an acronym for realistic, understandable, measureable, behavioural, and achievable goals. The team and client collaboratively identified the team members and services needed to facilitate goal attainment, and the team then coordinated their services to provide a seamless and comprehensive intervention. This process resulted in the collaborative construction of a treatment plan that was oriented toward each client's identified needs and goals and directive of the care provided by each member of the team. The creation of individualized treatment goals facilitated collaboration between the client and the team and has been proposed to increase clients' investment in

treatment (McLoughlin & Geller, 2010), allowing clients to strive toward personally meaningful areas of desired change.

Progress evaluation and goal review. After 3 months of treatment, each client met with the IPC team to evaluate progress and treatment response, and to collaboratively adjust or create new goals if necessary. This ongoing individualized and collaborative process is consistent with McLoughlin and Geller's (2010) conceptualization of an active treatment plan as "an individually focused 'road-map', meaningful to the patient that allows all members of the team to evaluate the attainment of goals and the effectiveness of interventions, and modify them accordingly" (p. 263).

Discharge. Clients' progress and goal attainment was assessed again at 6 months to determine applicability for discharge or continued treatment . Referral to other MHOP or other community mental health services was made available at this time.

Participants

Participants included former clients of MHOP's IPC team with an intake date after January 1, 2005, and a discharge date before March 31, 2012. Retrospective database analysis was conducted with data stemming from 183 former clients, consisting of 72 males (39%) and 111 females (61%), ranging from 18 to 63 years of age ($M = 42.17$, $SD = 11.16$). At the time of intake, 69% of clients were single and 31% had a partner. Treatment was oriented toward clients with chronic pain (89%), and clients presented with a range of self-reported comorbid symptoms including depressive mood (74%), anxiety (65%), drug and alcohol issues (22%), posttraumatic stress disorder (13%), bipolar disorder (10%), obsessive compulsive disorder (10%), personality disorders (10%) bereavement (9%), eating disorders (9%), attention-deficit hyperactivity disorder (7%), and neurological disorder (3%). With regard to functioning at intake, clients'

global assessment of functioning (GAF) scores ranged from 25 to 80 (n = 141, M = 45.84, SD = 9.71) and 79% of clients were unemployed and not in school while 19% were employed or enrolled in school. Of these clients, 134 had complete treatment planning and discharge BASIS-32 scores and were eligible for inclusion in the assessment of the clinical significance of treatment outcomes.

Eligible participants for prospective follow-up consisted of all former clients of the IPC team that were included in the retrospective database analysis, resulting in clients with varying intake and discharge dates, and thus at different years post discharge. These eligible participants were contacted by telephone to give consent for participation, with 51 participants giving consent for follow-up. Of those 51, 9 returned the necessary materials and were included in the follow-up analysis, consisting of 4 males and 5 females, ranging from 24 to 61 years of age (M = 41, SD = 14.43). The length of time between discharge BASIS-32 administration and follow-up administration ranged from 8 to 55 months (M = 34, SD = 16.34).

Treatment Characteristics

The number of appointments scheduled, attended, and missed varied widely across the sample (N = 174). Between treatment planning and clients' final BASIS score near discharge, clients were booked for an average of 23 appointments (SD = 21.60, range: 1–106), attended an average of 19 appointments (SD = 19.39, range: 0–93); and missed an average of 4 booked appointments (SD = 4.27, range: 0–25).

Measures

Behavior and Symptom Identification Scale-32 (BASIS-32). The BASIS-32 (Eisen, Grob, & Klein, 1986) is a 32-item self-report measure in which individuals rate the level of difficulty they have had over the past week with various behaviours and symptoms that are

relevant to functioning. Each item is rated on a 5-point scale ranging from 0 (no difficulty) to 4 (extreme difficulty). The measure produces five subscales assessing difficulty in functioning (relation to self and others, daily living and role functioning) and difficulty with symptoms (depression and anxiety, impulsive and addictive behaviour, psychosis), as well as an overall score of difficulty with symptoms and behaviour (total). Clients' raw scores for each of the six subscales are converted to *t*-scores to allow for identification of the clinical severity of clients' difficulty.

The BASIS-32 provides an opportunity to measure clients' symptoms as well as their general level of functioning, where assessment of clients' symptoms alone may not accurately represent the range functioning potentially affected by IPC, client recovery in more severe and comorbid mental disorder, or the clinical significance of clients' outcome. As such, the BASIS-32 achieves a balance between acknowledging the importance of symptom assessment and consideration of those areas of functioning that are important to understanding clients' functioning.

The full scale BASIS-32 (i.e., BASIS total) has demonstrated high internal consistency reliability of 0.95 in an outpatient population (Eisen, Wilcox, Leff, Schaefer, & Culhane, 1999). Past research has reported internal consistency reliability estimates in outpatient mental health samples: relation to self and others, 0.89; daily living and role functioning, 0.88; depression and anxiety, 0.87; psychosis, 0.66; and impulsive and addictive behaviour, 0.65. In addition, the measure has demonstrated sensitivity to client changes in functioning and symptoms over time in an outpatient population (Eisen, et al., 1999) and has demonstrated the ability to detect clinically significant change in clients (Jerrell, 2005). In working with a sample experiencing more severe mental disorder, there is the potential for increased ceiling effects stemming from extreme

difficulty with symptoms and functioning, however the BASIS-32 has not demonstrated ceiling effects in past research with an outpatient sample (Jerrell, 2005).

Modified BASIS-32. A modified version of the BASIS-32 was used for the prospective follow-up portion of the research. This scale was modified to remove item 18 which assessed difficulty with suicidality ("to what extent are you experiencing difficulty in the area of suicidal feelings or behaviour"). This item was removed due to the anonymous nature of the follow-up assessment, where it would not be possible to follow due diligence and contact the participant in a situation of expressed suicidality.

Client Information Form. Relevant demographic information included participants' age, sex, and marital status. MHOP's Client Information Form (see Appendix B) used at intake provided information pertaining to clients' psychosocial history and functioning at intake, including presenting self-report mental health issues, psychotropic medication use, clinician-rated GAF score at intake, and employment or academic enrolment.

Appointment scheduling data. Program operation data demonstrating each clients' attendance was collected to in order to examine treatment adherence and contextualize clients' treatment outcomes. Data included the number of appointments scheduled, attended, and missed for each client.

Follow-Up Questionnaire. Clients' psychosocial functioning post-discharge was assessed to provide contextual information and consisted of an abbreviated version of the MHOP intake Client Information Form (see Appendix C).

Procedure

Ethical approval to conduct this research was attained through the Research Ethics Boards of St. Joseph's Care Group and Lakehead University.

Retrospective database analysis. Retrospective analysis of former client data was conducted in order to identify the general course of symptoms and functioning in clients with more severe and comorbid mental disorder when treated through IPC, and to determine if any significant differences exist in these scores between intake, treatment planning, and discharge. Retrospective database analysis examined former clients' scores on the BASIS-32, which was administered at the intake session, the treatment planning session, and nearing discharge (referred to as discharge in the present study); demographic information was collected at intake using the MHOP Client Information Form; and clients' scheduling data was recorded for every session by the IPC team member providing services, identifying whether the client attended or failed to attend each session. This data was entered into each client's electronic medical record contained in the Medical Information Technology system (MEDITECH) shared by regional health care providers.

Prospective follow-up assessment. Prospective follow-up of former clients' current symptoms and functioning was conducted to identify the long-term outcomes of clients with more severe and comorbid mental disorder when treated through IPC to identify the maintenance of treatment outcomes after varying periods of time post-discharge. Former clients included in the retrospective database analysis were contacted by telephone to obtain consent to be contacted by mail in order to administer the follow-up assessment. Former clients that gave consent were then mailed a package containing a letter of information, a research letter, and a list of mental health resources available in Thunder Bay (see Appendix D), as well as the Modified BASIS-32 and the Follow-Up Questionnaire. Potential participants were asked to return only the two questionnaires, which had been coded to increase anonymity. The introductory letter outlined the reason the client was being contacted and the voluntary nature of the research, while the research

letter explained the purpose of the research, the potential use of any results, consent, confidentiality, and instructions on how to complete the necessary materials. In lieu of having clients return a consent form, consent was assumed by the completion and return of the BASIS-32 and follow-up questionnaire to maintain anonymity. Due to the elimination of item 18 in the Modified BASIS-32, assessing suicidal feelings and behaviours, each client's average score on the remainder of the follow-up BASIS-32 items was substituted for this missing value.

Results

Analytic Strategy

Multilevel modeling. Multilevel modeling (MLM) was utilized to assess the statistical significance of clients' treatment outcomes through examination of the repeated measurement of clients' symptoms and functioning over the course of treatment through the IPC model, as well as the long-term outcomes of clients after varying years post-discharge, within the constraints and limitations of the data. MLM is appropriate for data with a hierarchical structure, where lower levels of observation are organized by nesting within a higher level of organization or grouping (Tabachnick & Fidell, 2007). Data in the present study was best represented by a two level model (Figure 1), where the time points of the repeated measurement of the BASIS-32 (level 1) was nested within the individual client (level 2).

MLM accounts for several issues that can arise due to violation of any of the assumptions of a repeated measures ANOVA procedure. Past research has cited these benefits and recommended repeated-measures MLM over ANOVA when working with real-world data, as MLM results in greater power (Quené & van den Bergh, 2004).

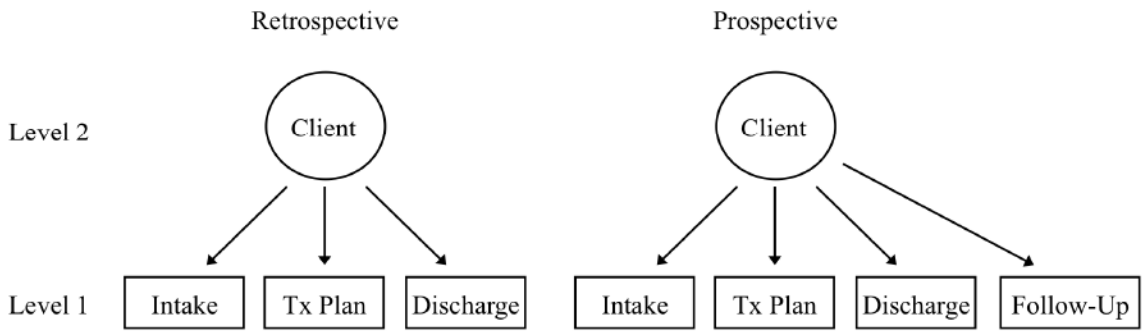

Figure 1. Two-level repeated measures MLM conducted for each subscale of the BASIS-32 during retrospective and prospective analyses.

Assumptions of independence and sphericity. In the assumption of independence, individual cases of data are assumed to be independent from one another. This assumption is violated by the repeated measurement of the same individual over time. It follows that, where the assumption of sphericity assumes equal covariances among participants' scores, observations from the same individual have the potential to violate sphericity (Tabachnick & Fidell, 2007), as assessments that are closer in time may be more similar to one another (e.g., intake and treatment planning BASIS-32 scores) than assessments further apart in time (e.g., intake and discharge BASIS-32 scores). MLM is able to address these violations by accounting for correlated cases caused by a second level factor, in this case the individual client. Repeated measures MLM requires the specification of the covariance structure present in the data, and offers several possible structures (Field, 2009). An autoregressive covariance structure, AR(1), was used as it operates from the assumption that points of assessment closer in time will be more highly correlated and it is traditionally recommended in repeated-measures MLM designs (Field, 2009).

Missing data. With regard to missing cases of data, listwise and pairwise deletion were inappropriate due to the number of missing cases at intake (n = 52), treatment planning (n = 5), and discharge (n = 47), and the resulting loss of data and potential biasing of any findings toward

clients with complete data. MLM allows for the use of techniques in order to estimate missing values based on available data, and the current study used a maximum likelihood solution as it did not assume complete data in order to run the analysis (Howell, 2008). This solution accounted for missing data by using the maximum likelihood method of estimation and creating multiple iterations of the missing values using available data, and because it allowed for successive comparison of a model's fit to the data as new parameters were entered into the model (Field, 2009).

An important assumption of MLM is that data are missing at random, where the pattern of missing data is not predictable from the existing data. Data in the present analysis was not found to be significantly predictable using Little's missing completely at random test ($p > .05$), thus satisfying the assumption that data is missing at random.

Fixed and random effects. As addressed by Field (2009), in most statistical analyses it is assumed that the values of the parameters are fixed and that a consistent slope and intercept do not change between different times of assessment, allowing for prediction. In contrast to these fixed parameters, MLM does not hold this assumption and instead allowed for random parameters, where slopes and intercepts could have varied between times of assessment. Parameters were first entered into the MLM with the assumption that they were random. If this was an inaccurate representation of the data, then the model's iterative procedure failed to converge (i.e., did not fit the data). MLM attempted to calculate the parameter values for each model by calculating consecutive estimations of these values until the estimates began to become very similar; this is where the estimates of the parameters converged. If the model failed to converge with a random slope or random intercept, the iterative parameter estimates were very different and the parameters were then tried as fixed values.

Each MLM began with the null model, containing time of assessment as the only parameter. For each of the BASIS-32 subscale multilevel models, time of assessment was initially assumed to be random and entered into the model as a random effect. For every subscale where time of assessment was specified as a random effect the model failed to converge, meaning this parameter was more appropriate as a fixed effect for all models run in the present analysis. Furthermore, age and sex were conceptually fixed effects (i.e., would not vary over time), and thus were also entered into the model as fixed effects.

Clinical significance of treatment outcomes at discharge. Assessment of the clinical significance of clients' treatment outcomes was conducted in order to better understand the clinical impact of IPC on clients' symptoms and functioning and to identify the number of clients experiencing clinically significant treatment outcomes associated with IPC. Research has reported that the BASIS-32 is sensitive enough to detect clinically significant change in some of its subscales (relation to self and others, daily living, and depression and anxiety) in a population with more severe mental disorder (Jerrell, 2005), suggesting the potential utility of the measure in assessing clinical significance in this population. There are several ways of defining clinically significant client outcomes, with proposed approaches to its determination depending upon available functional and dysfunctional norms for a given measure (Jacobson & Traux, 1991). A clinically significant treatment outcome is generally defined as (1) a return to normal functioning for the client at discharge, where clients are assumed to generally expect to return to a pre-disorder state by the end of treatment, which is operationalized as (2) a discharge score that falls 2 standard deviations (SD) above a dysfunctional population mean (Jacobson, Follette, & Revenstorf, 1984). This initial definition was used in the present study, while the second was

modified in order to account for the more severe and comorbid presenting disorder in the present study's sample.

First, the return to normal criterion was utilized to examine clinical significance, where clients that demonstrated a move from a clinical range at treatment planning to non-clinical (i.e., normal) range at discharge were conceptualized as demonstrating a clinically significant outcome. The BASIS-32 defines ranges of *t*-score values based on the degree of difficulty clients are reporting for each symptom and functioning subscale, with the primary distinction between non-clinical ($t <= 59$) and clinical ($t >= 60$) ranges of difficulty. In the present study, clients who moved from the clinical ($t >= 60$) to the non-clinical ($t <= 59$) range were classified as experiencing clinically significant change. Those clients who moved from a non-clinical to a clinical range were classified as clinically significant deterioration. Clients who did not move from one range to another were classified as experiencing no clinically significant change. The non-clinical range is further divided between minimal difficulty ($t <= 50$) and mild difficulty ($t = 51 – 59$), while the clinical range is divided between moderate difficulty ($t = 60 – 64$) and severe difficulty ($t >= 65$). The present study also investigated how clients moved within these sub-ranges.

The present study also used a modified version of the 2 SD normative change criterion to account for the pathology of the sample. In the treatment of transitory disorder in otherwise healthy clients, an expected treatment outcome is the return to a normal level of functioning after a course of treatment. In the treatment of more severe and comorbid mental disorder, however, it has been suggested that the return to normal functioning criterion and the 2 SD normative change criterion are unrealistic, owing to the higher degree and complexity of disorder (Wise, 2004). An inappropriately conservative criterion may fail to capture meaningful clinical outcomes

experienced by clients that remain within a disordered level of symptoms and functioning at discharge, and thus do not meet the return to normal criterion. To account for this potential difficulty, past research has suggested the use of a 1 SD change criterion to represent improved symptoms and functioning (i.e., recovery) at discharge (Wampold, 2001; Wise, 2004). As such, the present study included a second definition of clinical significance to consist of clients that demonstrated a reduction of 10 points (i.e., 1 SD) or more in their BASIS-32 score between treatment planning and discharge, even though such clients may remain within a clinical range. Clients who experienced an increase of 10 points or more were classified as experiencing clinically significant deterioration, and clients who did not demonstrate a 10 point (or more) change were classified as nonresponsive.

Clinical significance of treatment outcomes at follow-up. Due to a low response rate, follow-up assessment was limited to an examination of the clinical significance of clients post-discharge outcomes. Former clients' BASIS-32 subscale scores at follow-up were compared to their scores at discharge in order to assess the proportion of clients that experienced clinically significant maintenance of treatment outcomes, deterioration, or improvement since discharge according to the two criteria outlined above. In the context of follow-up assessment, maintenance of treatment associated improvement post-discharge was of primary interest.

Data Preparation

The presence of potential outliers in the data was initially examined visually using box and whisker plots. Cases beyond the upper and lower extremes were standardized and compared to a criterion of $z > 3$, representing an outlier. No cases exceeded the criterion. Normality was assessed through examination of the skewness and kurtosis of the data. These properties were assessed by transforming their values to z-scores using the following formulas:

$$z_{\text{skewness}} = (\text{S} - 0)/SE_{\text{skewness}}$$

$$z_{\text{kurtosis}} = (\text{K} - 0)/SE_{\text{kurtosis}}$$

where the traditional criterion of $z > 1.96$ denotes significant values of skewness and kurtosis, potentially requiring transformation (Field, 2009). However, Field cautions against using these criteria with large sample sizes as in the present study, as even small deviations from normality may result in significant values for skewness and kurtosis, making comparison to statistical criterion such as $z = 1.96$ inappropriate. As such, the value $z > 6$ was used as a criterion to identify skewness and kurtosis values requiring transformation. Each of the BASIS-32 subscale scores at intake, treatment planning, and discharge were assessed for skewness and kurtosis through both a visual examination of their distribution, as well as calculation of their standardized values. Most BASIS-32 subscale standardized values were below the stringent $z < 1.96$ criterion. Of those subscale scores that surpassed the $z < 1.96$ criterion, all were below the $z < 6$ criterion for distributions requiring a transformation.

Multilevel Modeling

For the retrospective database analysis six multilevel models were created, 1 for each subscale of the BASIS-32, to examine clients' change in symptoms and functioning over the course of treatment. In the prospective follow-up portion, another six multilevel models were created with the addition of the follow-up BASIS-32 administration time point at level 1 of the model.

Building the multilevel models. As outlined by Field (2009), when building each multilevel model, variables (i.e., parameters) were entered into the model individually in a stepwise manner in an attempt to better improve the fit of the model to the data by accounting for significantly greater amounts of variance. After the addition of a new parameter to the model,

any improvement in fit of this successive model was assessed by comparing the current model's -2 Log Likelihood (-2LL) value to the preceding model's -2LL value, where a smaller -2LL value following the addition of a parameter denotes an improvement in model fit (Tabachnick & Fidell, 2007). This change in the value of -2LL and the increased amount of variance explained was then assessed for statistical significance as follows (Field, 2009):

$$\chi^2\text{change} = (\text{-2 Log Likelihood}_{\text{OLD MODEL}}) - (\text{-2 Log Likelihood}_{\text{NEW MODEL}})$$

$$df\text{change} = (\text{Number of Parameters}_{\text{NEW MODEL}}) - (\text{Number of Parameters}_{\text{OLD MODEL}})$$

Parameters which significantly improved the model fit remained in the model, while those that did not were removed. When identifying parameters, Tabachnick and Fidell (2007) recommend building the model through the stepwise addition of a small number of predictors. In the present sample, several potentially informative predictors, such as diagnosis or presenting symptoms, were based on client self-report and thus deemed inappropriate for use due to the potential for inaccuracy. As such, beyond time of assessment (our main variable of interest), only age and sex were included as parameters in all of the multilevel models run in the present analysis and were included in order to attempt to better fit each model to the data.

This first model (the null model) contained time of assessment as the only parameter in order to address the primary research question of whether BASIS-32 scores significantly differ between times of administration. The initial step for each model was to determine whether time of assessment was a fixed or random effect, and it was initially entered as a random variable. However, every BASIS-32 subscale multilevel model failed to converge when time of assessment was specified as a random effect, meaning this parameter was more appropriate as a fixed effect. Subsequently, all of the multilevel models described in the present analysis were run with time of assessment entered as a fixed effect. Similarly, age and sex were conceptualized as

fixed effects and thus were also entered into the model as fixed effects. The process of building each multilevel model described below is further detailed in Table 1.

Following time of assessment, age was entered first into each model, with improvement in model fit assessed. If significant, age and sex were then added in a stepwise fashion to the model, and any further improvement in fit was assessed using the -2LL value. When age was not found to significantly improve model fit, it was removed from the model and sex was added to assess any improvement in model fit. The addition of age and sex as parameters was found to significantly improve the BASIS-32 total model's fit to the data, $\chi^2(1) = 3.97$, $p < .05$; the addition of age to the BASIS-32 depression and anxiety model significantly improved the model's fit to the data, $\chi^2(1) = 4.13$, $p < .05$; and the addition of sex as a parameter in the

Table 1

Multilevel Model Building Through Stepwise Addition of Parameters

	Time	Time + Age		Time + Age + Sex		Time + Sex	
BASIS-32	-2LL	-2LL	χ^2 (Δdf)	-2LL	χ^2 (Δdf)	-2LL	χ^2 (Δdf)
Total	3368.96	3360.45	8.51(1)**	3356.48	3.97(1)*		
Subscales							
Relation to Self/Others	3344.13	3340.82	3.31(1)			3341.61	2.52(1)
Daily Living	3330.15	3326.55	3.60(1)			3330.02	0.13(1)
Depression/ Anxiety	3380.01	3375.88	4.13(1)*	3373.39	2.49(1)	3378.20	1.81(1)
Impulsive/ Addictive	3561.00	3557.86	3.14(1)			3560.07	0.93(1)
Psychosis	3698.79	3697.25	1.54(1)			3692.57	6.22(1)*

Note. In cases where the Time + Age + Sex model is not included, the Time + Age model fit was not found to be significantly improved with the addition of the parameter, thus age was removed and sex was entered to assess improvement in model fit. Time = time of BASIS-32 assessment; -2LL = -2 Log Likelihood; Δdf = change in degrees of freedom between the current and prior model.

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

BASIS-32 psychosis model was found to significantly improve the model's fit to the data, $\chi^2(1) = 6.22$, $p < .05$. For all other models, entering the parameters of age and sex were not found to significantly improve the fit of the model beyond the null model's parameter of time of assessment.

Retrospective Database Analysis: Statistical Significance at Discharge

Descriptive information presented in Table 2 shows clients' mean BASIS-32 subscale scores at each time of assessment (intake, treatment planning, discharge) from the available database information, while Figure 2 demonstrates clients' decreased difficulty with symptoms and functioning between intake and discharge.

In order to identify the statistical significance of clients' change in difficulty with symptoms and functioning over the course of treatment, and to identify the significance of this change at discharge, six multilevel models were built (as shown in Table 1), with the BASIS-32 subscales as outcome variables. For all of the BASIS-32 subscales, a significant effect for time of administration was found, as clients reported significantly decreased difficulty with symptoms and functioning at discharge when compared to both intake and treatment planning sessions (Table 3). As addressed, age and sex contributed significantly to the model fit for some of the subscales. For the BASIS-32 total subscale, significant effects were found for age, $t(170.55) = 3.18$, $p < .01$, and sex, $t(175.05) = -2.01$, $p < .05$; a significant effect for age, $t(173.62) = 2.05$, $p < .05$, was found for the BASIS-32 depression and anxiety subscale; and a significant effect for sex, $t(177.99) = -2.53$, $p < .05$, was found for the BASIS-32 psychosis subscale.

Table 2

Average BASIS-32 Subscale Scores Across Treatment from Available Database Information

	M (*SD*)		
BASIS-32	Intake (*n* = 131)	Treatment Planning (*n* = 179)	Discharge (*n* = 137)
Total	78.28 (11.61)	74.61 (11.84)	67.08 (12.70)
Subscales			
Relation to Self/Others	74.44 (10.19)	71.51 (11.49)	65.48 (12.46)
Daily Living	74.00 (9.87)	73.39 (11.32)	66.93 (11.82)
Depression/Anxiety	80.80 (10.62)	77.69 (11.73)	69.30 (13.76)
Impulsive/Addictive	70.48 (16.16)	65.41 (14.62)	59.69 (14.32)
Psychosis	68.81 (18.64)	65.01 (17.41)	59.90 (15.54)

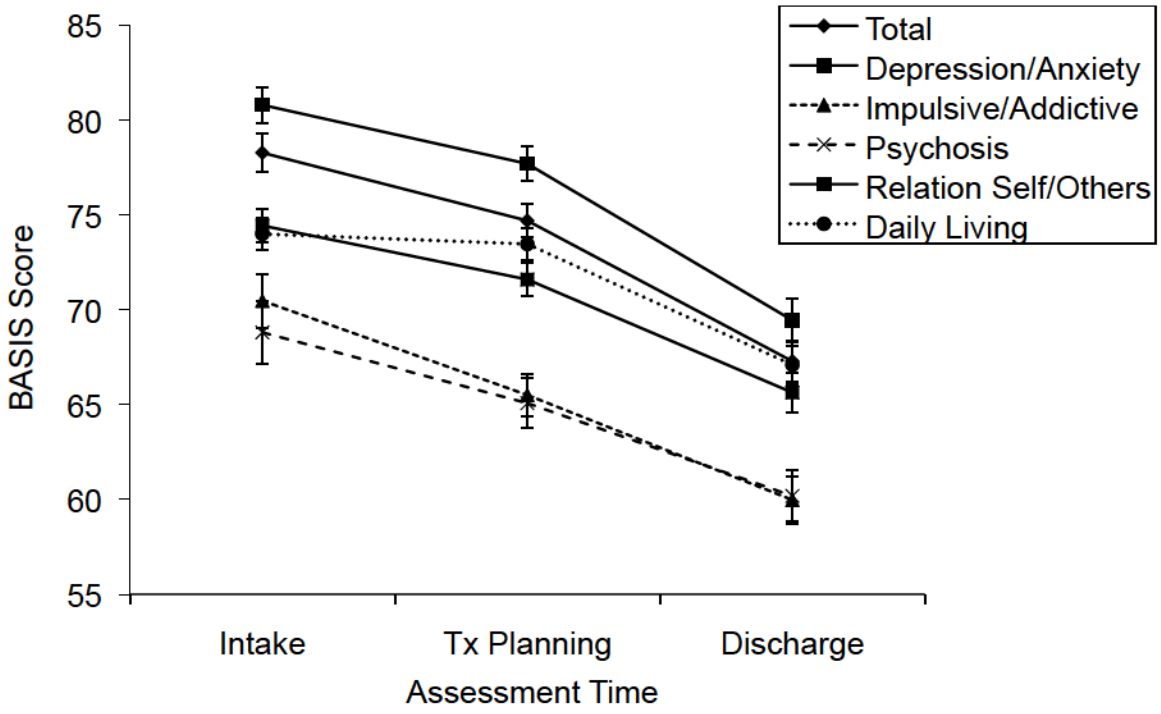

Figure 2. Mean BASIS-32 subscale scores over time demonstrating clients' reported decreased difficulty with symptoms over the course of treatment.

Table 3

Multilevel Modeling of Changes in BASIS-32 Subscale Scores Over Treatment

	Intake – Discharge				Tx Planning – Discharge			
BASIS-32	*Est*	*SE*	*df*	*t*	*Est*	*SE*	*df*	*t*
Total	11.50	1.19	183.10	9.67	7.63	.98	260.77	7.78
Subscales								
Relation Self/Others	9.39	1.24	389.55	68.10	6.40	.98	274.42	6.50
Daily Living	7.79	1.13	154.18	6.88	6.83	1.01	262.14	6.77
Depression/Anxiety	12.08	1.20	163.70	10.10	8.73	1.01	259.83	8.61
Impulsive/Addictive	10.06	1.44	156.55	6.97	5.15	1.21	258.13	4.26
Psychosis	8.01	1.71	150.00	4.68	4.65	1.47	261.53	3.16*

Note. All *t* values significant at $p < .001$ except where otherwise indicated. Est = Estimate, *SE* = Standard Error, *df* = degrees of freedom, *t* = t value.
* $p < .01$

Retrospective Database Analysis: Clinical Significance at Discharge

As outlined above, the BASIS-32 defined non-clinical ($t <= 59$) and clinical ($t >= 60$) ranges of *t*-scores, divided between minimal ($t <= 50$) and mild ($t = 51 – 59$) non-clinical ranges, and moderate ($t = 60 – 64$) and severe ($t >= 65$) clinical ranges. Table 4 provides an overview of the percentage of clients falling within these various ranges of difficulty at intake, treatment planning, and discharge. The BASIS-32 total scale approximates the subscales when viewing the percentage of clients falling within the various ranges of difficulty across treatment, and demonstrates a trend suggesting a shift toward less severe symptoms and functioning over the course of treatment and mirroring findings of statistical significance between intake and discharge and treatment planning and discharge. In the clinical ranges, progressively fewer clients reported severe symptoms and functioning over the course of treatment, while there was less variation in the percentage of clients with moderate symptoms and functioning between

Table 4

Percentage and Number of Clients Reporting Varying Ranges of Difficulty with Symptoms and Functioning Across Treatment

	Non-Clinical Difficulty		Clinical Difficulty	
BASIS-32	Minimal (t <= 50)	Mild (t = 51–59)	Moderate (t = 60–64)	Severe (t >= 65)
Total				
Intake	0.8 (1)	2.3 (3)	9.2 (12)	87.8 (115)
Tx Planning	1.1 (2)	9.0 (16)	10.7 (29)	79.2 (141)
Discharge	14.0 (19)	14.7 (20)	11.0 (15)	60.3 (82)
Subscales				
Relation to Self/Others				
Intake	2.3 (3)	3.1 (4)	13.0 (17)	81.7 (107)
Tx Planning	4.5(8)	13.5 (24)	11.2 (20)	70.8 (126)
Discharge	14.0 (19)	16.9 (23)	14.7 (20)	54.4 (74)
Daily Living				
Intake	1.5 (2)	6.9 (9)	9.2 (12)	82.4 (108)
Tx Planning	2.2 (4)	10.7 (19)	9.6 (17)	77.5 (138)
Discharge	10.3 (14)	18.4 (25)	11.8 (16)	59.6 (81)
Depression/Anxiety				
Intake	0.0 (0)	2.3 (3)	4.6 (6)	93.1 (122)
Tx Planning	2.2 (4)	10.7 (5)	9.6 (21)	77.5 (148)
Discharge	10.3 (14)	15.4 (21)	11.8 (16)	62.5 (85)
Impulsive/Addictive				
Intake	13.7 (18)	19.1 (25)	6.9 (9)	60.3 (79)
Tx Planning	14.6(26)	29.8 (53)	11.8 (21)	43.8 (78)
Discharge	36.8 (50)	23.5 (32)	9.6 (13)	30.1 (41)
Psychosis				
Intake	22.9 (30)	13.7 (18)	4.6 (6)	58.8 (77)
Tx Planning	27.5 (49)	16.9 (30)	7.9 (14)	47.8 (85)
Discharge	36.8 (50)	23.5 (32)	3.7 (5)	36.0 (49)

Note. Intake (n = 131), treatment planning (n = 178), discharge (n = 136).

treatment planning and discharge. In the non-clinical ranges, clients increasingly reported both minimal and mild symptoms and functioning over the course of treatment, with only the mild range of the impulsive and addictive behaviour symptom subscale deviating from this pattern. To better understand these suggested trends, the direction and amount of change in clients' BASIS-32 scores between treatment planning and discharge was calculated to identify the percentage of

clients demonstrating clinically significant improvement, clinically significant deterioration, no clinically significant change (nonresponse) over the course of treatment.

Two criteria were used to define clinically significant IPC client outcomes for the BASIS-32, including (1) a return to normal criterion, where clinically significant change was represented by moving in or out of a non-clinical range of symptoms and functioning between treatment planning and discharge as well as (2) a 1 SD *t*-score change criterion, where a clinically significant change was represented by a 1 SD (10 point) or greater change in *t*-score between treatment planning and discharge.

Return to normal criterion. Using the return to normal criterion, clinically significant improvement was defined as moving from a clinical range ($t >= 60$) at treatment planning to a non-clinical range ($t <= 59$) at discharge, clinically significant deterioration was conversely defined as moving from a non-clinical range at treatment planning to a clinical range at discharge, and nonresponse was defined as clients that maintained either a non-clinical or clinical range between treatment planning and discharge (Table 5). To note, nonresponse categories define clients as remaining within the same range over the course of treatment regardless of any amount of within-range change in their *t*-scores. In addition, where the BASIS-32 assesses difficulty with symptoms and functioning, an increased *t*-score represents increased difficulty and a decreased *t*-score represents decreased difficulty.

In general, the BASIS-32 total scale approximated improvement, deterioration, and nonresponse rates for the symptom and functioning subscales, with some deviation in the impulsive and addictive behaviour and psychosis symptoms subscales. As such, these results are presented in detail below. With regard to clinically significant improvement associated with IPC, the BASIS-32 total scale demonstrated that 23.9% of clients satisfied criteria for a return to a

Table 5

Clinical Significance Return to Normal Criterion: Percentage of Clients Demonstrating Improvement, Deterioration, and Nonresponse

Outcome	BASIS-32 Total	BASIS-32 Subscales (*n*)				
		Relation	Daily Living	Dep/Anx	Impulse/ Addict	Psychosis
CS Improvement: Clinical to Non-Clinical	23.9 (32)	21.6 (29)	22.4 (30)	23.1 (31)	20.9 (28)	26.9 (36)
CS Deterioration: Non-Clinical to Clinical	3.0 (4)	6.0 (8)	3.0 (4)	0.0	6.0 (8)	12.7 (17)
Nonresponse: Clinical	67.9 (91)	62.7 (84)	67.9 (91)	73.9 (99)	33.4 (45)	26.1 (35)
Nonresponse: Non-Clinical[a]	5.2 (7)	9.7 (13)	6.7 (9)	3.0 (4)	39.5 (53)	34.3 (46)

Note. CS = Clinically significant.

normal level of symptoms and functioning over the course of treatment, with an average *t*-score decrease of 19.1 (*SD* = 10.01, range: -3 – -38). Comparable rates of improvement were found for the BASIS-32 symptom and functioning subscales, with a high of 26.9% for psychosis symptoms and a low of 20.9% for impulsive and addictive behaviours. For deterioration associated with IPC, the BASIS-32 total scale demonstrated that 3.0% of clients moved from a non-clinical range at treatment planning to a clinical range at discharge, with an average *t*-score increase of 14 (*SD* = 14.38, range: 3 – 35). This approximated deterioration rates for the symptom and functioning subscales other than psychosis symptoms, which had a higher deterioration rate of 12.7%. Finally, nonresponse to treatment was assessed. The BASIS-32 total scale demonstrated that 67.9% of clients remained within the clinical range for symptoms and functioning over the course of treatment (*M* = 5.38, *SD* = 9.03, range: -31 – 15), while 5.2% of clients remained within a non-clinical range. These findings again approximated nonresponse rates for the symptom functioning subscales other than impulsive and addictive behaviours and

psychosis symptoms, where comparatively fewer clients remained in the same clinical range and more clients remained in the same non-clinical range over the course of treatment.

1 SD *t*-score change criterion. Utilizing the 1 SD change criterion, significant change was represented by a change of 10 or more in clients' BASIS-32 *t*-scores between treatment planning and discharge. Where the BASIS-32 assesses difficulty with symptoms and functioning, improvement was represented by a *t*-score decrease of 10 or more, deterioration was represented by a *t*-score increase of 10 or more, and nonresponse categorized clients that demonstrated a *t*-score change less than 10 between treatment planning and discharge (Table 6).

The BASIS-32 total scale scores approximated the symptom and functioning subscale scores for improvement, deterioration and nonresponse, again with some exceptions for the impulsive and addictive behaviours and psychosis subscales. With regard to clinically significant improvement associated with IPC, 41.8% of clients demonstrated improved symptom and functioning (M =-18.84, SD = 7.64, range: -10 – -38), and of this group 19.4% moved from a clinical to a non-clinical range and 22.4% demonstrated less severe clinical symptoms and functioning at discharge. The largest clinically significant improvement was reported for depression and anxiety symptoms (41.8%) while the lowest was for impulsive and addictive behaviour symptoms (30.6%). With regard to clinically significant deterioration associated with IPC, 3.0% of clients deteriorated in symptoms and functioning. This proportion was comprised of clients that moved into a clinical range of symptoms and functioning, and clients that reported more severely clinical symptoms and functioning over the course of treatment. The greatest deterioration was reported for psychosis symptoms (15.7%) and the lowest for relation to self and others (3.7%). Finally with respect to nonresponse to IPC, 55.2% of clients reported a *t*-score change of less than 10 for symptoms and functioning over the course of treatment. This was

Table 6

Clinical Significance 1 SD Change Criterion: Percentage of Clients Demonstrating Improvement, Deterioration, and Nonresponse

		BASIS-32 Subscales (*n*)				
Outcome	BASIS-32 Total	Relation	Daily Living	Dep/Anx	Impulse/ Addict	Psychosis
Total Clinically Significant Improvement	41.8 (56)	35.8 (48)	41.0 (55)	41.8 (56)	30.6 (41)	33.6 (45)
Clinical to Non-Clinical	19.4 (26)	18.7 (25)	20.9 (28)	20.1 (27)	19.4 (26)	25.4 (34)
Decreased Clinical[a] (*t* >= 60)	22.4 (30)	17.2 (23)	18.7 (25)	21.6 (29)	9.0 (12)	8.2 (11)
Increased Non-Clinical[b] (*t* <= 59)	0.0	0.0	1.5 (2)	0.0	2.2 (3)	0.0
Total Clinically Significant Deterioration	3.0 (4)	3.7 (5)	6.0 (8)	4.5 (6)	8.2 (11)	15.7 (21)
Non-Clinical to Clinical	1.5 (2)	3.0 (4)	3.0 (4)	0.0	4.5 (6)	11.9 (16)
Increased Clinical[c] (*t* >= 60)	1.5 (2)	0.7 (1)	3.0 (4)	4.5 (6)	3.7 (5)	3.7 (5)
Total Nonresponse ($\Delta t < 10$)	55.2 (74)	60.4 (81)	53.0 (71)	53.7 (72)	61.2 (82)	50.7 (68)
Maintained Clinical Range	44.8 (60)	46.3 (62)	46.3 (62)	47.8 (64)	20.9 (28)	14.2 (19)
Maintained Non-Clinical Range	4.5 (6)	9.7 (13)	5.2 (7)	3.0 (4)	36.6 (49)	34.3 (46)
Clinical ↔ Non-Clinical[d]	6.0 (8)	4.5 (6)	1.5 (2)	3.0 (4)	3.7 (5)	2.2 (3)

Note. $n = 134$. Δt= *t*-score change between treatment planning and discharge.
[a]Clients with *t*-scores that dropped by 10 or more but remained in a clinical range at discharge. [b]Clients with *t*-scores that dropped by 10 or more who were already in a non-clinical range at treatment planning. [c]Clients in a clinical range at treatment planning with *t*-scores that increased by 10 or more at discharge. [d]Clients that moved between the clinical and non-clinical ranges between treatment planning and discharge but with *t*-scores that changed by less than 10.

comprised largely of clients that maintained a clinical level of symptoms and functioning (44.8%), as well as by clients that maintained a non-clinical range (4.5%) and that moved between the cut-off for clinical and non-clinical symptoms (6.0%) though did not demonstrate a large enough *t*-score change to meet criterion for significance. The highest nonresponse was

reported for impulsive and addictive behaviours (61.2%), while the lowest rate of nonresponse was for psychosis symptoms (50.7%).

Prospective Follow-Up: Clinical Significance

Clients were eligible for the follow-up if (1) they were discharged from IPC, (2) had up-to-date contact information, and (3) provided initial verbal consent to participate in the follow-up. From the 183 clients who were discharged from IPC, 51 had current contact information and provided initial consent to be mailed a follow-up package, 124 clients were not reached due to out-of-date contact information, and 8 clients declined to receive the follow-up package. Of the 51 follow-up packages that were mailed to clients, 9 were returned, resulting in a 17.6% return rate. This portion of the research is considered a pilot study in order to inform potential findings and to identify the feasibility of future attempts at outpatient follow-up assessment. Due to the small number of participants, statistical analyses were not conducted with the data. however, the data were examined to identify trends.

Of interest was the proportion of clients that reported maintained improvement in symptoms and functioning at follow-up that was originally achieved over the course of treatment (maintained improvement). The proportion of former clients that experienced a deterioration of IPC-associated improvement in symptoms and functioning at follow-up was also assessed, as well as the maintenance of any IPC-associated deterioration at follow-up (deterioration). Finally, follow-up looked at those clients that maintained a nonresponse to treatment at follow-up (nonresponse). Table 7 demonstrates a split between post-discharge maintained improvement and deterioration for the BASIS-32 subscales. Only one client demonstrated deterioration on each of the BASIS-32 subscales and, although this client was at one of the furthest points post-discharge (52 months), any relationship between length of time post-discharge and long-term

Table 7

Number of Former Clients Reporting Maintained Improvement, Deterioration, and Nonresponse at Follow-Up

BASIS-32	Maintained Improvement	Deteriorated	Nonresponse
Total	4	4	1
Subscales			
Relation to Self/Others	5	3	1
Daily Living	5	3	1
Depression/Anxiety	3	4	2
Impulsive/Addictive	4	4	1
Psychosis	3	5	1

Note: $n = 9$.

outcome was not evident when viewing the available data. With regard to clients' general symptom experience and functioning, reported mental health problems since discharge varied between "ongoing" and "occasional," 2 clients were employed, and affected daily functioning was described as "unaffected," "mild," "moderate," and "serious." Six former clients reported receiving post-discharge mental health services from a professional, while emergency service within the past 12 months ranged from no use or 2 crisis response calls to multiple presentations to the emergency room for one client.

Discussion

The purpose of the present study was to investigate the practice-based effectiveness of IPC and contribute to the evidence base for IPC in the treatment of mental disorder. Specifically of interest was the statistical and clinical significance of client outcomes associated with the use IPC in an outpatient mental health setting through assessment of clients' symptoms and functioning over the course of treatment and at varying times post-discharge. In addition, where past collaborative care research has largely focused on depression, treatment was oriented toward

addressing more severe and comorbid mental disorder, where the increased holism available through IPC has intuitive appeal for complex pathology.

Clients' IPC Outcomes at Discharge

Statistical significance. The initial hypothesis of this study predicted that clients would experience a significant decrease in symptoms and functioning difficulty over the course of treatment, assessed through a comparison of clients' self-reported difficulty with symptoms and functioning at intake, treatment planning, and discharge. Findings supported this prediction, as clients demonstrated significantly decreased symptoms and functioning difficulty between intake and discharge. However, because this span of time included the waitlist period between intake and treatment planning, assessment of the period of time between treatment planning and discharge was necessary to identify any change in symptom and functioning difficulty associated with IPC. As predicted, findings indicated that clients reported significantly decreased symptoms (depression and anxiety, impulsive and addictive behaviours, psychosis) and functioning difficulty (relation to self and others, daily living responsibilities) between treatment planning and discharge, suggesting that clients experienced a significant improvement in their symptoms and functioning associated with IPC. The greatest amount of change occurred between treatment planning and discharge, suggesting improvement beyond a waitlist response.

Clinical significance. Findings of statistical significance indicate that clients' symptoms and functioning significantly changed over the course of treatment, however this does not inform the clinical impact associated with IPC. Assessment of the clinical significance of clients' IPC outcomes was conducted through identification of the number of clients that reported clinically significant improvement, clinically significant deterioration, and nonresponse in symptoms and functioning between treatment planning and discharge. This information can contribute to a

better understanding of clients' experience of IPC beyond what is interpretable through statistical significance. Due to the lack of consensus regarding a generally accepted criterion for identifying clinically significant change, two criteria were used based upon clients change in reported symptoms and functioning between treatment planning and discharge: (1) a return to normal criterion and (2) a 1 SD *t*-score change criterion.

Return to normal criterion. Under the return to normal criterion, clients were defined as improved if they moved from a clinical to a non-clinical (i.e. normal) range, deteriorated if they moved from a normal to a clinical range, and nonresponsive to treatment if they remained within the same clinical or normal range over the course of treatment. Overall, 24% of clients demonstrated improvement, 3% of clients deteriorated, and 73% of clients were nonresponsive to IPC, suggesting that roughly three quarters of clients did not experience meaningful change over the course of treatment. However, consideration of the this study's sample characteristics raises several potential difficulties in using these values to represent clinical significance. The return to normal criterion is based on the assumption that clients expect to achieve a return to pre-disordered (i.e., normal) functioning at the end of treatment, where "a change in therapy is clinically significant when the client moves from the dysfunctional range to the functional range during the course of therapy" (Jacobson et al., 1984, p. 340). However, the definition of clinical significance provided by Kazdin (1999) as "whether the intervention makes a real (e.g., genuine, palpable, practical, noticeable) difference in the everyday life of clients" (p. 332), does not include an expectation that clients must achieve remission or cure in order to demonstrate a clinically significant outcome, rather that the change be meaningful to the client. In the context of the present study's sample of more severe and comorbid disorder and associated affected functioning, expecting disorder remission may be unrealistic (Jacobson et al., 1999; Wampold,

2001; Wise, 2004). As addressed, a more pragmatic expectation for this population is the achievement of meaningful, clinically significant change during treatment despite continued clinical symptoms and functioning, defined as recovery within mental disorder (Kazdin, 1999). In this sense, mental disorder is conceptualized in a manner similar to a chronic physical illness, where an expectation for recovery at discharge versus remission is more readily understood. Thus, problems arise when attempting to identify clinical significance using criterion where clinically significant change is only represented by the achievement of normal functioning and, as such, the return to normal criterion may be unable to properly capture clinically significant change in populations with more severe and comorbid mental disorder. In this situation of stringent criterion, clients experiencing meaningful change may be inaccurately labelled as nonresponsive due to remaining in a clinical range at discharge which may result in an inflated estimate of nonresponse, as suggested by the present findings.

1 SD t-score change criterion. The 1 SD *t*-score change criterion was used to address these concerns and capture meaningful, clinically significant change during treatment regardless of whether clients experienced clinical symptoms and functioning at discharge. Clinical significance was represented by a *t*-score change of 10 or more between treatment planning and discharge, where past research has identified this criterion as a marker denoting clinically significant change (Wampold, 2001; Wise, 2004). Where the BASIS-32 measures difficulty with symptoms and functioning, improvement was represented by a decreased *t*-score of 10 or more, deterioration by an increased *t*-score of 10 or more, and nonresponse by a *t*-score change of less than 10 between treatment planning and discharge.

Mirroring findings of statistical significance and supporting the hypothesis, 41.8% of clients reported clinically significant improvement in symptoms and functioning associated with

IPC, where 19.4% of clients moved from clinical to normal symptoms and functioning, and 22.4% of clients demonstrated a clinically significant reduction in the severity of their symptoms and functioning, despite remaining within a clinical range at discharge. Also of interest was the proportion of clients exhibiting clinically significant deterioration associated with IPC. Clinically significant rates of deterioration in functioning (relation to self and others, daily living) and symptoms (depression and anxiety, impulsive and addictive behaviour) associated with IPC were all below the reported average deterioration rate of 10% (Boisvert & Faust, 2003), while deterioration in psychosis symptoms was slightly above (15.8%). Finally, with regard to nonresponse to IPC, 55% of clients did not demonstrate any clinically significant change. Of these clients, a large proportion (44%) maintained a fairly consistent level of clinical symptoms and functioning over the course of treatment, meaning these clients were experiencing a moderate or severe level at the start of treatment and that the severity level did not greatly improve or worsen by discharge. Findings from the 1 SD clinical significance criterion appear to more accurately capture clinical significance by accounting for the meaningful change experienced by clients with more severe or comorbid disorder. As such, these findings are considered more accurately representative of the clinical significance of client's IPC outcomes and are interpreted in greater detail below.

Treatment implications. Findings from the analysis of clinical significance suggest that the criterion utilized is best informed by the degree and complexity of pathology being treated. A return to normal criterion is likely to be a more appropriate assessment of clinically significant change in cases of more transient mental disorder where clinicians would reasonably assume that clients will return to normal after a course of treatment (Wise, 2004), such as in adjustment disorder, bereavement, or perhaps early in a first episode of depression, among others. In

contrast, the 1 SD change criterion is likely to be more appropriate in a population of more severe and comorbid disorder, where meaningful change can occur despite continued pathology. IPC teams are likely to set appropriate and realistic expectations for clinically significant treatment outcomes when striving toward client-centred criterion that is informed by and tailored to each client's unique symptoms, functioning, and goals for treatment.

Interpretation and future directions. Overall, clinical significance findings suggest that approximately 40% of clients demonstrated improvement, 55% of clients responded very little or not at all (nonresponse), and 5% of clients deteriorated in their mental health symptoms and functioning associated with IPC in a community outpatient mental health setting. These rates of improvement, deterioration, and nonresponse are consistent with average figures reported in the literature for single provider psychotherapy or pharmacotherapy, with response and nonresponse rates around 50% (DeRubeis et al., 2005; Konarski et al., 2009) and average deterioration rates around 10% (Boisvert & Faust, 2003). Furthermore, findings of significant change beyond a waitlist response provide further support for the impact of IPC on associated client outcomes. It is of note that these findings occurred in the context of a sample with more severe and comorbid symptom presentations, suggesting the utility of IPC in the complex and imperfect pathology of actual practice and supporting the generalizability of these results.

Client, team, and treatment variables. Findings of clinical effectiveness support further research and quantification of IPC client outcomes with a variety of disorders and in the medical and mental health settings where the model has already been in use for some time. The literature would further benefit from an examination of team and treatment variables which could conceivably impact care. Potential areas of interest include a comparison of IPC teams composed of providers from differing health professions in order to identify any differential benefit

stemming from provider combinations, as well as assessment of team functioning over time. Findings may assist in delineating the specific aspects of IPC that result in clinically significant improvement in clients during treatment. In addition, IPC research utilizing randomized control groups is necessary in order to improve identification of the unique effect of IPC beyond regression to the mean (Schmitt, 2001), which the present study unfortunately did little to address (Schmitt, 2001).

Methodological thoroughness. That said, this study strove to ameliorate the ambiguity plaguing the methodology of collaborative care research through a thorough description of relevant treatment and design characteristics. Relevant information includes client-level factors such as presenting pathology, treatment-level factors such as the setting, the degree of client collaboration, and the average length of treatment or number of sessions provided, as well as team-level factors such as the health professions represented and most importantly the amount of communication and coordination between providers. Researchers must then be cognizant of the established definitions for various models of collaborative care outlined in the research and utilize an appropriate label for the model of collaborative care. Improvement in methodological thoroughness will better allow for a necessary synthesis of findings into a general understanding of IPC's efficacy and effectiveness.

Considerations and future directions. Despite findings of effectiveness, the conceptualized benefits of IPC may be expected to result in associated improvements in client outcomes relative to single provider or pharmacotherapy. Findings of comparable improvement, deterioration, and nonresponse rates may raise concern and criticism regarding any additional benefit offered through IPC, especially with consideration given to the increased resources required to provide care through the model. Several factors are deserving of consideration in

attempting to account for the apparent discordance between increased inputs and an ostensible lack of subsequent treatment response when IPC treatment outcomes are compared to traditional single provider therapy or pharmacotherapy.

Clinical significance in severe and comorbid disorder. Findings should be considered with cognizance of both the potentially conservative criteria of clinical significance as well as the severe and comorbid disorder found in the present study's sample. Estimates of improvement, deterioration, and nonresponse were based upon a 1 SD *t*-score change criterion between treatment planning and discharge. However, past research has suggested that the minimum value representative of a reliable and meaningful change from the perspective of a chronically disordered client is .5 SD (Norman, Sloan, & Wyrwich, 2003). The 1 SD criterion was used in the present study to lessen the potential of identifying clinical significance where it did not truly exist (i.e., type I error), however it may be that this resulted in too stringent of a criterion and that findings underestimate the true clinical effectiveness of IPC. That said, findings demonstrate the comparable effectiveness of IPC to traditional forms of care and provide a justification for further research. In interpreting clinical significance findings, Kazdin (2001) warns against assuming that "passing a threshold or entering a range means the client is better in any way that affects daily functioning or that a failure to pass this threshold means otherwise" (p. 461). As such, research has yet to identify a consistently valid and accepted approach to the calculation of clinical significance, and all findings should be considered with these caveats in mind. Research examining the use of IPC in less severe and complex disorder and utilizing varying clinical significance criteria may assist in better understanding its clinical effectiveness.

BASIS-32 and severe and comorbid disorder. Also deserving of consideration when viewing the findings is the wording used by the BASIS-32, where the scale assesses the "degree

of difficulty" clients have experienced over the past week with various symptoms and functioning (Eisen et al., 1986). In the context of the severe and comorbid population served by the IPC team, it is possible that clients experienced clinically significant improvements in their lives despite continued *difficulty* with symptoms and functioning (Kazdin, 1999). In addition, assessment of a single week may not be representative of general symptom and functioning experience and could again result in an oversight of clinically significant client change, with both of these factors potentially leading to conservative estimates of the clinical significance of IPC. Future research would benefit from the use of concurrent measures of symptoms, functioning, and quality of life in order to provide a more comprehensive understanding of client change associated with IPC and to better identify meaningful change experienced by clients regardless of symptom experience.

Pilot Study: Clients' IPC Outcomes at Follow-Up

Identification of former clients' symptoms and functioning at follow-up was not possible due to the small number returned assessments. However, examination of the available data suggested areas of potential interest for future research. Of note, former clients were roughly split between reporting maintained improvement and deterioration of treatment outcomes post-discharge, as assessed through symptoms and functioning. Since discharge, most former clients reported occasional or ongoing difficulty with mental health issues while roughly half had accessed a mental health professional or emergency services due to post-discharge mental health difficulties. Most clients were not employed or enrolled in school at follow up, and the impact of mental health difficulties on current general functioning ranged from no impact to seriously affecting daily functioning.

Interpretations and future directions. Meaningful interpretation based on an insufficient sample size is inappropriate, however identification of potential trends does spur curiosity and elicit interest in further investigation of the long-term outcomes of clients treated with IPC. Follow-up assessment suggested that former clients experienced a range of outcomes post-discharge. Over half of the former clients included in the follow-up were over 3 and 4 years post-discharge, though this extended length of time post-discharge was not consistently associated with deteriorated symptoms and functioning or a return to pre-treatment disorder as was predicted. Future research is required to understand the long-term outcomes of clients treated by the IPC model. Studies would benefit from the use of standardized assessment periods at short intervals (e.g., every six months) in a longitudinal design in order to identify any potential increase in maintenance associated with the holistic treatment offered by IPC.

Limitations

There were several limitations to the research, largely due to the practice-based setting of data collection and subsequent methodological shortcomings. First, the present study examined one IPC team operating at a single site and lacked a comparison group, such as another IPC team, single-provider care, or a control, in order to demonstrate that IPC can achieve treatment outcomes equal to or superior to those in routine mental health care. Furthermore, data was collected over approximately 6 years, during which IPC team member turnover and leaves of absence may have resulted in inconsistent resource availability and possible fluctuations in IPC quality. Unfortunately there was no assessment of team functioning over the course of treatment and variation in the holism of care received by clients was also not considered in order to account for these possibilities.

Another limitation was the use of a single scale (BASIS-32) administered at 3 points over the course of treatment to assess clients' symptoms and functioning. Although the addition of an administration point beyond pre-post assessment is beneficial for mental health outcome evaluation (Lambert, Doucette, & Bickman, 2001), the use of only one measure in tracking symptoms and functioning may result in aforementioned limits to the accuracy of identifying the clinical significance of IPC. Furthermore, the length of time between treatment planning and discharge does not allow for the disregard of regression to the mean in interpreting the significant change in symptoms and functioning demonstrated by clients in the present study, as this length of time may have allowed for further regression toward normality.

Finally, the return rate for the follow-up assessment resulted in an inadequate sample size in order to investigate and interpret the long-term outcomes of clients post-discharge from IPC. However, 20% of participants that confirmed by telephone that they would respond followed through, suggesting the potential feasibility of such a pursuit with a larger sample and with more consistent and coordinated administration of follow-up assessment beginning shortly after discharge.

Conclusions

The present study demonstrated that IPC is associated with statistically and clinically significant improvement in mental health symptoms and functioning when operating in a community mental health outpatient program. These findings are some of the first to quantify client outcomes associated with use of the IPC model in actual practice, despite past and growing use of IPC in clinical settings. Findings support continued investigation into the use of IPC in various medical and mental health settings and across a range of disorder. This study provides evidence for the clinical effectiveness of the IPC model in mental health clinical practice and

informs the direction of future research into this growing model of medical and mental health service provision.

References

American Psychological Association. (2006). Evidence-based practice in psychology. *American Psychologist, 61*(4), 271-285. doi:10.1037/0003-066X.61.4.271

Anthony, W. A. (1993). Recovery from mental illness: The guiding vision of the mental health service system in the 1990s. *Psychological Rehabilitation Journal, 16*(4), 11-23. Retrieved from http://search.ebscohost.com/

Barker, P., & Buchanan-Barker, P. (2010). The Tidal model of mental health recovery and reclamation: Application in acute care settings. *Issues in Mental Health Nursing, 31*, 171-180. doi:10.3109/01612840903276696

Barrett, J., Curran, V., Glynn, L., & Godwin, M. (2007). *CHSRF synthesis: Interprofessional collaboration and quality primary healthcare.* Retrieved from http://www.chsrf.ca /Migrated/PDF/SynthesisReport_E_rev4_FINAL.pdf

Berger, J. L. (2006). Incorporation of the Tidal model into the interdisciplinary plan of care: A program quality improvement project. *Journal of Psychiatric and Mental Health Nursing, 13*, 464-467. doi:10.1111/j.1365-2850.2006.01007.x

Boisvert, C. M., & Faust, D. (2002). Iatrogenic symptoms in psychotherapy: A theoretical exploration of the potential impact of labels, language, and belief systems. *American Journal of Psychotherapy, 56*(2), 244-259. Retrieved from http://www.ajp.org/

Boon, H., Verhoef, M., O'Hara, D., & Findlay, B. (2004). From parallel practice to integrative health care: A conceptual framework. *BMC Health Services Research, 4*(15), 1-5. doi:10 .1186/1472-6963-4-15

Bower, P., Gilbody, S., Richards, D., Fletcher, J., & Sutton, A. (2006). Collaborative care for depression in primary care: Making sense of a complex intervention: Systematic review

and meta-regression. *The British Journal of Psychiatry, 189*, 484-493. doi:10.1192/bjp.bp.106.023655

Canada Health Act, R.S.C., c.C-6 (1985).

Canadian Collaborative Mental Health Initiative. (2006). *Project at a glace.* Retrieved from http://www.ccmhi.ca/en/products/documents/CCMHIataglance.pdf

Caplan, G. A., Williams, A. J., Daly, B., & Abraham, K. (2004). A randomized, controlled trial of comprehensive geriatric assessment and multidisciplinary intervention after discharge of elderly from the emergency department: The DEED II study. *Journal of the American Geriatrics Society, 52*(9), 1417-1423. doi:10.1111/j.1532-5415.2004.52401.x

Commission on the Future of Health Care in Canada. (2002). *Building on values: The future of health care in Canada* (Catalogue No. CP32-85/2002E-IN). Retrieved from http://publications.gc.ca/collections/Collection/CP32-85-2002E.pdf

Craven, M. A., & Bland, R. (2006). *Better practices in collaborative mental health care: An analysis of the evidence base.* (Paper No. 4). Retrieved from http://www.ccmhi.ca/en/products/documents/04_BestPractices_EN.pdf

Craven, M. A., Cohen, M., Campbell, D., Williams, J., & Kates, N. (1997). Mental health practices of Ontario family physicians: A study using qualitative methodology. *Canadian Journal of Psychiatry, 42,* 943-949. Retrieved from http://ww1.cpa-apc.org/Publications/cjpHome.asp

D'Amour, D., Ferrada-Videla, M., Rodriguez, L. S. M., & Beaulieu, M.-D. (2005). The conceptual basis for interprofessional collaboration: Core concepts and theoretical frameworks. *Journal of Interprofessional Care, 19*(Supplement 1), 116-131. doi:10.1080/13561820500082529

D'Amour, D., & Oandasan, I. (2005). Interprofessionality as the field of interprofessional practice and interprofessional education: An emerging concept. *Journal of Interprofessional Care, 19*(Supplement 1), 8-20. doi:0.1080/13561820500081604

Davidson, L., O'Connell, M. J., Tondora, J., Lawless, M., & Evans, A. C. (2005). Recovery in serious mental illness: A new wine or just a new bottle? *Professional Psychology: Research and Practice, 36*(5), 480-487. doi:10.1037/0735-7028.36.5.480

Davidson, L., & Roe, D. (2007). Recovery from versus recovery in serious mental illness: One strategy for lessening confusion plaguing recovery. *Journal of Mental Health, 16*(4), 459-470. doi:10.1080/09638230701482394

DeRubeis, R. J., Hollon, S. D., Amsterdam, J. D., Shelton, R. C., Young, P. R., Salomon, R. M.,… Gallop, R. (2005). Cognitive therapy vs medications in the treatment of moderate to severe depression. *Archives of General Psychiatry, 62*(4), 409-416. doi:10.1001/archpsyc.62.4.409

Dobson, K. S. (2002). A national imperative: Public funding of psychological services. *Canadian Psychology, 43*(2), 65-75. doi:10.1037/h0086903

Eisen, S. V., Grob, M. C., & Klein, A. A. (1986). BASIS: The development of a self-report measure for psychiatric inpatient evaluation. *Psychiatric Hospital, 17,* 165-171.

Eisen, S. V., Wilcox, M., Leff, H. S., Schaefer, E., & Culhane, M. A. (1999). Assessing behavioral health outcomes in outpatient programs: Reliability and validity of the BASIS-32. *The Journal of Behavioral Health Services & Research, 26*(1), 5-17. Retrieved from http://www.springer.com/public+health/journal/11414

Excellent Care for All Act, 46 Statues of Ontario c. 14 (2010).

Fewster-Thuente, L., & Velsor-Friedrich, B. (2008). Interdisciplinary collaboration for healthcare professionals. *Nursing Administration Quarterly, 32*(1), 40-48. doi:10.1097/01.NAQ.0000305946.31193.61

Field, A. (2009). *Discovering statistics using SPSS* (3rd ed.). Washington, DC: Sage

Gagné, M.-A. (2005). *Advancing the agenda for collaborative mental health care.*(Paper No. 1). Retrieved from http://www.ccmhi.ca/en/products/documents/01_AdvancingtheAgenda_EN.pdf

Gilbody, S., Bower, P., Fletcher, J., Richards, D., & Sutton, A. J. (2006). Collaborative care for depression: A cumulative meta-analysis and review of longer-term outcomes. *Archives of Internal Medicine, 166,* 2314-2321. Retrieved from http://archinte.amaassn.org/cgi/content/abstract/166/21/2314

Goldman, J., Meuser, J., Lawrie, L., Rogers, J., & Reeves, S. (2010). Interprofessional primary care protocols: A strategy to promote an evidence-based approach to teamwork and the delivery of care. *Journal of Interprofessional Care, 24*(6), 653-665. doi:10.3109/13561820903550697

Haggarty, J., Klein, R., Chaudhuri, B., Bourdeau, D., & McKinnon, T. (2008). After shared care: Patients' symptoms and functioning 3 to 6 months following care at a rural shared mental health care clinic. *Canadian Journal of Community Mental Health, 27*(2), 47-54. Retrieved from http://www.cjcmh.com

Health Canada. (2004a). *Primary health care transition fund.* Retrieved from http://www.hcsc.gc.ca/hcssss/prim/phctf-fassp/object-eng.php

Health Canada. (2004b). *Interdisciplinary education for collaborative, client-centred practice: Research and findings report.* Retrieved from http://www.ferasi.umontreal.ca/fra/07_info/IECPCP_Final_Report.pdf

HealthForceOntario, Interprofessional Care Steering Committee. (2007). *Interprofessional care: A blueprint for action in Ontario.* Retrieved from http://www.healthforceontario.ca/upload/en/whatishfo/ipc%20blueprint%20final.pdf

HealthForceOntario, Interprofessional Care Strategic Implementation Committee. (2010). *Implementing interprofessional care in Ontario*. Retrieved from http://www.healthforceontario.ca/upload/en/whatishfo/ipcproject/hfo%20ipcsic%20final%20reportengfinal.pdf

Hedrick, S. C., Chaney, E. F., Felker, B., Liu, C.-F., 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

Herbert, C. P. (2005). Changing the culture: Interprofessional education for collaborative client-centred practice in Canada. *Journal of Interprofessional Care, 19*, 1-4. doi:10.1080/13561820500081539

Howell, D. C. (2008). *Mixed models for repeated (longitudinal) data.* Retrieved from http://www.uvm.edu/~dhowell/StatPages/More_Stuff/Mixed%20Models%20for%20Repeated%20Measures.pdf

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 randomized trial for

depressed elderly patients in primary care. *British Medical Journal, 332*, 259-262. doi:10.1136/bmj.38683.710255.BE

Jacobs, P., Dewa, C., Lesage, A., Vasiliadis, H.-M., Escober, C., Mulvale, G., & Yim, R. (2010). *The cost of mental health and substance abuse services in Canada: A report to the Mental Health Commission of Canada.* Retrieved from http://www.ihe.ca/documents /Cost%20of%20Mental%20Health%20Services%20in%20Canada%20Report%20June% 202010.pdf

Jacobson, N. S., Follette, W. C., & Revenstorf, D. (1984). Psychotherapy outcome research: Methods for reporting variability and evaluating clinical significance. *Behavior Therapy, 15*, 336-352. doi:10.1016/S0005-7894(84)80002-7

Jacobson, N., & Greenley, D. (2001). What is recovery? A conceptual model and explication. *Psychiatric Services, 52*(4), 482-485. doi:10.1176/appi.ps.52.4.482

Jacobson, N. S., Roberts, L. J., Berns, S. B., & McGlinchey, J. B. (1999). Methods for defining and determining the clinical significance of treatment effects: Description, application, and alternatives. *Journal of Consulting and Clinical Psychology, 67*(3), 300-307. doi:10 .1037/0022-006X.67.3.300

Jacobson, N. S., & Truax, P. (1991). Clinical significance: A statistical approach to defining meaningful change in psychotherapy research. *Journal of Consulting and Clinical Psychology, 59*(1), 12-19. doi:10.1037/0022-006X.59.1.12

Jerrell, J. M. (2005). Behaviour and symptom identification scale 32: Sensitivity to change over time. *Journal of Behavioral Health Services & Research, 32*(3), 341-346. doi:10.1007 /BF02291833

Kates, N., Gagné, M.-A., & Whyte, J. M. (2008). Collaborative mental health care in Canada: Looking back and looking ahead. *Canadian Journal of Community Mental Health, 27*(2), 1-4. Retrieved from http://www.cjcmh.com

Katon, W. J., Lin, E. H. B., Von Korff, M., Ciechanowski, P., Ludman, E. J., Young, B., … McCulloch, D. (2010a). Collaborative care for patients with depression and chronic illness. *The New England Journal of Medicine, 363*(27), 2611-2620. doi:10.1056 /NEJMoa1003955

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. Retrieved from http://archpsyc.amaassn.org/cgi /content/abstract/53/10/924

Katon, W., Unützer, J., Wells, K., & Jones, L. (2010b). Collaborative depression care: History, evolution and ways to enhance dissemination and sustainability. *General Hospital Psychiatry, 32*, 456-464. doi:10.1016/j.genhosppsych.2010.04.001

Katon, W., Von Korff, M., Lin, E., Simon, G., Walker, E., Bush, T., & Ludman, E. (1997). Collaborative management to achieve depression treatment guidelines. *Journal of Clinical Psychology, 58*(Supplement 1), 20-23. Retrieved from http://www.psychiatrist .com/toc.asp

Kazdin, A. E. (1999). The meanings and measurement of clinical significance. *Journal of Consulting and Clinical Psychology, 67*(3), 332-339. doi:10.1037/0022-006X.67.3.332

Kazdin, A. E. (2001). Almost clinically significant ($p < .10$): Current measures may only approach clinical significance. *Clinical Psychology: Science and Practice, 8*(4), 455-462. doi:10.1093/clipsy/8.4.455

Kazdin, A. E., & Blase, S. L. (2011). Rebooting psychotherapy research and practice to reduce the burden of mental illness. *Perspectives on Psychological Science, 6*(1), 21-37. doi:10.1177/1745691610393527

Kirby, M. (2008). Mental health in Canada: Out of the shadows forever. *Canadian Medical Association Journal, 178*(10), 1320-1322. doi:10.1503/cmaj.071897

Konarski, J. Z., Kennedy, S. H., Segel, Z. V., Lau, M. A., Bieling, P. J., McIntyre, R. S., & Mayberg, H. S. (2009). Predictors of nonresponse to cognitive behavioural therapy or venlafaxine using glucose metabolism in major depressive disorder. *Journal of Psychiatry & Neuroscience, 34*(3), 175-180. Retrieved from http://www.cma.ca/multimedia/staticContent/HTML/N0/l2/jpn/vol-34/issue-3/pdf/pg175.pdf

Lambert, E. W., Doucette, A., & Bickman, L. (2001). Measuring mental health outcomes with pre-post designs. *The Journal of Behavioral Health Services & Research, 28*(3), 273-286. doi:10.1007/BF02287244

Lesage, A. D. (2010). Contribution of psychiatric epidemiology to the study of the adult severely mentally ill. In J. Cairney & D. L. Streiner (Eds.), *Mental disorder in Canada: An epidemiological perspective* (pp. 144-169). Toronto, ON: University of Toronto Press.

Lemieux-Charles, L., & McGuire, W. L. (2006). What do we know about health care team effectiveness? A review of the literature. *Medical Care Research and Review, 63*(3), 263-300. doi:10.1177/1077558706287003

Liu, C.-F., 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

Macfarlane, D. (2005). *Current state of collaborative mental health care.* (Paper No. 12). Retrieved from Canadian Collaborative Mental Health Initiative website: http://www.ccmhi.ca/en/products/documents/12_OverviewPaper_EN.pdf

McCracken, L. M., Vowles, K. E., & Eccleston, C. (2005). Acceptance-based treatment for persons with complex, long standing chronic pain: A preliminary analysis of treatment outcome in comparison to a waiting phase. *Behaviour Research and Therapy, 43,* 1335-1346. doi:10.1016/j.brat.2004.10.003

McLoughlin, K. A., & Geller, J. L. (2010). Interdisciplinary treatment planning in inpatient settings: From myth to model. *Psychiatric Quarterly, 81*(3), 263-277. doi:10.1007/s11126-010-9135-1

Mental Health Commission of Canada (2009). *Toward recovery and well-being: A framework for a mental health strategy for Canada.* Retrieved from http://www.mentalhealthcommission.ca/SiteCollectionDocuments/boarddocs/15507_MHCC_EN_final.pdf

Naar-King, S., Siegel, P. T., & Smyth, M. (2002). Consumer satisfaction with a collaborative, interdisciplinary health care program for children with special needs. *Children's Services: Social Policy, Research, and Practice, 5*(3), 189-200. doi:10.1207/S15326918CS0503_4

Nolte, J., & Tremblay, M. (2005). *Enhancing interdisciplinary collaboration in primary health care in Canada.* Retrieved from http://www.eicp.ca/en/resources/pdfs/enhancing-interdisciplinary-collaboration-in-primary-health-care-in-canada.pdf

Norman, G. R., Sloan, J. A., & Wyrwich, K. W. (2003). Interpretation of changes in health-related quality of life: The remarkable universality of half a standard deviation. *Medical*

Care, 41, 582-592. Retrieved from http://journals.lww.com/lwwmedicalcare/pages /articleviewer.aspx?year=2003&issue=05000&article=00004&type=abstract

Opie, A. (1997). Effective team work in health care: A review of issues discussed in recent research literature. *Health Care Analysis, 5*(1), 62-73. doi:10.1007/BF02678456

Paulter, K., & Gagné, M.-A. (2005). *Annotated bibliography of collaborative mental health care.* (Paper No. 3). Retrieved from http://www.ccmhi.ca/en/products/documents/03 _AnnotatedBibliography_EN.pdf

Quené, H., & van den Bergh, H. (2004). On multi-level modeling of data from repeated measures designs: A tutorial. *Speech Communication, 43*, 103-121. doi:10.1016/j.specom .2004.02.004

Reeves, S., Goldman, J., Gilbert, J., Tepper, J., Silver, I., Suter, E., & Zwarenstein, M. (2011). A scoping review to improve conceptual clarity of interprofessional interventions. *Journal of Interprofessional Care, 25*, 167-174. doi:10.3109/13561820.2010.529960

Reeves, S., Goldman, J., & Zwarenstein, M. (2009).An emerging framework for understanding the nature of interprofessional interventions. *Journal of Interprofessional Care, 23*(5), 539-542. doi:10.1080/13561820903078215

Romanow, R. J., & Marchildon, G. P. (2003). Psychological services and the future of health care in Canada. *Canadian Psychology, 44*(4), 283-295. doi:10.1037/h0086954

Rossen, E. K., Bartlett, R., & Herrick, C. A. (2008). Interdisciplinary collaboration: The need to revisit. *Issues in Mental Health Nursing, 29,* 387-396. doi:10.1080/01612840801904449

Schmitt, M. H. (2001). Collaboration improves the quality of care: Methodological challenges and evidence from US health care research. *Journal of Interprofessional Care, 15*(1), 47-66. doi:10.1080/13561820020022873

Schofield, R. F., & Amodeo, M. (1999). Interdisciplinary teams in health care and human service settings: Are they effective? *Health & Social Work, 24*(3), 210-219. Retrieved from http://www.naswpress.org/publications/journals/hsw.html

Sharma, V. K., Wilkinson, G., Dowrick, C., Church, E., & White, S. (2001). Developing mental health services in a primary care setting: Liverpool primary care mental health project. *International Journal of Social Psychiatry, 47*(4), 16-29. doi:10.1177 /002076400104700402

Skultety, K. M.,& Zeiss, A. (2006). The treatment of depression in older adults in the primary care setting: An evidence-based review. *Health Psychology, 25*(6), 665-674. doi:10.1037 /0278-6133.25.6.665

Slomp, M., Bland, R., Patterson, S., & Whittaker, L. (2009). Three-year physician treated prevalence rate of mental disorders in Alberta. *Canadian Journal of Psychiatry, 54*(3), 199-203. Retrieved from http://ww1.cpa-apc.org/Publications/cjpHome.asp

Standing Senate Committee on Social Affairs, Science and Technology. (2006). *Out of the shadows at last: Highlights and recommendations.* Retrieved from http://www.parl.gc.ca /39/1/parlbus/commbus/senate/com-e/soci-e/rep-e/pdf/rep02may06high-e.pdf

Statistics Canada. (2004). *Canadian community health survey: Mental health and well-being*. Retrieved from http://www.statcan.gc.ca/pub/82-617-x/index-eng.htm

Steele, L. S., Glazier, R. H., & Lin, E. (2006). Inequity in mental health care under Canadian universal health coverage. *Psychiatric Services, 57*(3), 317-324. doi:10.1176/appi.ps.57.3 .317

Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics* (5th ed.). Boston, MA: Pearson Education

Utützer, 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. *The Journal of the American Medical Association, 288*(22), 2836-2845. doi:10.1001/jama.288.22.2836

Vera, M., Perez-Pedrogo, C., Huertas, S. E., Juarbe, D., Huertas, A. … Chaplin, W. (2010). Collaborative care for depressed patient with chronic medical conditions: A randomized trial in Puerto Rico, *Psychiatric Services, 61*(2), 144-150. doi:10.1176/appi.ps.61.2.144

Vines, R. F., Richards, J. C., Thomson, D. M., Brechman-Toussaint, M., Kluin, M., & Vesely, L. (2004). Clinical psychology in general practice: A cohort study. *The Medical Journal of Australia, 181*(2), 74-77. Retrieved from http://www.mja.com.au/public/issues/181_02_190704/vin10194_fm.html

Vowles, K. E., & McCracken, L. M. (2008). Acceptance and values-based action in chronic pain: A study of treatment effectiveness and process. *Journal of Consulting and Clinical Psychology, 76*(3), 397-407. doi:10.1037/0022-006X.76.3.397

Wagner, E. H., Austin, B. T., Davis, C., Hindmarsh, M., Schaefer, J., & Bonomi, A. (2001). Improving chronic illness care: Translating evidence into action. *Health Affairs, 20*(6), 64-78. doi:10.1377/hlthaff.20.6.64

Wampold, B. E. (2001). *The great psychotherapy debate: Models, methods and findings.* Mahwah, NJ: Lawrence Erlbaum Associates.

Watson, D. E., Heppner, P., Roos, N. P., Reid, R. J., & Katz, A. (2005). Population-based use of mental health services and patterns of delivery among family physicians, 1992 to 2001. *Canadian Journal of Psychiatry, 50*(7), 398-406. Retrieved from http://ww1.cpa-apc.org/Publications/cjpHome.asp

Wise, E. A. (2004). Methods for analyzing psychotherapy outcomes: A review of clinical significance, reliable change, and recommendations for future directions. *Journal of Personality Assessment, 82*(1), 50-59. doi:10.1207/s15327752jpa8201_10

World Health Organization. (2010). *Framework for Action on Interprofessional Education & Collaborative Practice*. Retrieved from http://whqlibdoc.who.int/hq/2010/WHO_HRH_HPN_10.3_eng.pdf

Appendix A

IPC Outcome Evidence

Table A1: Medical/Physical Health Outcomes

Primary care.

Note: Research relevant to mental health settings and outcomes included in both of the following syntheses was individually analyzed and the outcomes removed from the overall findings in order to minimize duplication.

STUDY			OUTCOMES
Nolte & Tremblay (2005)	*Degree of Collaboration*	*Described*: IPC *Actual*: Varied (MDC/IPC)	Increased patient satisfaction (esp. with veterans and children with severe/chronic illness) when compared to TAU.
	Client Centred	Varied	
EICP	*Professions*	Varied	Positive client outcomes in:
	Population	Medical	- Quality of life
	Tx length	Varied	- Quality of care
	Design	Varied	- General Health
			- Medication adherence

STUDY			OUTCOMES
Barrett, Curran, Glynn, Godwin (2007)	*Degree of Collaboration*	*Described*: IPC *Actual*: Varied (MDC/IPC)	Compared to TAU: - Increased patient satisfaction - Improved self care
	Client Centred	Varied	- Increased positive health outcomes (e.g., quality of life)
	Professions	Varied	
	Population	Medical	- Increased positive tx experience
CHSRF	*Tx length*	Varied	
	Design	Varied	

Hospital-based IPC.

STUDY			OUTCOME
Naar-King, Siegel, Smyth (2002)	*Degree of Collaboration*	*Described*: Interdisciplinary ***Actual*: IPC**	- A large proportion of parents expressed satisfaction with the IPC offered
	Client Centred	Yes (including family)	
	Professions	Pediatric physicians, nurses, dieticians, social workers, psychologists (occupational and physiotherapists included as required)	
	Population	Children with special needs (severe, chronic,	

		handicapping condition)	
	Tx length	12 months	
	Design	- Pre, post **IPC Features:** - Team tx planning - Holistic care provided by the inclusion of a breadth of professions - Client- and family-centred - Team meetings with family/client with all members present	

Table A2: General Health Outcomes (Mixed Medical and Mental Health)

STUDY			OUTCOMES
Lemieux-Charles & McGuire (2006)	*Degree of Collaboration*	Described: Team/MDC Actual: Varied	Collaborative vs. Uni-professional Care: - Increased functional status - Increased mental health - Decreased dependency - Decreased mortality - Higher patient satisfaction - Higher health related quality of Life
	Client Centred	Varied	
	Professions	Varied	
	Population	Largely Geriatric	
	Tx length	Varied	
	Design	- Varied (most commonly RCTs at a single site) - Team vs. Non-team Care	

Primary care.

STUDY			OUTCOMES
Katon, Unützer, Wells, Jones (2010b) Summary	*Degree of Collaboration*	*Described*: Collaboration *Actual*: MDC/little IPC	Vs. TAU, significantly… - Increased quality of care - Increased depression scores
	Client Centred	Varied	
	Professions	Varied	
	Population	Major depression with coexisting chronic medical condition	
	Tx length	Varied	
	Design	- Varied - Included research utilizing physicians augmented with psychiatrists/nurses/mental health professionals	

STUDY	OUTCOMES

Katon et al. (2010a)	*Degree of Collaboration*	*Described*: Collaboration *Actual*: MDC in practice, IPC in planning and progress	Vs. TAU, significantly… - Improved scores on the Patient Global Improvement Scale - Increased satisfaction with care - Increased quality of life *Medical Health* - Improved health outcomes (diabetes, coronary heart disease, or both) *Mental Health* - Improved depression symptoms
	Client Centred	Yes – individualized treatments based on client goals	
	Professions	Nurse, Physician (psychologist for weekly progress meetings)	
	Population	Poorly controlled chronic Illness concurrent with major depression	
	Tx length	12 months	
	Design	- RCT - Pre, during (6 mths), post (12 months)	

STUDY			OUTCOMES
Vera et al. (2010)	*Degree of Collaboration*	*Described*: Collaboration *Actual*: MDC (minimal interaction and planning between providers)	Vs. TAU, significantly… - Reduced depression symptoms - Increased social functioning - Increased service utilization
	Client Centred	No	
	Professions	Physicians, mental health specialists, care managers	
	Population	Major depression with coexisting chronic health condition	
	Tx length	6 months	
	Design	- RCT - Pre, 6 months in tx	

Intensive IPC and chronic pain.

STUDY			OUTCOMES
McCracken, Vowles, & Eccleston (2005)	*Degree of Collaboration*	*Described*: Interdisciplinary *Actual*: Largely IPC	POST-TX Significant Medical findings: - Decreased pain intensity - Decreased physical disability - Improved performance on tests of physical functioning Significant Mental health findings: - Improvement in several areas relevant to mental health, with significant reduction in depression scores, pain-related anxiety, psychosocial disability, rest required due to pain.
	Client Centred	No	
	Professions	Physiotherapists, occupational therapists, nurse, physicians, clinical psychologists	
	Population	Chronic pain	
	Tx length	3-4 weeks(5 days/wk, 6 hrs)	
	Design	- Assessment, pre, post, maintenance (3 months) - Team met 3x per week to	

		discuss clients' status - Manualized - Acceptance-based behavioural therapy - Group format for tx	MAINTENANCE (3-MONTHS) - Decreased use of physician services - Maintained significant difference from pre-tx in all post-tx gains at 3 months.

These findings were later replicated by **Vowles and McCracken (2008)**

Table A3: Mental Health Outcomes

Primary care.
Research syntheses.

STUDY			OUTCOMES
Craven & Bland (2006) **CCMHI**	*Degree of Collaboration*	*Described*: Collaborative *Actual*: Varied	- Collaboration appeared to be more effective in populations with major depression - Suggest that the degree of collaboration between health professionals is not predictive of client outcome **Note:**In contrast to more recent findings which have directly implicated a lack of collaboration between health service providers in negative client events, albeit in a medical health care setting (Fewster-Thuente & Velsor-Friedrich, 2008).
	Client Centred	Varied	
	Professions	Varied	
	Population	Depression	
	Tx length	Varied	
	Design	Varied	

STUDY			OUTCOMES
Gilbody, Bower, Fletcher, Richards, & Sutton (2006)	*Degree of Collaboration*	*Described*: Collaborative(3 professions) *Actual:* Varied	Vs. TAU, significantly… - Improved depression outcomes at 6 months - Maintained at 12 months - Though no longer significant, trend continued with improved outcomes at 18, 24 months, and 5 years **Note:** Outcomes "standardized"
	Client Centred	Not described	
	Professions	Case manager, primary care practitioner, mental health specialist	
	Population	Depression	
	Tx length	Varied	
	Design	6, 12, 18, 24 months, and 5 years post-discharge	

Approaching IPC: Decreased features of collaboration.

STUDY			OUTCOMES
Unützer (2002)	*Degree of Collaboration*	*Described*: Collaborative *Actual*: MDC/some IPC	Vs. TUA, significantly… - Increased satisfaction with care

IMPACT	*Degree of Collaboration*	*Described*: Collaborative *Actual*: MDC/some IPC	- Increased service utilization (antidepressant use and psychotherapy) - Increased symptom reduction and symptom remission - Increased physical functioning - Increased quality of life
	Client Centred	Yes	
	Professions	Nursing, psychology Advisors: Psychiatrist, liaison primary care physician	
	Population	Depression	
	Tx length	12 months	
	Design	RCT Pre, 3, 6, 12 months	

STUDY			OUTCOMES
Hunkeler et al (2006) **IMPACT**	*Degree of Collaboration*	*Described*: Collaborative *Actual*: Unsure/some IPC	Vs. TAU, at 6 and 12 months post-discharge, significantly… - Increased satisfaction with care - Increased antidepressant use - Increased symptom reduction and symptom remission - Increased quality of life - Increased self-efficacy - Increased physical functioning*(up to 6 months post-tx, not at 12)*
	Client Centred	Unsure	
	Professions	Depression case manager (nurse), physician, consulting psychiatrist	
	Population	Geriatric Depression, dysthymia	
	Tx length	12 months	
	Design	RCT Pre, post, follow-up (6 and 12 months) **IPC Features** Weekly tx review meetings by depression case manager and psychiatrist	

STUDY			OUTCOMES
McCusker et al. (2008) **IMPACT**	*Degree of Collaboration*	*Described*: Collaborative *Actual*: MDC/little IPC	Vs. TAU: - No significant differences in outcome between control and intervention clients **Note:** - Lack of treatment holism and collaboration between providers - Very brief
	Client Centred	Yes	
	Professions	Physician, 2 depression care practitioners (social worker, psychologist) working under psychiatrist	
	Population	Geriatric, major depression, dysthymia	
	Tx length	2 months	
	Design	RCT Pre, follow-up (2 months)	

STUDY			OUTCOMES
Katon et	*Degree of*	*Described*: Collaboration/Team	Vs. TAU, significantly improved…

al. (1996)	*Collaboration*	*Actual*: MDC/some IPC	*Major Depression:* - Treatment adherence - Client satisfaction with care - Depression outcome "*Minor Depression*" - Treatment adherence - Client satisfaction with medication usage **Note:** Stronger effects with a more severe pathology.
	Client Centred	Very little (tx alteration based on response to tx)	
	Professions	Physicians, Psychologists (primary service providers, under supervision of psychiatrists)	
	Population	Depression	
	Tx length	4 months	
	Design	RCT **IPC Features:** Weekly case review b/w psychologists and psychiatrists Tx planning Psychologist communication with physicians	

STUDY			OUTCOMES
Katon et al. (1997)	*Degree of Collaboration*	*Described*: Collaboration *Actual*: MDC/some IPC	Vs. TAU, significantly improved… *Major Depression:* - Treatment adherence - Client satisfaction with care - Client satisfaction with medication usage - Depression outcome *"Minor Depression"* - Treatment adherence - Client satisfaction with medication usage **Note:** Stronger effects with a more severe pathology.
	Client Centred	Little	
	Professions	Psychiatrist, physician	
	Population	Depression	
	Tx length	Unsure (7 months)	
	Design	RCT Pre, 1, 4, 7 months **IPC Features** Tx planning Case review	

STUDY			OUTCOMES
Vines (2004)	*Degree of Collaboration*	*Described*: Collaborative/MDC *Actual*: MDC/IPC	Intervention group: - Significantly improved outcomes pre to post-tx on all measures (depression, anxiety, stress, general health, and general well being) Vs. normative group: - Pre-tx intervention group scored significantly higher on measures of depression,
	Client Centred	Ostensibly ("individually targeted and tailored cognitive behavioural therapy")	
	Professions	Physicians, clinical psychologists	
	Population	"Common mental health disorders", largely depression and anxiety	
	Tx length	6 sessions (or more, if needed)	
	Design	Vs. normative sample Intervention: Pre, post (avg 8 weeks)	

		Normative: Pre, 8 weeks **IPC Features** "Discussion and consultation between GPs and clinical psychologists occurred during the course of the patients' treatment"	anxiety and stress, with significantly lower general health and general well being - Intervention group achieved outcomes comparable to normative group post-tx, with no significant differences on any measures

Approximating IPC: Increased features of IPC.

STUDY			Outcomes
Caplan, Williams, Daly, & Abraham (2004)	*Degree of Collaboration*	*Described*: MDC/IDC *Actual*: MDC/IPC	- Decreased need for hospital services - Decreased decline in physical and cognitive functioning compared to control **Note:** Difficult to determine true degree of collaboration due to methodological inadequacy when describing intervention. Therefore, labelled "MDC/IPC". **Note:** Originally included in Lemieux-Charles& McGuire's 2006 synthesis.
	Client Centred	Not described	
	Professions	Nurses (primary provider), physicians, geriatrician/geriatric registrar, physiotherapists, occupational therapists	
	Population	Geriatric, Hospital outreach	
	Tx length	Max 4 weeks	
	Design	RCT Pre, post, follow-up (3, 6, 12, 18 months) **IPC Features:** Tx planning (Potentially) in practice	

STUDY			OUTCOMES
Liu et al. (2003)	*Degree of Collaboration*	*Described*: Collaborative/MDC *Actual*: MDC/IPC	Vs. consult-liaison care… - "Modest" increase in depression free days **Note: "**Consult-liaison care represented the traditional model in which the primary care providers was responsible for initiating treatment with consultation from or referral to specialist care as needed." (p. 699) **Note:** MDC in practice. Team was limited to treatment planning and tracking of client progress, without any actual service provision by team
	Client Centred	Yes	
	Professions	Psychiatrist, clinical psychologist, social worker, psychology technician	
	Population	Veterans (Mean age 57) w/ Depression and/or dysthymia	
	Tx length	Unsure	
	Design	RCT (vs. consult-liaison) Pre, 3 months, 9 months **IPC Features** Weekly team meetings Team tx planning Team progress evaluations	

			members.

STUDY			OUTCOMES
Hedrick et al. (2003)	*Degree of Collaboration*	*Described*: MDC/collaborative *Actual*: MDC/IPC	Vs. Consult-liaison care, significantly… - Faster improvement in depression symptoms at 3 months (not maintained at 9 months) - Greater improvement in general mental health status (assessed by the SF-36) **Note:** Ostensible replication of Liu et al. (2003).
	Client Centred	Yes	
	Professions	Psychiatrist, psychologist, psychology technician, social workers	
	Population	Veterans, Depression	
	Tx length	Unsure	
	Design	RCT (vs. consult-liaison care) Pre, 3 months, 9 months **IPC Features** Weekly team meetings Team tx planning Team progress evaluations	

STUDY			Outcomes
Skultety & Zeiss (2006) **Literature Summary**	*Degree of Collaboration*	*Described*: Interdisciplinary *Actual*: IPC	Vs. TAU: - Significantly greater symptom reduction (3-12 months) - Greater symptom reduction than TAU maintained at 24 months (though, no longer significant)
	Client Centred	Yes	
	Professions	Physician, nurse practitioner, social worker, psychologist, pharmacist	
	Population	Geriatric, depression	
	Tx length	Varied (3 – 24 months)	
	Design	RCT **IPC Features** Team tx planning, based on individual client's needs (vs. manualized tx) Regular client progress meetings	

STUDY			OUTCOMES
Sharma, Wilkinson, Dowrick, Church, & White (2001)	*Degree of Collaboration*	*Described:* MDC *Actual:* IPC	- High client satisfaction Service Outcomes: - Decreased in-patient service use - Decreased wait time for services
	Client Centred	Not described	
	Professions	Physicians, psychiatrist (and trainee), 4 community mental health nurses, client support worker, career support worker, 3 social workers, occasional psychologist involvement	
	Population	Common/Severe mental disorder	
	Tx length	Varied	
	Design	Measured at discharge	

		IPC Features Team meetings "Active involvement of the general practitioners and other primary care team staff" Explicit attempts to avoid service overlap "seamless service" (p. 25).	

STUDY			OUTCOMES
Berger (2006) **Tidal Model**	*Degree of Collaboration*	*Described*: Interdisciplinary *Actual*: **IPC**	- Improved client satisfaction with care **Notes:** - Features rare thoroughness in methodology - explicitly defines client-centred, recovery model of care, and the difference between MDC and IDC However, lack of outcomes measured. - **This study is the closet found to the current research.**
	Client Centred	Yes	
	Professions	Unsure	
	Population	Inpatient	
	Tx length	6 mths	
	Design	Pre, post Recovery model Goal oriented **IPC Features** Client and all professions included in establishing goals and a treatment plan	

Secondary care.

STUDY			OUTCOMES
Haggarty, Klein, Chaudhuri, Bourdeau, & McKinnon (2008)	*Degree of Collaboration*	*Described*: shared mental health care *Actual*: Unsure (likely IPC)	Significantly… - Improved depression, anxiety, and somatoform disorder scores at discharge - Decreased interference of mental disorder with daily functioning - Maintained findings at follow-up (3, 6 months)
	Client Centred	No	
	Professions	Physicians, psychiatrist, mental health counsellors, clerical support worker	
	Population	Varied	
	Tx length	Varied (2-20 months; avg 6 months)	
	Design	Pre, post, follow-up (3, 6 months) Manualized	

Appendix B

THUNDER BAY

MENTAL HEALTH PROGRAMS

Personal Development Centre St. Joseph's Care Group

Community Mental Health Program T.B.R.H.S.C.

ST. JOSEPH'S CARE GROUP

Client Information Form

Welcome to the Thunder Bay Mental Health Programs

Please complete the following questionnaire so we can determine which of our programs will best meet your needs.

Intake Date _____ **Time** _____

Name _____ Date of Birth _____
Address _____ Phone(s) # (Home) _____
Family Doctor _____ (Work) _____
Referent _____ (Cell) _____
Intake Clinician _____ Message O.K. Yes ☐ No ☐

Process of Thunder Bay Mental Health Programs explained Yes ☐ No☐
Limits of confidentiality and role of Circle of Care discussed Yes☐ No☐
Confirmation of correct address and phone number Yes☐ No☐
Permission to send disposition to referent Yes ☐ No ☐
Permission to send disposition to family doctor Yes ☐ No ☐

Identifying Data

_____
_____
_____
_____

Reason for Referral (As per TBMHP's Referral)

_____
_____
_____
_____

Problems you are Struggling With

What is the main reason that you are seeking help for at this time? (Include presenting mental health issues)

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

Has anyone ever given you a mental health diagnosis?
Yes □
No □

If yes, what is it?

_____

History of Mental Health Difficulties

Have you experienced mental health problems in the past?
Yes □
No □

If yes, the mental health difficulties have been:

□ Occasional
□ Frequent
□ Ongoing

Please describe:

_____
_____
_____
_____
_____
_____

List any past, current or future mental health treatment?

Therapist/Agency or Psychiatrist	**When**	**Helpful**	**Somewhat Helpful**	**Not Helpful**

_____	_____	☐	☐	☐
_____	_____	☐	☐	☐
_____	_____	☐	☐	☐
_____	_____	☐	☐	☐

Risk and Safety Concerns

Please check the statements that best apply:

☐ I have no thoughts of suicide
☐ I sometimes wish I wasn't here
☐ I have occasional thoughts of suicide
☐ I have regular thoughts of suicide
☐ I have thoughts of suicide but I have no specific plan
☐ I have suicidal thoughts and I have thought of a plan
☐ I currently have a plan and intend to attempt suicide
☐ I have recently attempted suicide in the past 12 months

Provide Details:

_____
_____
_____
_____
_____

Do you have thoughts of hurting yourself e.g., cutting, burning, hitting self?
Yes ☐
No ☐

If yes, please describe?

_____

Have you hurt yourself on purpose?
Yes ☐
No ☐

If yes, how?

_____

Do you have thoughts of harming others?
Yes ☐
No ☐

If yes,how?

_____

Have you called the Crisis Response service in the past 12 months?
Yes ☐
No ☐
If yes, how many times have you called in the past 12 months? _____

Have you gone to the Emergency department for mental health concerns in the past 12 months?
Yes ☐
No ☐
If yes, how many times in have you gone in the past 12 months? _____

Have you been hospitalized for mental health concerns in the past 12 months?
Yes ☐
No ☐
If yes, how many times have you been hospitalized in the past 12 months? _____
If yes, how many days have you been hospitalized in the last 12 months? _____

Medications

Are you currently taking any medication for your mental health?
Yes ☐
No ☐

If yes, please list:
_____
_____
_____

Is your medication helping?
Yes ☐
No ☐

Provide Details:

_____
_____

Impact on Functioning

Do you work or attend school?

Yes □
No □

If yes, do your mental health symptoms cause you to have difficulties with work or school?
Yes□
No □

If yes, your mental health difficulties with work or school are:

□ Mild (e.g., falling behind, occasionally missing work or school)
□ Moderate (e.g., frequently missing work or school, on sick leave, difficulty completing tasks/assignments, not getting along with coworkers/supervisor)
□ Serious (e.g., Unable to work, cannot keep a job, failing school)

Provide examples:

_____
_____
_____

Do your mental health difficulties cause problems in managing your day to day life (e.g., getting to places on time, handling money, making everyday decisions, shopping, and household chores)?
Yes □
No □

If yes, difficulties with day to day tasks are:

□ Mild (late at times, some indecision)
□ Moderate (late paying bills, falling behind on housework)
□ Serious (not grooming, not able to do housework)

Provide examples:

_____
_____
_____

Do your mental health symptoms cause problems in your relationships with family or friends?
Yes □
No □

If yes, your difficulties with family or friends are:

□ Mild (occasional difficulties)
□ Moderate (few friends or ongoing conflict)

□ Serious (no friends, feeling isolated, unable to maintain connections, neglecting family/friends)

Provide examples:

_____
_____
_____

Alcohol/Drugs

How much alcohol do you drink on average?

_____
_____

Do you use other drugs?
Yes□
No □

If yes, please explain:

_____
_____

Do you misuse prescriptions drugs or over the counter drugs?
Yes□
No □

If yes, please explain:

_____
_____

If you use substances do you have negative consequences from your use (health, social,work/school)?

If yes, please describe:

_____
_____

Do you see your use as a problem?
Yes□
No □

If yes, please describe:

_____
_____

Are you currently on a methadone program?

Yes☐
No ☐

If yes, where?

_____

Gambling

Have you engaged in any gambling activities (scratch tickets, bingo, lottery tickets, card games) in the past six months?
Yes☐
No☐

If yes, please explain:

_____
_____

(If no, go to Legal section)

If yes, have you experienced negative consequences from gambling?
Yes☐
No ☐

If yes, please explain:

_____
_____

Do you see your gambling as a problem?
Yes☐
No ☐

If yes, please explain:

_____
_____

Legal

Have you had any charges laid against you in the past or are charges currently pending?
Yes☐
No ☐

If yes, please explain:

_____

Are you currently involved in any legal matters?

Yes□
No □

If yes, please explain

_____

_____

Eating

Do you have any problems with your eating (limiting food intake, binging, self induced vomiting, overeating, or increase or decrease in appetite)?
Yes□
No □

If yes, please explain:

_____

_____

Physical Health

Do you have any medical or health concerns?
Yes□
No □

If yes, please describe:

_____

_____

Abuse/Trauma

If you have experienced the following, please check all that apply:

	Current	PastNA
Physical abuse (Hit, slapped, kicked, pushed)	□	□□
Emotional/Verbal abuse (Name calling, put downs, neglect)	□	□ □
Sexual abuse (Rape, inappropriate or unwanted touching)	□	□□

Please explain:

_____

_____

Have you experienced any other trauma(s) (e.g., serious motor vehicle accident, life threatening event, witness or experience violent crime)?
Yes □
No □

If yes, please explain:

_____
_____
_____
_____

Is your history of abuse/trauma impacting on your current difficulties with your mental health?

Yes □
No □

If yes, please explain how:

_____
_____
_____

Supports/Resources

Do you have supportive people in your life?

Yes □
No □

If yes, check all that apply.

□ Friends _____
□ Family _____
□ Family doctor who? _____
□ Counsellor/ Therapist who? _____
□ Other _____

You may be eligible for alternate services if you have: (please check all that apply)

□ a workplace injury
□ a status card
□ problems resulting from a motor vehicle accident
□ been a victim of a crime
□ long term disability
□ extended health care
□ Employee and Family Assistance Programs through work
□ Veterans Affairs (RCMP, Canadian Forces)

Please explain:

_____
_____
_____
_____

Goals and Objectives

Goals are very important in treatment. They provide us with a focus and direction that will help us to help you. Please list the goals you would like help with in treatment. **Please be as specific as possible.** Example- "I would like to decrease my anger outbursts"

1. _____

2. _____

3. _____

4. _____

Additional Comments

_____

_____

_____

I would be interested in:

☐ Individual Counselling
☐ Group Therapy/Education
☐ Consultation about my medication
☐ Other - _____

Crisis Plan Discussed ☐

Signature _____ **Date** _____

Intake Disposition Form

Client Name _____ **Date of Birth** _____

Intake Date _____ **Intake Site** _____

Intake Clinician _____ **Other** _____

Case Formulation/Recommendations:

_____
_____
_____
_____
_____

Common Triage

Date documented at Common Triage (if applicable) _____

Recommended Treatment Program:

☐ Community Mental Health Program
☐ Personal Development Centre
☐ Mental Health Outpatient Programs
☐ Psychiatric Consultation Clinic _____
☐ Other _____

Client contacted with decision on _____

Additional Comments:

Global Assessment of Functioning Score _____

Appendix C

Follow-Up Questionnaire

By completing and returning these questionnaires, you are agreeing that you have read the cover letter for this study and agree to participate in the research titled **Interprofessional Care in Mental Health**. You understand the potential risk and benefits of this study and will remain anonymous in any publication/presentation of the research findings. All information is confidential only to be seen by the research team. As a volunteer you can opt of the study at any point with no penalty to yourself. You also have the option to not answer any question you do not wish to answer. All information will remain securely stored at St. Joseph's Care Group and Lakehead University for a period of five years. Your identity will not be revealed in any presentation or report of the study's findings. You must be 18 years of age or older to participate in this research.

Please complete the following questionnaire to provide a better understanding of your life since you were discharged from the Mental Health Outpatient Program at St. Joseph's Care Group. The following questions are concerned with the period of time since your discharge from the program.

Since discharge …

Have you experienced mental health problems?

❑ Yes □

❑ No □

If yes, the mental health difficulties have been (please check one):

❑ □ Occasional

❑ □ Frequent

❑ □ Ongoing

Have you received any mental health treatment?

❑ Yes □

❑ No □

Have you called the Crisis Response service?

❑ Yes □

❑ No □□

If yes, how many times? _____

Have you gone to the Emergency department for mental health concerns?

❑ Yes □

❑ No □

If yes, how many times? _____

Have you been hospitalized for mental health concerns?

❑ Yes □
❑ No □

If yes, how many *times*? _____
If yes, for how many *days*? _____

Are you currently taking any medication for your mental health?

❑ Yes □
❑ No □

Do you work or attend school?

❑ Yes □
❑ No □

Additional Comments

_____
_____
_____

Appendix D

Letter of Information

Dear (former client name):

St. Joseph's Care Group would like to invite you to participate in research assessing the long-term outcome of former clients of the Mental Health Outpatient Program. This research is being conducted through Lakehead University and has received the full support of St. Joseph's Care Group.

Enclosed is a Research Letter providing all of the information necessary to make an informed decision of whether you are interested in participating in this research. Your participation in this research is completely voluntary. Should you agree to participate, you will be asked to complete two questionnaires asking you various questions about your current mental health and functioning. You may choose not to answer any question and you will have an opportunity to withdraw any information you provide at any point without repercussion. Your privacy will be maintained at all points and your information will be kept strictly confidential.

If you have any concerns regarding your rights as a potential research participant, you are welcome to contact:

Chair, Research Ethics Board
St. Joseph's Care Group
580 N. Algoma St., Thunder Bay, ON, P7B 5G4
Tel: 807-343-4300 (Ext. 4723)
Email (Chair): REB_Chair@tbh.net

Thank-you very much for your time.

Dr. Mary Ann Mountain
Dr. Amanda Maranzan
St. Joseph's Care Group
Mental Health Outpatient Program, Victoriaville Centre
710 Victoria Ave. E.
Thunder Bay ON P7C 5P7
Tel: (807) 624-3400
Toll Free: 1-888-358-1194

Research Letter

Dear Potential Participant:

You are invited to participate in a research study called "Interprofessional Care in Mental Health." This research is being conducted to better understand the long-term outcomes of former clients of the Mental Health Outpatient Program at St. Joseph's Care Group. To complete this process, we are assessing the mental health of former clients after being discharged from treatment for an extended period of time.

Enclosed are two questionnaires: the BASIS-32 and a Follow-Up Questionnaire. The BASIS-32 is the questionnaire that you completed throughout your treatment and measures the difficulty you have been having with various symptoms and behaviours over the past week. The Follow-Up Questionnaire contains several questions related to various aspects of your life and functioning. If you agree to participate in this research, you may choose not to answer any question included in the questionnaires.

Your participation in this research is completely voluntary and you will have an opportunity to withdraw any information you provide at any point without repercussion. Should you agree to participate, your consent will be assumed by your completion and return of the questionnaires. Any information you provide will unidentifiable and will be accessed only by the researchers (Dr. Amanda Maranzan and Gregory Tippin). Your answers will be linked to database information you provided while a client of the Mental Health Outpatient Program using the code given to this package. As such, all information will be unidentifiable to researchers, maintaining your privacy. All materials will be stored in a secure location at St. Joseph's Care Group and Lakehead University for a period of 5 years, after which they will be destroyed. Your answers will be combined with others and any findings from this research will be presented as an overall summary; your answers will never be individually presented.

If you choose to participate, it will take about 15 minutes to complete the questionnaires. There are no direct benefits to you. Because the questionnaires ask about how you have been feeling, you may become more aware of emotional distress you are experiencing. We have enclosed information about several community resources that you can access if you would like further information and/or help, including information about how to re-refer to the Mental Health Outpatient Programs if you want to.

If you are interested in assisting us in this research, we are asking you to fill out these questionnaires and return them to St. Joseph's Care Group free of charge using the postage stamped envelope included with this package. This package has been given a special code to make your answers unidentifiable and to ensure strict confidentiality of all the information you provide. As such, please return only the two questionnaires (the BASIS-32 and Follow-Up Questionnaire) in the postage stamped envelope and do not include any information that would make your answers identifiable, such as your name or address. The information you provide will help us to better understand the long-term effectiveness of the program and assist in improving services.

If you have any questions or concerns regarding any aspect of this research, please do not hesitate to contact the Principal or Co-Investigator:

Principal Investigator
Dr. Amanda Maranzan, Psychologist
St. Joseph's Care Group
Lakehead University
Tel: (807) 343-8322
Email: kamaranz@lakeheadu.ca

Co-Investigator
Gregory Tippin, Research Assistant
St. Joseph's Care Group
Lakehead University
Email: gtippin@lakeheadu.ca

You may also contact the Lakehead University Research Ethics Board at: (807) 343-8934

Thank you very much for your time.

Thunder Bay Mental Health Resources

Below are mental health resources available in Thunder Bay if you are experiencing mental health concerns and require support. If you would like to refer yourself to the program, contact 807-624-3400 and ask to speak to one of the intake workers.

St. Joseph's Care Group – Mental Health Outpatient Program
710 Victoria Ave. E.
Thunder Bay ON
P7C 5P7
Tel: 807-624-3400
Toll Free: 1-888-358-1194
Provides a variety of outpatient mental health services.

Thunder Bay Crisis Response Service
Tel: 807-346-8282
Toll Free: 1-888-269-3100
Available 24/7 for individuals experiencing mental health distress or crisis.

Beendigen Crisis Line
(807) 346-HELP
(807) 346-4357
Mental health workers provide support 24 hours a day and can help you to access further services, as needed.

Thunder Bay Sexual Assault/Abuse Crisis Service
(807) 344-4502
Crisis workers are available 24 hours to give immediate help , as well as follow-up counselling, court advocacy and other services. Phone support for women who have experienced current or past assault or abuse.

Walk-In Counselling Service – Wednesdays from 12 noon to 8 pm
1st & 3rd Wednesday each month at Thunder Bay Counselling Centre - 544 Winnipeg Avenue
2nd & 4th Wednesday each month at Children's Centre Thunder Bay - 283 Lisgar Street