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Primary care behavioral health in the time of COVID-19

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Primary Care Behavioral Health in the Time of COVID-19

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Abstract

People are commonly receiving mental health treatment from primary care providers rather than from behavioral health providers. To address this issue, the healthcare system has begun to integrate behavioral health providers into primary care clinics, known as integrated primary care (IPC). Research suggests that IPC can lead to a number of benefits, including increased likelihood of patients receiving the appropriate standard of care, as well as reduction in healthcare costs due to medical cost offset. While IPC is a promising method of healthcare delivery, additional research is needed to optimize this system. Additionally, the onset of the COVID-19 pandemic has drastically impacted the mental and physical health needs of the United States population, especially for low income and racial and ethnic minority populations. However, there is little research on how this has impacted the presenting problems seen in IPC, or how IPC utilization may have been impacted. This study will examine patient characteristics and IPC utilization of two clinics serving a low income and racial and ethnic minority population and assess how patient and provider characteristics are impacting the process of IPC.

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Treatment of mental illness is a growing issue facing the healthcare system in the United States. People are often visiting their primary care providers (PCPs) for psychological and psychopharmacological interventions, with most PCPs delivering mental health treatment to their patients (Beck et al., 2019) and up to half of all patients seen in primary care having a mental or behavioral health concern (Cherry et al., 2018). The scope of these concerns can widely vary, from psychological disorders such as anxiety and depression, to behavioral concerns related to physical conditions such as diabetes management. For clarity and consistency, these presenting problems will be referred to as behavioral health concerns.

While PCPs are often responsible for intervening on these concerns, they typically have little training in this domain. Training programs for PCPs have few requirements for education on behavioral health issues (Accreditation Council for Graduate Medical Education, 2016a, 2016b, 2020). Another common criticism is that the training that PCPs do receive is often on a psychiatric unit that is generally not representative of patients they will treat in an outpatient setting (R. C. Smith, 2011). This lack of training has significant impact on PCP's ability to provide quality treatment to their patients. For example, PCPs are likely to deliver suboptimal pharmacotherapy for psychiatric issues which could contribute to worse long-term outcomes for patients (Kilbourne et al., 2010).

To address the issue of treating mental health in primary care, the healthcare system is beginning to shift towards integrated primary care (IPC). This model consists of PCPs and behavioral health providers (BHPs) working as a team to provide treatment to their patients (Collins et al., 2010; Robinson & Reiter, 2016). While the term IPC is commonly used, how IPC is put into practice can vary widely between settings. Differences can be seen in provider's

communication, their physical proximity, and level of practice integration (Vogel et al., 2017). Broadly, three categories of integration can be identified: coordinated, co-located, and integrated (Table 1; Blount, 2003; Brown et al., 2020; Collins et al., 2010; Heath et al., 2013). In coordinated care, BHPs and PCPs may work in different physical locations and not have access to each other's records (Vogel et al., 2017). The primary method of collaboration in coordinated care is through referrals of patients to BHPs and infrequent exchange of medical information between providers. Providers in this model are likely to see each other as specialty resources to utilize periodically rather than as a highly integrated team. Patients are also likely to perceive services as completely separate as they must travel to two distinct physical locations to receive services from providers (Peek et al., 2013).

Increasing in integration, the next level of IPC is co-located care. Unlike coordinated care, PCPs and BHPs work in different parts of the same building. This physical proximity increases the level of communication between providers as they are often working in the same clinical space (Collins et al., 2010; Levy et al., 2017). While the workflow of providers is likely still separate, providers are more able to create coordinated treatment plans for patients. Additionally, the physical proximity can allow for providers to have access to the same electronic health record systems providing easier access each other's records. Importantly, this model can increase access of behavioral services to the PCP's patients as patients are simply referred to another provider in the same building. This is significant in that patients are much more likely to complete referrals to co-located behavioral health compared to when they are referred to a community behavioral health service (Heath et al., 2013; Valleley et al., 2020).

The final level of integrated care is full integration. BHPs and PCPs are no longer simply in close physical proximity but now work together as an integrated team (Heath et al., 2013).

BHPs attend team meetings with PCPs and system and patient issues are resolved with the combined input of the entire multidisciplinary team. Exactly how full integration is put into place can vary between systems and models. For instance, some models actually place the BHP in more of a team leadership role in coordinating patient care (Hegel et al., 2002). However, one of the more popular models of full integration is the primary care behavioral health model (PCBH; Hunter & Goodie, 2010; Reiter et al., 2018; Vogel et al., 2017). Psychologists in this model are incorporated into the team to support the PCP and to enhance their ability to treat their patients (Reiter et al., 2018). The BHP's role in this model is primarily as a consultant to the PCP, waiting for a referral from a PCP and providing them recommendations for how to best implement the patient's treatment plan, and assisting in its implementation. BHPs are required to treat a variety of behavioral health problems, be accessible to the PCP, and to provide education to the PCP to inform their assessment and treatment of patients.

The role of the BHP in PCBH is notably different than in a traditional mental health setting and the effectiveness of this new role is being substantiated in research. In contrast to the usual delivery of 60 minute sessions, PCBH requires BHPs to complete an assessment and deliver an intervention in as little as fifteen minutes (Hunter et al., 2016). Thus, interventions used must be practical and be able to be quickly delivered. A variety of effective and quick interventions are commonly used during the IPC that can be helpful for an array of presenting problems, including: relaxation, mindfulness, goal setting, cognitive disputation, motivational interviewing, problem solving, self-monitoring, antecedent-behavior-consequence analyses, stimulus control, and assertiveness training (Hunter et al., 2016). While research for PCBH is still growing, initial studies have promising outcomes (Hunter et al., 2018). Emerging research suggests that PCBH was acceptable to patients (Angantyr et al., 2015), led to improved

functioning (Angantyr et al., 2015; Cigrang et al., 2011), and reduced symptoms of anxiety, depression (Angantyr et al., 2015; Sadock et al., 2014), post-traumatic stress disorder (Cigrang et al., 2011, 2015), sleep disturbance (Goodie et al., 2009), and tobacco use (Sadock et al., 2014). Because of the high integration of behavioral health with primary care and ability to address a wide variety of presenting problems, the PCBH model increases patient access to behavioral health services. This is demonstrated by patients who are seen in PCBH experiencing shorter wait times for treatment and greater number of appointments attended (Possemato et al., 2018).

Table 1

Levels of Integrated Primary Care

COORDINATED KEY ELEMENT: COMMUNICATION		CO LOCATED KEY ELEMENT: PHYSICAL PROXIMITY		INTEGRATED KEY ELEMENT: PRACTICE CHANGE	
LEVEL 1 Minimal Collaboration	LEVEL 2 Basic Collaboration at a Distance	LEVEL 3 Basic Collaboration Onsite	LEVEL 4 Close Collaboration Onsite with Some System Integration	LEVEL 5 Close Collaboration Approaching an Integrated Practice	LEVEL 6 Full Collaboration in a Transformed/ Merged Integrated Practice
Behavioral health, primary care and other healthcare providers work:					
In separate facilities, where they:	In separate facilities, where they:	In same facility not necessarily same offices, where they:	In same space within the same facility, where they:	In same space within the same facility (some shared space), where they:	In same space within the same facility, sharing all practice space, where they:
▸▸ Have separate systems ▸▸ Communicate about cases only rarely and under compelling circumstances ▸▸ Communicate, driven by provider need ▸▸ May never meet in person ▸▸ Have limited understanding of each other's roles	▸▸ Have separate systems ▸▸ Communicate periodically about shared patients ▸▸ Communicate, driven by specific patient issues ▸▸ May meet as part of larger community ▸▸ Appreciate each other's roles as resources	▸▸ Have separate systems ▸▸ Communicate regularly about shared patients, by phone or e-mail ▸▸ Collaborate, driven by need for each other's services and more reliable referral ▸▸ Meet occasionally to discuss cases due to close proximity ▸▸ Feel part of a larger yet non-formal team	▸▸ Share some systems, like scheduling or medical records ▸▸ Communicate in person as needed ▸▸ Collaborate, driven by need for consultation and coordinated plans for difficult patients ▸▸ Have regular face-to-face interactions about some patients ▸▸ Have a basic understanding of roles and culture	▸▸ Actively seek system solutions together or develop work-a-rounds ▸▸ Communicate frequently in person ▸▸ Collaborate, driven by desire to be a member of the care team ▸▸ Have regular team meetings to discuss overall patient care and specific patient issues ▸▸ Have an in-depth understanding of roles and culture	▸▸ Have resolved most or all system issues, functioning as one integrated system ▸▸ Communicate consistently at the system, team and individual levels ▸▸ Collaborate, driven by shared concept of team care ▸▸ Have formal and informal meetings to support integrated model of care ▸▸ Have roles and cultures that blur or blend

Note: From "A Standard Framework for Levels of Integrated Healthcare," by B. Heath, P. Romero, and K. Reynolds, 2013, p. 10. Copyright 2013 by the Substance Abuse and Mental Health Services Administration.

Processes of PCBH

Given that PCBH is a fundamental shift in healthcare delivery and its differences from other forms of IPC, it is important to understand the process of PCBH, specifically in how BHPs are utilized. The BHP's primary role in the PCBH is as a consultant to the PCP (Reiter et al., 2018). As a consultant, the PCP is the BHPs primary "consumer," not the patient. This has a significant functional impact on how the BHP encounters a patient. BHPs do not independently seek out and see a client, rather they see patients based on the referral of the PCP, or in some cases a registered nurse (Robinson & Reiter, 2016). BHPs are encouraged to advocate for their services by attending team huddles and reviewing patient charts to identify patients who could utilize a behavioral health intervention; however, it is ultimately up to the PCP to provide the referral.

While this is a general way that IPC may be conducted in a PCBH model, processes of IPC will have different nuances depending on each specific clinic. McLaren Flint Family Medicine (MFFM), one of the clinics included in the study, has its own specific process for utilizing IPC. Specifically, MFFM uses an adult behavioral health screening form as a means of identifying patients who are appropriate for an IPC referral. This form identifies behavioral health concerns (e.g., depression, anxiety, post-traumatic stress disorder, substance use) as well as social determinant of health (e.g., access to transportation, food, clean water). Additionally, a process of a "huddle" is used where each provider (PCPs, BHPs, and medical assistants) meet and discuss their patients for the day. This review allows for potential referrals to be identified before the patient even enters the clinic. As MFFM is a residency program, many PCPs providing clinical services are completing the final years of the training and must meet with a physician assigned as a supervisor, called a preceptor. In reviewing the patient with the preceptor,

either physician may determine that a referral for IPC is necessary. These additional steps each of these processes are extra opportunities where an IPC referral can be initiated.

Logistical Implications of PCBH

While PCBH is growing in popularity, and the initial research is promising, there is still a strong need for further research. Reviews of the current literature highlight that there is a significant lack of robust research on PCBH, with most studies lacking methodological rigor (Hunter et al., 2018). From a clinical perspective, patient outcomes with PCBH do not appear to be superior to other forms of healthcare integration (Possemato et al., 2018). Specifically, patients seen in a PCBH clinic do not appear to have better outcomes of depression, anxiety, and global functioning, compared to patients who are seen in clinics not using a PCBH model (e.g., collocated care, traditional primary care). There are other notable gaps in research, primarily regarding how PCBH impacts the logistic processes of a primary care clinic. Currently, most research regarding IPC implementation had been completed on the macro level, with comparisons being done between systems level implementation, such as the differences between co-located versus fully integrated models (Possemato et al., 2018). However, there is currently little to no research on the how PCBH is actually implemented on a clinic level. For instance, the PCBH model is designed under the assumption that BHPs can complete an assessment and intervention in a very brief manner, with current descriptions of the model saying that this should be completed in 15-30 minutes (Hunter et al., 2017). Despite this being a crucial aspect to the model, there is currently little to no research on if BHPs are completing consults within this time limit. This is vital information, considering that addition of a PCBH consult adds to the total time of a clinical encounter, and can add burden to a primary care system that already has a variety of barriers to providing services in a timely manner.

Clinical encounters for PCPs in primary care are generally very short, with most visits being scheduled for 10, 15, 20, or 30 minutes (Neprash et al., 2021). Within this small window of

time, physicians are under increasing pressure to monitor a multitude of medications and chronic conditions (Martin et al., 2015) and provide a variety of screeners and preventative services (USPSTF Program Office, 2021). Physicians are completing these clinical services in the context of increasingly burdensome and complex charting requirements, with PCPs in primary care spending an average of four hours a week charting completion of quality measures alone, such as a patient's cholesterol or blood sugar levels (Casalino et al., 2016; Linzer et al., 2015). Clinically, physicians are often behind schedule and feel pressured to complete their clinical work as quickly as possible (Konrad et al., 2010), leading to burnout (Rabatin et al., 2016). With all of the burdens on physicians time, most appointments in primary care exceed their scheduled time by at least a few minutes, if not by ten minutes or more (Neprash et al., 2021). While this may initially sound like a small inefficiency, this difference in time has significant implications. Appointments consistently going a few minutes over leads to physicians feeling rushed (Konrad et al., 2010) and increased waiting times for patients (Patwardhan et al., 2013). Research suggests that patients wait on average 20 minutes in the exam room before being seen by their PCP (Patwardhan et al., 2013). This is essentially "dead time," as a patient is using a clinical space with no clinical service being delivered, reducing the overall efficiency of the clinic.

It is within this context of system and physician burden that PCBH is being implemented. Considering that physicians are often behind schedule, asking them to add an additional service that may take 15-30 minutes, even if effective (Hunter et al., 2016), carries significant time burden for the provider and the clinic as a whole. While the BHP is completing the consult, they are utilizing clinical space and adding additional time to that patient's total length of appointment. This means that there is additional delay before that patient is discharged and the next patient admitted, potentially putting the physician further behind schedule. Thus, to be a

feasible clinical model, it is crucial for the effective implementation of PCBH that it can deliver these evidenced based services while adding minimal burden to the physician and the primary care clinic. However, given the current lack of research, it is unknown if BHPs are adding an additional 15-30 minutes as the model suggests (Hunter et al., 2017), or if this burden is even greater.

While adding clinical services with PCBH will invariably add more time, understanding other logistical aspects of PCBH may help improve its efficiency within a primary care clinic. One area of opportunity is in allocating appropriate time of both physicians and BHPs based on anticipated patient need (Gupta & Denton, 2008). For instance, PCPs report that visit duration is longer for patients with multiple presentation problems (Berk, 2020; Migongo et al., 2012), complex medical issues (Guy & Richardson, 2012), and those with mental health concerns, especially those with serious mental illness (Fleury et al., 2012). While there is currently no research that compares the impact of specific diagnoses on appointment time, this research overall suggests that more presenting problems, and complex presenting problems, lead to a longer visit. Understanding how these patient characteristics can impact appointment duration is important for clinic efficiency, as it can inform the scheduling of appropriate visit time depending on each patient's presenting problems (Gupta & Denton, 2008). For instance, knowing that a patient with several comorbid chronic conditions will take more time, the clinic can schedule the physician adequate time to meet that patient's needs (e.g., a 30-minute rather than a 15-minute appointment). This same process could be utilized to improve the process of PCBH. Specifically, knowing the estimated impact of patient presenting problem(s) on the amount of time to complete the consult can improve the BHP's ability to collaborate effectively with the physician. For example, if the BHP can estimate the amount of time to complete a

consult, they can work with the referring physician to make the best use of time and clinical space. If the physician has their next patient scheduled in 10 minutes, and the BHP knows that this consult will likely take them 30 minutes to address, the BHP could move the patient to a different clinical space to complete the consult. This allows the BHP to complete the consult while allowing the physician to admit their next patient when they are ready, as the physician's clinical space is available. This reduces burden on the physician as it does not disrupt their patient flow. Alternatively, the BHP could request that the patient be scheduled for a return visit to complete the consult when clinical space is available. Knowing the patient need, the clinic could schedule them an appropriate length of appointment (e.g., 15 vs. 30 minutes) based on their need. Overall, BHPs understanding the impact of patient characteristics on consult time can improve their implementation of PCBH by reducing the added burden of the model on physicians and primary care clinics.

However, as mentioned earlier, there is currently little to no research on the logistical implications of PCBH, or the impact of patient characteristics on its implementation. PCBH is currently being implemented based on a conceptual understanding of the model (i.e., 15–30-minute consults), but without any research on how long consults are taking in practice or how this may be impacting service delivery in a primary care setting. For instance, the PCBH model suggests that follow-up consults should take less time (e.g., 15 minutes) than initial consults (Robinson & Reiter, 2016). Conceptually, the BHP has already completed the initial assessment and delivered an intervention during the first consult and, ideally, will only have to assess its impact and adjust if needed in a follow-up consult. However, there is no research on how follow-up consults are working in practice and if they are indeed taking less time. Additionally, no research currently exists on how patient factors (e.g., diagnosis, number of presenting problems)

impact length of time required for a BHP to complete a consult. Research regarding physicians in primary care suggest that it is likely that patients with multiple presenting problems will require longer consults (Berk, 2020; Fleury et al., 2012; Guy & Richardson, 2012; Migongo et al., 2012); however, there is currently no research to confirm this for BHPs in a PCBH model. Importantly, these logistical questions are occurring in the context of a primary care system that is already taking a substantial amount of patient time and looking to improve efficiency (Ray et al., 2015). Current research suggests that the total time patients spend at the clinic for a primary care visit is 84 minutes; however, only 20 minutes of that is spent with the physician (Ray et al., 2015). Even if PCBH adds a consult that takes 15-30 minutes, as the model suggests, it is likely that this service would add more time to the total visit. While the consult itself may take 15-30 minutes, there are several other steps to this process that likely add additional time, including the time it takes for the physician to locate the BHP, to provide information during the warm-handoff, and for the BHP to debrief with the physician following the consult (Robinson & Reiter, 2016). However, the impact of a PCBH consult on the total length of a primary care appointment is unclear.

Overall, while PCBH is a promising form of integrated primary care, more research in these areas is needed to realize the full potential of this model. Understanding the needs of the patient population and providing efficient and evidenced based care is more important than ever given the recent COVID-19 pandemic (World Health Organization, 2022) and increased need for both physical (Sisó-Almirall et al., 2022) and mental health services (O'Connor et al., 2021; Schafer et al., 2022). The sections below will review the impact of COVID-19 on healthcare systems and patient presenting problems and propose a study on exploring PCBH during the COVID-19 pandemic.

COVID-19 and Healthcare

Impact on Patient Health

Changes in Healthcare Systems

Healthcare systems were significantly impacted by the onset of the COVID-19 pandemic. Since the beginning of the pandemic, there have been almost 400,000,000 diagnosed cases and more than 5,700,000 deaths worldwide, as well as over 75,700,000 diagnosed cases and 890,000 deaths in the United States (World Health Organization, 2022). To manage this public health crisis, healthcare systems had to rapidly adapt to address the need for testing and treatment, transforming areas previously used for other clinical work into COVID-19 testing and treatment centers (Vanuytsel et al., 2020). Additionally, healthcare systems shifted away from in person encounters and opted for telehealth (Cutler et al., 2020; W. R. Smith et al., 2020), with some large systems completing the majority of clinical services virtually (Croymans et al., 2020).

While arguably a necessary adaptation due to COVID-19, this shift abruptly reduced the ability of healthcare systems to treat other presenting problems and had a notable impact on patient health across the United States. For instance, this change led to significant decreases in utilization of healthcare across the board. For example, the number of visits to the emergency department declined by 20% (Harmon et al., 2021; Nguyen et al., 2022; Venkatesh et al., 2022) and utilization of primary care visits declined by up to 30% (Cantor et al., 2022). While decrease in utilization is likely related to systems changes and lack of access, there is also evidence to suggest that patients are voluntarily avoiding utilizing healthcare services. Surveys suggest that 20-40% of patients are purposefully avoiding healthcare due to concerns with COVID-19, with those reporting high levels of anxiety and depression being more likely to avoid (Czeisler, Marynak et al., 2020; Splinter et al., 2021). Specifically, 10% of patients said that they avoided

emergency care and 30% indicated they avoided routine care (Czeisler, Marynak et al., 2020). This avoidance has been directly connected to decrease utilization of healthcare. For instance, compared to pre-COVID-19, voluntary refusal of emergency medical services increased by almost 30% (Harrison et al., 2021). Of note, reductions in utilization did not return to their original baseline even with declining COVID-19 numbers, suggesting this may be a more longstanding attitude towards healthcare during the pandemic. This is especially concerning, given that patients indicated that they avoided healthcare despite experiencing potentially serious symptoms, such has heart palpitations, chest pain, or limb weakness (Splinter et al., 2021). This avoidance of healthcare and lack of treatment for serious and preventable conditions, likely has contributed to the increase in excess non-COVID-19 deaths since the start of the pandemic (Centers for Disease Control and Prevention, 2022).

An important piece of this to consider are how patients may be disproportionately impacted based on their demographics and aspects of diversity. In general, racial and ethnic minorities are disproportionately impacted by COVID-19; African American and those of Hispanic origin have higher mortality rates compared to those classified as non-Hispanic White (Centers for Disease Control and Prevention, 2022). For instance, COVID-19 data from Chicago, Illinois, indicates that those who identify as African American and Latinx make up comparable rates of COVID-19 cases compared to those who identify as White (22%, 29%, and 25%, respectively; Chicago Department of Public Health, 2022). Despite similar infection rates, mortality rates between the groups are highly disparate, with African Americans representing 42% of all mortalities, Latinx 30%, and White 22%. These healthcare disparities are also seen in utilization of healthcare. For example, research suggests that utilization of ambulatory medical services is slowly increasing after the onset of the pandemic, however, this increase was

significantly lower for patients with Medicaid or Medicare (Mafi et al., 2022; Sen et al., 2022). This disparity has also been seen when considering race, as African American patients are still less likely to utilize emergency services compared to White patients (Sen et al., 2022). Overall, the combination of the COVID-19 pandemic, the healthcare systems changes made in response, and the avoidance of healthcare, have led to significant reductions in healthcare utilization and has significant implications for physical and mental health of the general population.

Physical Health

Serious and chronic conditions, such as diabetes, chronic pain, cancer, or cardiovascular disease, are unfortunately ubiquitous in the United States, with approximately 60% of the population diagnosed with at least one chronic condition and 40% diagnosed with multiple chronic conditions (Buttorff et al., 2017). Many of these conditions require early detection and continued assessment and treatment to prevent worsening health or risk of death. This requires frequent interaction with the healthcare system. For example, it is suggested that for patients with diabetes, they should have their HbA1c tested two to four times a year (Fragala et al., 2021). However, with the recent focus on COVID-19, the management of chronic diseases was quickly disrupted, as at the onset of the pandemic face-to-face visits for assessment and management of chronic diseases decreased by over 40% (Sisó-Almirall et al., 2022). As mentioned previously, healthcare systems rapidly shifted to telehealth services, many elective treatments and surgeries were cancelled, and there was a shift to delivering a majority of services virtually (Croymans et al., 2020; Cutler et al., 2020; W. R. Smith et al., 2020). However, current research is ultimately limited on the effectiveness on virtual care for the treatment chronic health (Bitar & Alismail, 2021; Eccleston et al., 2020; Fowe, 2021). Additionally, the utilization of telehealth did not appear to compensate for the drop in face-to-face visits, as rates of diagnosis for a multitude of

chronic health conditions (e.g., hypertension, type 2 diabetes, chronic obstructive pulmonary disease) decreased by up to 50% (Sisó-Almirall et al., 2022). It is unlikely that these chronic conditions have declined in frequency by this rate, rather, it is likely that there are now a significantly larger portion of the population with undiagnosed, and therefore untreated, chronic conditions. Exacerbating this issue, as healthcare systems are taxed with addressing COVID-19 they are less able to provide preventative screenings (Kim et al., 2022). This could be seen most notably at the beginning of the pandemic after the nationwide implementation of stay-at-home orders (Moreland et al., 2020), as completion of primary care quality measures (screening for colon cancer, breast cancer, cervical cancer, diabetes A1C levels, and diabetes eye and nephropathy monitoring) declined drastically, with some screenings quality measures decreasing up to 75% (Kim et al., 2022). While these screening rates improved after stay-at-home orders were relaxed, quality measures did not return to pre-pandemic levels.

The reduction in screening and preventative care is likely to put an increased burden on the healthcare system, as patients with undiagnosed and untreated conditions are going to be seen more frequently. Similarly to the “waves” of increased COVID-19 diagnoses and deaths that we have seen, we are seeing a “wave” of new diagnoses and adverse events resulting from these undiagnosed and untreated health conditions. For instance, research of type 1 diabetes indicates that there has been a 23% reduction in new diabetes diagnoses (Rabbone et al., 2020). However, there has also been a 20% increase in severe adverse events for patients who are now receiving a new diagnosis. Similarly, in the frequency of hospitalizations due to cardiovascular concerns, such as heart attacks, decreased by almost 50% at the beginning of the pandemic (Solomon et al., 2020). This suggests that patients are not being assessed and diagnosed earlier and are only accessing healthcare after their condition has reached a severe level, or simply not accessing it at

all. We still may yet see consequences related to less acute conditions, and many experts have grown increasingly concerned about the rise of "silent pandemics" (Kirby & Duffett, 2020). With social distancing, stay-at-home orders (Moreland et al., 2020), and increases in unemployment (Falk et al., 2021), there are significant concerns about a rise in physical inactivity and obesity (Kirby & Duffett, 2020). While not an acute issue, long term obesity is related to increased risk for cardiovascular disease and diabetes in the future (Avenell et al., 2004). This means that the pandemic's impact on non-COVID-19 health outcomes may not yet be fully realized, and may be felt years after the pandemic (Roy et al., 2021). This will likely disproportionately impact individuals with fewer financial resources (Wilkinson et al., 2020). The frequent utilization of healthcare and treatment, often required in the management of chronic conditions, can be incredibly difficult for individuals with very low income. For example, management of diabetes often requires purchasing insulin pens or pumps, glucagon or ketone strips, and regular HbA1c testing (Ogle et al., 2019), materials and treatment that are expensive even for those with insurance (Chua et al., 2020; Meiri et al., 2020). Additionally, diabetes, like many other chronic conditions, often require frequent medical checkups which may be difficult if someone does not have access to reliable transportation. With access and utilization of assessment and treatment being disrupted due to COVID-19, management of these conditions will likely be more difficult than ever for individuals with few financial resources.

Overall, COVID-19 has disrupted the treatment for a variety of physical health conditions. Even as utilization rates of healthcare start to increase (Mafi et al., 2022; Sen et al., 2022), it is likely that the patient population will present with more frequent and severe physical health conditions (Roy et al., 2021). This may be as result of patients accessing healthcare for the first time since the beginning of the pandemic, or with new or worsened conditions as a result of

disruptions in care. As these patients return for routine care through primary care, it is likely to lead to an unprecedented influx of need for behavioral health interventions for chronic conditions.

Mental Health

The significant and abrupt changes to the healthcare system, combined with societal changes, and fear about COVID-19, have also negatively impacted patients' mental health. With the onset of the pandemic, it became clear that physical distancing was an important measure to reduce transmission of COVID-19, leading to widespread stay-at-home orders (Moreland et al., 2020). Even at the initiation of these orders, there was general concern on the potential mental health consequences of population based social isolation (Galea et al., 2020) in combination with emotional distress associated with COVID-19 (Taylor et al., 2020), and this concern appears to have been warranted (Panchal et al., 2020). For instance, research suggests that anxiety, depressive, and eating disorder pathologies, as well as suicidal ideation, increased worldwide after COVID-19, regardless of race, region of origin, age, or gender (O'Connor et al., 2021; Schafer et al., 2022). Additionally, these increases have been substantial, with depressive symptoms increasing by two to three fold, anxiety symptoms increasing threefold, and eating pathology symptoms increasing by 50% (Czeisler, Lane et al., 2020; Hansel et al., 2022). Substance use has also become a greater concern, as research suggests that approximately 50% of the population have increased their alcohol and drug use since the beginning of the pandemic, with 30% reporting severe alcohol use and 38% reporting severe drug use (Horigian et al., 2021). This increase in substance use has a very real impact, with drug overdoses increasing almost 30% from 2019 to 2020 (Andraka-Christou, 2021). While these changes in mental health are seen across the population, their impact is different depending on demographic and diversity

factors. For instance, while the general population experiences mental distress, women, Black, Asian, and other ethnic minorities, report almost three times greater distress compared to White men (Proto & Quintana-Domeque, 2021).

Mental health has also been negatively impacted due the impact of COVID-19 on socioeconomic factors. The widespread changes to prevent transmission of COVID-19, such as stay-at-home orders, had severe impacts on the Unite States economy. The unemployment rate rose to almost 15% and approximately 22 million jobs were lost (Falk et al., 2021). While this impacted all demographic groups, individuals identifying as Black or Hispanic, or those who were less educated, experienced higher rates of unemployment. Unsurprisingly, unemployment and job insecurity have significant impacts on mental health. Recent surveys suggest that individuals who are unemployed are up to six times more likely to report mental health symptoms, with 82% reporting anxiety and 74% reporting depression (Ganson et al., 2021). Additionally, even expecting to become unemployed or a reduction in hours working, especially for individuals in low income households, leads to poorer mental health (Ganson et al., 2021; Guerin et al., 2021).

The increase in mental health symptoms related to COVID-19 has led to a significant increase in demand for mental health services. Surveys of psychologists suggest that, since the onset of the pandemic, almost 40% are receiving more referrals, 29% seeing more patients, and 44% saying that patients are no-showing less frequently (American Psychological Association, 2020). This influx of need appears to be exceeding availability and overwhelming psychologists, as 30% stated that they were unable to meet the demand for treatment from their patients, and over 40% reporting that they were burned out (American Psychological Association, 2020). Since traditional mental services are struggling to meet the current need, it is likely that providers

in other settings will see more patients presenting with mental health concerns. Given that as many as half of all patients seen in primary care having a mental or behavioral health concern (Beck et al., 2019; Cherry et al., 2018), it is likely that this number have increased since the start of the pandemic, highlighting the need for mental health treatment in primary care.

Importance of Integrated Primary Care During COVID-19

With the rise in need for treatment for both physical and mental health needs, a PCBH model is uniquely positioned to address them. Prior to the pandemic, up to half of all patients seen in primary care had a behavioral health concern (Cherry et al., 2018), and given the research on increased population need described above, it is likely that these numbers will increase. With a large portion of the population coming into primary care with presenting problems that PCPs are not trained to treat (Accreditation Council for Graduate Medical Education, 2020; R. C. Smith, 2011), a PCBH model allows utilization of a lower cost BHP who is formally trained to address these presenting problems. This an ideal model for the current healthcare system, which has experienced significant financial losses due to reduction in healthcare utilization (Kaufman Hall, 2021). Additionally, research suggests that BHPs delivering interventions in a PCBH model can treat a variety of presenting problems, including of anxiety and depression (Angantyr et al., 2015; Sadock et al., 2014), post-traumatic stress disorder (Cigrang et al., 2011, 2015), sleep disturbance (Goodie et al., 2009), and tobacco use (Sadock et al., 2014). Additionally, compared to a traditional model of primary care, PCBH increases access to treatment for behavioral health concerns (Possemato et al., 2018). This is especially important considering the increased inequities in healthcare access for low income and racial and ethnic minority populations (James et al., 2021; Proto & Quintana-Domeque, 2021; Wilkinson et al., 2020). Overall, PCBH offers an

evidenced based and cost-effective method to address the growth of mental and physical health need due to COVID-19.

Purpose of the Current Study

PCBH is an ideal model to treat both physical and mental health concerns of patients during the COVID-19 pandemic. However, even prior to the pandemic, there was a call for more research on this model, as current research often lacked methodological rigor (Hunter et al., 2018) and there are questions about the advantages of PCBH over other IPC models (Possemato et al., 2018). With all the changes in healthcare systems, increases in patient mental and physical health concerns, and changes in healthcare utilization, research on PCBH is needed now more than ever. As current research suggests that both mental and physical health problems are increasing (Czeisler, Lane et al., 2020; Hansel et al., 2022; Roy et al., 2021), the current needs of the patient population seen in a PCBH setting are unclear. Additionally, assessing the needs of ethnic and racial minorities, as well as patients of low socioeconomic status, can provide insight to the needs of the most at-risk populations seen within PCBH. Overall, given the lack of information on PCBH practice since the onset of the COVID-19 pandemic, an examination of current practice is warranted.

Additionally, examination of the length of time for services can inform us regarding patient and provider needs. As mentioned previously, appointments that take more time reduce the efficiency of the system, as if appointments are taking longer the total amount of appointments that can be offered are reduced. Identifying factors that lead to longer appointments can be useful for several reasons. First, it can highlight what patients are in most need. Knowing this can help direct creation of resources and training for providers that are specifically targeted for these high need populations. Additionally, identifying factors that increase the time needed to complete IPC consults, as well as the entire appointment, can inform areas with potential inefficiencies. For instance, the model suggests that follow-up consults

should take less time, but no research confirms this. Understanding if this is the case can demonstrate how the model works in practice and help guide scheduling. For example, knowing if follow-up appointments generally take 15 minutes compared to 30 minutes can help the clinic block the appropriate amount of time. Another potential area that could impact appointment length is patient presenting problem. It is likely that patients with more complex presentations, such as those with multiple diagnoses, will require more time in an appointment and IPC consult. For example, a patient with a diagnosis of serious mental illness often present with complex issues, such as impaired social skills, a large list of psychiatric medications, and a multitude of comorbid chronic conditions (De Hert et al., 2011). If this patient also was struggling with diabetes management and a substance abuse disorder, it is likely to take longer as the BHP will have more problems to assess, and the problem they intervene on will likely be complicated by these comorbid disorders. There is currently no research on the impact of patient complexity on the time required to complete a consult, though research suggests that appointments with patients who have multiple diagnoses lead to longer appointments for physicians in primary care (Berk, 2020; Migongo et al., 2012). While presentations of many disorders will continue to be complex, and thus need more time, addressing other modifiable factors (e.g., ensuring providers are appropriately trained to treat the presentation, having easily accessible resources relevant to that population) may improve the efficiency of IPC. Considering this in the context of COVID-19, improving the efficiency of IPC consults can increase the ability to the system to see more patients and better meet the growing need for mental and physical health treatment. As mentioned, all of these factors occur in the context of a primary care system that is concerned with its efficiency in delivering clinical services (Ray et al., 2015). Understanding how the multiple processes of PCBH (e.g., warm-handoff, intervention, and assessment) impact the

length of a primary care visit is important to understanding how the model influences process flow and efficiency of the primary care system.

Lastly, it is important to consider all these factors in the context of a low income and racial and ethnic minority population. As these populations are disproportionately impacted by mental and physical health concerns (Ganson et al., 2021; Guerin et al., 2021; Proto & Quintana-Domeque, 2021), coupled with their lack of financial resources, it is crucial that healthcare systems can efficiently and effectively provide them treatment. Identifying most common presenting problems, as well as highlighting potential areas to improve system efficiency, can ensure we are providing quality care to this population, especially during the COVID-19 pandemic.

Aims and Hypotheses

This study has four primary aims with the goal to provide clarity on a PCBH model providing care to a low income and racial and ethnic minority population during COVID-19.

- Aim 1: Evaluate the characteristics of the McLaren PCBH clinics, and compare these characteristics between the internal and family medicine clinics. Aspects assessed will include: Total patients seen for IPC, length of IPC encounters, frequency of IPC referrals based on PGY status, most common reasons for referrals (behavioral health, mental health, or a combination of mental health and behavioral health), and what diagnoses are most given after the conclusion of the IPC encounter.
- Aim 2: Determine if IPC practice has changed between pre- and peri-COVID-19. Factors assessed include frequency of IPC referrals, most common reasons for referral, length of IPC encounters, and most common diagnoses given.

- Aim 3: Assess healthcare provider opinion on IPC process and patient presenting problems during COVID-19.
- Aim 4: Examine the impact of PCBH consults on total length of a primary care visit.

Additionally, this study has two hypotheses to determine the impact of patient and consult characteristics on the time needed to complete the clinical encounter:

- Hypothesis 1: IPC consults for patients with multiple diagnoses will take longer than IPC consults for patients with any other diagnosis type.
- Hypothesis 2: Initial IPC consults will take longer than a follow up IPC consult.

Methods

Participants

Two clinics participated in this study: McLaren Flint Family Medicine (MFFM) and McLaren Flint Internal Medicine (MFIM), operating within Flint, Michigan. These clinics operate using a PCBH model. During the time period between September 2018 and January 2022, 1,172 unique IPC consults were completed and logged. Of those recorded, 666 were initial consults and 395 were follow up consults, with 112 consults not labeled. Of these, total length of the appointment was assessed for 65 consults. Both MFFM and MFIM clinics treat a patient population that is predominantly African American (54%) and low socioeconomic status (U.S. Census Bureau, 2021). Specifically, the median household income in Flint is $28,834, with 39% living below the poverty line, and only 12% of the population possessing a bachelor's degree.

Measures

A variety of methods were used to gather data on demographics as well as the outcomes of length of appointment, aspects of each IPC appointment, and general IPC utilization.

IPC Spreadsheet

Data on IPC utilization is currently being collected by BHPs on an excel spreadsheet. After completing an IPC, the BHP logs the IPC as well as other relevant data, including the PCP who gave the referral, the PCP's year of residency, the preceptor for the PCP, the length of time of the IPC, the patient's diagnosis, the date the IPC occurred, and the BHP who completed the referral. Data from this spreadsheet were used to retrospectively assess characteristics of IPC at McLaren. As providers are logging specific diagnoses and presenting problems for each encounter, these diagnoses will be grouped into different categories: anxiety disorders, depressive disorders, substance use disorders, serious mental illness, behavioral health disorders,

trauma/stressor induced disorders, multiple diagnoses, and other diagnoses (Table 2). Anxiety disorders consist of all anxiety related diagnoses, including generalized anxiety disorder, unspecified anxiety disorder, and panic disorder. Depressive disorders consist of all depressive related diagnoses, including major depressive disorder, unspecified depressive disorder, and persistent depressive disorder. Substance use disorders consist of diagnoses related to substance use, including tobacco use disorder, cannabis use disorder, and alcohol use disorder. Behavioral health disorders include presenting problems related to lifestyle and chronic conditions, such as insomnia, hypertension, or diabetes management. Serious mental illness consists of diagnoses of bipolar disorder, psychotic disorders, and borderline personality disorder. Trauma/Stressor induced disorders will include adjustment disorders, unspecified trauma disorder, and post-traumatic stress disorder. The multiple diagnoses category includes any consult for which more than one diagnosis was provided. Lastly, a small number of consults resulted in no diagnosis being provided.

Table 2

Consult Diagnoses

Diagnostic Category	% (*n*)
Anxiety Disorders	12% (*n* = 137)
Depressive Disorders	23% (*n* = 250)
Substance Use Disorders	6% (*n* = 66)
Behavioral Health Disorders	8% (*n* = 86)
Serious Mental Illness	7% (*n* = 83)
Trauma/Stressor Induced Disorders	16% (*n* = 174)
Multiple Diagnoses	19% (*n* = 209)
Other	7% (*n* = 83)
No Diagnosis	2% (*n* = 23)

Length of Appointment

To determine length of appointment, a researcher (including practicum students as well as the primary investigator) logged admission times for patients as soon as they were admitted to the exam room. Time of admission was tracked for each patient as they were admitted to the exam room and discharged to the waiting room. The researcher then added the total appointment length to each associated IPC in the IPC log. This addition of a row of time from admission to discharge was the only modification made to the existing IPC log. As mentioned previously, total length of appointment was assessed on a total of 65 unique IPC consults.

Provider Perspective on IPC

To obtain feedback on the IPC process during COVID-19, a survey was used (Appendix A). Ten to 30 providers were recruited, including PCPs, faculty, and BHPs. This multidisciplinary sample allowed for information to be collected from different providers at different steps of IPC, allowing for more comprehensive feedback. Informed consent was obtained from all providers who participate in the survey (Appendix B). The survey was created on Qualtrics and was distributed to providers by current directors at McLaren.

Study Design and Procedure

Data used in the present study was collected as part of routine process at both MFFM and MFIM. All data used, except for length of appointment, was part of retrospective chart review via the IPC excel spreadsheet utilized at the site. IPC at both MFFM and MFIM follows the PCBH model (Hunter & Goodie, 2010) with the BHP's serving as a consultant to the PCP, waiting for a referral from a PCP and providing them recommendations for how to best implement the patient's treatment plan, and assisting in its implementation. At both MFFM and MFIM, physicians typically see a patient, identify a relevant presenting problem, and then

provide warm handoff to the BHP. The BHP then sees the patient, completes assessment and intervention in 15-30 minutes, and then consults with the referring provider about the interaction. The BHP then inputs data from the interaction into the IPC log.

The only addition to the routine PCBH procedure at MFFM is the tracking of total length of appointment. Due to insufficient staff to collect data, this process was only assessed in MFFM. To track appointment length, the researcher was in the nursing station with access to the electronic health record, near the medical assistants, and in full view of each new patient who is being admitted. This allowed the researcher to be able to identify the name of each patient as they are admitted by asking the medical assistant or through the electronic health record. Time of admission was tracked for each patient as they are admitted to the exam room. Specifically, the researcher marked the time that each patient enters the door to the nurses' station from the waiting room. Times were also marked for each patient after they were discharged to the waiting room, providing an overall appointment time for each patient. These admission and departure times as well as the date and initials of the patient were kept in the IPC log excel file, though on a separate excel sheet in that file to not disrupt the current system of collecting IPC data. The researcher then added the total appointment length to each associated IPC in the IPC log. This addition of a row of time from admission to discharge was the only modification made to the existing IPC log.

Data Analysis

Data analysis consisted of a review of descriptive statistics, including frequency of IPC visits, diagnoses, referral by post-graduate year status, and length of appointment. General linear regression models were used to test the relationship between type of consult and length of consult. Covariates in the models were physician who referred for IPC, year of residency for

referring physician, BHP who completed the IPC, and the age of the patient. Listwise deletion was used for any IPC's that has missing data for any relevant variable. Additionally, linear mixed models were used to test the relationship between diagnostic category and the outcome of length of consult. Using this analysis is indicated as data was analyzed longitudinally and thus is not independent, as many consults may have been completed with the same patient, and linear mixed models can account for the within-subject variability. Additionally, not all patients have completed the same number of consults (e.g., some completed two, others five) and linear mixed models are able to account for this. For this analysis, while some patients may have completed multiple consults, data was collected over several years and the time delay between these consults could be extensive (i.e., one or more years). As the intention of the analysis is to examine the differences between initial and follow-up consults, comparing consults with a large time delay is conceptually inconsistent, as many patient factors may have changed (e.g., presenting problem, financial situation, medications, etc.) leading to a consult that will be more functionally and logistically like an initial consult (e.g., time spent assessing and introducing an intervention) than a follow-up consult (e.g., following up on the impact of an intervention). As a result, follow-up consults of six months or greater will not be included in the analyses testing Hypothesis 2.

Qualitative data from the survey was analyzed in a multistep process focused on grouping responses into small units (e.g., one or more sentences), collecting these units into distinct groups based on similar content, and then identifying overall themes (Corbin & Strauss, 2014; Onwuegbuzie et al., 2009). All responses were considered for each individual survey question. Each individual provider's responses was analyzed for the question, examining responses for specific and repeated word and phrase usage. All responses were then reviewed and main themes

in responses were identified. Consensus between participants was also noted within each theme if relevant. This process of analyzing responses to the survey up question was repeated for each individual question. Any consistent overall themes were then identified, including across questions (e.g., fear of COVID-19 exposure is a consistent barrier). These overall themes were presented in the results, including relevant quotations from providers to demonstrate these themes.

All data was deidentified to allow for data analysis to occur outside of McLaren Flint. Specifically, all patient names on the IPC excel spreadsheet were removed and replaced with an arbitrary ID number so that all data deidentified, but still attached to that specific IPC appointment. Additionally, all responses from the survey were not connected to any identifiable provider information.

Results

Aim 1: Evaluate the Characteristics of the McLaren PCBH Clinics, and Compare These Characteristics Between the Internal and Family Medicine Clinics

From the period between September 2018 and January 2022, 1,172 unique IPC consults were completed and logged, with more consults being completed in MFFM than in MFIM (Table 3). For MFFM, there were 423 initial consults and 289 follow-up consults, with follow-up consults making up 40.53% of all MFFM consults. Sixty-seven MFFM consults were missing data for if they were an initial or follow-up consult. For MFIM, there were 238 initial consults and 105 follow-up consults, with follow-up consults representing 30.41% of all MFIM consults. Forty-six MFIM consults were missing data for if they were an initial or follow-up consult. For diagnoses, depressive disorders, multiple diagnoses, and trauma/stressor induced disorders were the most common diagnoses given for both clinics.

Table 3

Consults in Family and Internal Clinics

IPC Consult Diagnoses	Family Medicine *n* = 712 Frequency (% *n*)	Internal Medicine *n* = 345 Frequency (% *n*)
Anxiety Disorders	90 (*12.11*)	46 (*12.96*)
Depressive Disorders	173 (*23.28*)	77 (*21.41*)
Substance Use Disorders	42 (*5.52*)	24 (*6.76*)
Behavioral Health Disorders	57 (*7.67*)	29 (*8.17*)
Serious Mental Illness	64 (*8.61*)	19 (*5.35*)
Trauma/Stressor Induced Disorders	107 (*14.13*)	65 (*18.31*)
Multiple Diagnoses	135 (*18.17*)	68 (*19.16*)
Other	64 (*8.61*)	19 (*5.35*)
No Diagnosis	14 (*1.88*)	9 (*2.54)*

Note. Thirty-two were excluded from MFFM, and 35 were excluded from MFIM due to missing data.

Consults in MFFM took on average less time than consults in MFIM (Table 4). However, visual analysis of the data identified extreme values for both MFFM (19 outliers) and MFIM (12 outliers). All outliers, except for one (a one-minute consult), were consults that took a much greater amount of time than expected (e.g., up to 120 minutes). When these were removed, average duration of MFFM consults dropped to 22.27 minutes and MFIM dropped to 23.53 minutes. Overall, 117 consults, 9.9% of all consults, were more than 30 minutes. For both clinics, PGY 3 residents were most likely to make IPC consults, followed by PGY 1, PGY 2, and attendings (Table 5). Notably, PGY 3 providers in MFFM more commonly provided IPC referrals compared to PGY 3 providers in MFIM. Additionally, attendings were much more likely to make IPC consults in MFIM than attendings in MFFM.

Table 4

Duration of Consults in MFFM and MIFM

	Duration of Visit	
	Family Medicine *n* = 754	Internal Medicine *n* = 375
Mean	23.48	24.47
Std. Deviation	11.13	9.62
Minimum	5.00	1.00
Maximum	120.00	75.00

Note. Data is reported in minutes. MFFM also had three cases that were omitted due to missing data. MFFM also had one case omitted due to missing data.

Table 5

Consults in Clinics by PGY Status

Provider Education Level	Family Medicine *n* = 727 Frequency (% *n*)	Internal Medicine *n* = 312 Frequency (% *n*)
Table 5 continued		
PGY 1	176 (*24.31*)	80 (*25.48*)
PGY 2	144 (*19.48*)	70 (*22.58*)
PGY 3	377 (*52.07*)	102 (*32.90*)
Attending	30 (*4.14*)	60 (*19.03*)

Note. Fifty-two MFFM consults, and 79 MFIM consults were excluded due to missing data.

Reasons for consults were similar between MFFM and MFIM, with mental health being the most common reason for a consult, followed by both mental and behavioral health, and behavioral health (Table 6). BHPs tracking IPC consults provided brief descriptions for the reason for the consult, and analysis of these descriptions provided additional information for why consults were placed (Table 7). Providers most often made consults for multiple reasons, followed by anxiety symptoms, depressive symptoms, and for behavioral health concerns. Consults for multiple reasons were most often given for two presenting problems in both MFFM (84%) and MFIM (77%). Of these consults in MFFM, most included anxiety (15.42%), depression (27.86%), or both (39.80%) as reasons for the consult. Similarly, in MFIM, multiple consults often included anxiety (17.54%), depression (23.68%), or both (35.97%) as reasons for the consult.

Table 6

Reasons for Consult in MFFM and MIFM

IPC Consults	Family Medicine *n* = 589 Frequency (% *n*)	Internal Medicine *n* = 360 Frequency (% *n*)
Mental Health	326 (*55.39*)	202 (*56.02*)
Behavioral Health	125 (*21.19*)	73 (*20.17*)
Mental and Behavioral Health	137 (*23.42)*	85 (*23.81*)

Note. PGY data was missing from 190 MFFM consults and 31 MFIM consults.

Table 7

Problem Addressed in Consult in MFFM and MFIM

IPC Consults	Family Medicine *n* = 674 Frequency (% *n*)	Internal Medicine *n* = 376 Frequency (% *n*)
Anxiety Symptoms	95 (*14.03*)	56 (*14.75*)
Depressive Symptoms	90 (*13.28*)	50 (*13.41*)
Substance Use	38 (5.*52*)	24 (*6.43*)
Behavioral Health	85 (*12.69*)	48 (*12.60*)
Serious Mental Illness	13 (*1.94*)	8 (*2.15*)
Trauma/Stressor Symptoms	46 (*6.87*)	26 (*6.97*)
Diagnostic Evaluation	37 (*5.52*)	21 (*5.63*)
Risk/Risk Assessment	21 (*3.13*)	8 (*2.15*)
General Coping Skills	12 (1.*64*)	1 (0.*27*)
Multiple Reasons	201 *(30.00*)	114 (30.*56)*
Other	36 (*5.37*)	20 (*5.09*)

Note. One hundred and five consults in MFFM and 15 consults in MFIM were excluded due to missing data.

Aim 2: Determine If IPC Practice Has Changed Between Pre- and Peri-COVID-19

The period of September 14, 2018, until March 25, 2020, was classified as pre-COVID-19, a total of 558 days, and March 25, 2020, until January 18, 2022, was classified as peri-COVID-19, a total of 664 days. There were more consults during pre-COVID-19 than during the peri-COVID-19 period (Table 8), though the rate of consults remained largely the same, with an

average of .97 consults per day during pre-COVID-19 and .95 consults per day during peri-COVID-19. For pre-COVID-19, there were 217 initial consults and 272 follow-up consults, with follow-up consults representing 55.62% of all pre-COVID-19 consults. Fifty-three were not included in review of follow-up consults from pre-COVID-19 consults due to missing data. For peri-COVID-19, there were 448 initial consults and 122 follow-up consults, with follow-up consults representing 21.4% of all peri-COVID-19 consults. Sixty consults were not included in review of follow-up consults from pre-COVID-19 follow-up due to missing data.

Table 8

Diagnoses Between Pre- and Peri-COVID-19

IPC Consults	Pre-COVID-19 *n* = 542 Frequency (% *n*)	Peri-COVID-19 *n* = 630 Frequency (% *n*)
Anxiety Disorders	46 (*8.49*)	91 *(16.14*)
Depressive Disorders	124 (*22.88*)	126 (*22.34*)
Substance Use Disorders	22 (*4.06*)	44 (7.*80*)
Behavioral Health Disorders	45 (*8.30*)	41 (7.*27*)
Serious Mental Illness	50 (*9.23*)	33 (*5.85*)
Trauma/Stressor Induced Disorders	67 (*12.36*)	107 (18.*97*)
Multiple Diagnoses	129 (*23.80*)	74 (*13.12*)
Other	44 (*8.12*)	39 (*6.92*)
No Diagnosis	14 (*2.58*)	9 (*1.59)*

Note. One consult from pre-COVID-19 and 66 consults from peri-COVID-19 were excluded due to missing data.

Additionally, there were some notable differences in rates of diagnoses. Anxiety disorders almost doubled in rate during peri-COVID-19, with increases also seen in substance use disorders and trauma/stressor induced disorders. Diagnoses of serious mental illness and consults with multiple diagnoses both had notable declines during peri-COVID-19. Consults during pre-COVID-19 generally took less time than consults during peri-COVID-19 (Table 9). Visual analysis of the data identified outliers for both pre-COVID-19 (10 outliers) and peri-COVID-19

(24 outliers). All outliers, except for one (a one-minute consult), were consults that took a much greater amount of time than expected (e.g., up to 120 minutes). When these were removed, average duration of pre-COVID-19 consults dropped to 21.88 minutes and peri-COVID-19 dropped to 23.23 minutes. Reasons for consults remained relatively similar between pre- and peri-COVID-19, with mental health being the most common reason, followed by both mental and behavioral health, and behavioral health (Table 10). Further analysis of brief descriptions for the reason of consult given by the BHP who completed the consult provided further insight into reasons for consult (Table 11). There were some differences for reasons for consults between pre- and peri-COVID-19. Anxiety, depression, and substance use all had notable increases during peri-COVID-19, while consults for behavioral health, diagnostic evaluations, and risk assessment all had notable decreases.

Table 9

Duration of Consults During Pre- and Peri-COVID-19

	Duration of Visit	
	Pre-COVID-19 *n* = 532	Peri-COVID-19 *n* = 601
Mean	22.69	24.83
Std. Deviation	9.16	11.75
Minimum	5.00	1.00
Maximum	79.00	120.00

Note. Data is reported in minutes. Peri-COVID-19 had four cases omitted due to missing data.

Table 10

Reasons for Consults During Pre- and Peri-COVID-19

IPC Consults	Pre-COVID-19 *n* = 337 Frequency (% *n*)	Peri-COVID-19 *n* = 614 Frequency (% *n*)
Mental Health	172 (*51.04*)	356 (*57.98*)
Behavioral Health	78 (*23.15*)	120 (*19.54*)
Mental and Behavioral Health	87 (*25.82*)	138 (*22.48*)

Note. Two hundred and five cases were excluded from pre-COVID-19 and 16 excluded from peri-COVID-19 due to missing data.

Table 11

Reasons for Consult

IPC Consults	Pre-COVID-19 *n* = 426 Frequency (% *n*)	Peri-COVID-19 *n* = 626 Frequency (% *n*)
Anxiety Symptoms	39 (*9.16*)	112 (*17.89*)
Depressive Symptoms	45 (*10.56*)	96 (*15.34*)
Substance Use	16 (*3.76*)	46 (*7.35*)
Behavioral Health	76 (*17.84*)	57 (*9.11*)
Serious Mental Illness	10 (*2.35*)	11 (*1.76*)
Trauma/Stressor Symptoms	27 (*6.34*)	45 (*7.19*)
Diagnostic Evaluation	39 (*9.16*)	19 (*3.04*)
Risk/Risk Assessment	17 (*3.99*)	12 (*1.92*)
General Coping Skills	9 (*2.11*)	4 (0.*64*)
Multiple Reasons	133 (*31.22*)	183 (*29.23)*
Other	15 (*3.52*)	41 (*6.55*)

Note. For reasons for consults, 116 were excluded from pre-COVID-19 and four were excluded from peri-COVID-19 due to missing data.

Aim 3: Assess Healthcare Provider Opinion on IPC Process and Patient Presenting Problems During COVID-19

Surveys were completed online by 18 providers at McLaren Flint, including 15 physicians and three psychologists. All respondents provided answers to each question except for one, who did not answer the last two questions. An additional six begin the survey but did not

answer any of the questions, so they were excluded from the analysis. Analysis revealed three overarching themes and several associated subthemes. General themes include a) an increase in patient mental health needs, b) reduced access to care, and c) logistical problems impacting IPC. Table 12 provides a breakdown of these themes, associated subthemes, and provides quotations that exemplify each of the themes.

Table 12

Themes from Providers Working in IPC

Themes	Codes	*Quotations*
Increase in patient mental health needs	Increases in anxiety, depression, social isolation, adjustment	*"With COVID there is an increase in report of psychosocial adjustment concerns that require/could be improved with psychological interventions strategies."*
Subtheme – Disproportionate impact on low SES patients	Impact, fear, stress, on low SES and ethnic and racial minority patients	*"[COVID has] made some [patients] more isolated, many more anxious, and some more depressed.* *"Mostly it is the result of people of low SES having to work in high-risk situations, while living in close quarters with a multigenerational family and using mass transportation, so the epidemiology is stacked against them."*
Reduced access to care	Difficulty accessing care/follow up care, providers unable to provide diagnostic and preventative care	*"Low SES are definitely impacted more. Many patients were either frontline workers or couldn't afford not to work. The fear and stress just from going to work was really hard on people."*

Table 12 continued

Themes	Codes	Quotes
		"COVID has potentially impacted on preventing patient to see their providers. I believed that besides patient's adherence to treatment, covid somewhat stops patient to see their doctors, no device for telehealth appointment, no prescription refill, and led to more serious physical/mental illness."
Logistical problems impacting IPC	Trouble finding BHPs, patients needing to leave, lack of available appointments	*"[Patients] were not able to follow up with their physicians on a regular basis and…that had created a huge impact in their physical and mental health."* *"It takes time to find IPC person, as they are covering both FM and IM clinics at the same time on some days"* *"Some patients do not want to wait longer if their rides are scheduled, some have difficulty scheduling it very often due to their work schedule. Most times appointments were not available for the patients."* *"Severity of the patient's condition as well as if the patient has multiple co-morbid conditions."*
Subtheme – Patient factors impacting session length	Severity of symptoms, number of diagnoses, general complexity, and risk of suicide/homicide, increasing length of appointments	*"Patients in crisis or with severe symptoms always take longer"*

Table 12 continued

Themes	Codes	Quotes
Subtheme – Recommendations for improving IPC	Increasing access via telehealth, additional IPC appointment availability, improve education and understanding about IPC	*"Have Behavioral medicine use telemedicine to follow-up with patients who are limited to how much time they can spend in our office due to transportation issues or appointments with other healthcare providers."* *"Continue to educate the rest of the team on the skills and impacts that IPC can bring to the table."*

For increase in patient mental health needs, several respondents highlighted the impact they had seen of social isolation on their patients. While many referenced an increase in mental health needs, respondents frequently noted that their patients had reduced ability to cope and an increase in anxiety, with a few respondents also noting increases in sadness, depression, and grief (e.g., due to COVID related deaths of loved ones). Lack of access to care, especially during the beginning of the pandemic, was also cited as a reason respondents believed patients health had declined during COVID. A subtheme among responses was also identified, highlighting the disproportionate impact respondents had seen on patients who were of low socioeconomic status (SES). Responses indicated that many of their low SES patients had greater fear and stress as they had to work during the pandemic in high-risk situations due to their limited financial resources. Others noted that patients of racial and ethnic minorities, specifically their African American patients, experienced increased stress due to system barriers, racial trauma, as well as a lack of trust in the medical system.

Another overall theme among responses was the impact of COVID-19 on their patients' access to care. Reduced clinic appointments and patients cancelling due to illness were

frequently cited as barriers. Overlapping with the themes regarding low SES patients, responses highlighted that care, including IPC, during COVID-19 peaks was often shifted to telehealth, but that many of their patients could not afford the technology to access these services. For patients who were able to access the services, respondents were mixed on their effectiveness. Some noted that IPC interventions conducted virtually were useful in increasing access, but others believed they were not as effective compared to when they were able to be done in-person.

The last overall theme was regarding the logistical problems impacting IPC. Respondents frequently highlighted that there was often limited availability of BHPs for IPC consults. Some responses noted a lack of BHPs overall, while others said that BHPs were sometimes unavailable for consults as they were covering both MFFM and MFIM clinics simultaneously. Patient factors were also often noted, with many patients not able or wanting to extend their visit for an IPC consult. Responses highlighted several reasons for this, including patients not having additional time for an IPC consult (e.g., having a ride scheduled to come pick them up at a specific time), difficulty with scheduling IPC visits (e.g., conflicts with work schedule), or patient stigma about receiving mental health services. Two subthemes were also identified. First, many responses noted patient factors that also impacted the duration of IPC consults. Respondents frequently referenced patient symptom severity, number of comorbidities, complexity of presenting problem(s), and crisis situations (e.g., suicidal or homicidal ideation/intent), as leading to longer visits. Second, many respondents also recommended improvements for improving IPC. Many respondents recommended expansion of IPC availability, specifically through additional coverage and expansion of IPC telehealth services. Specifically, regarding telehealth, respondents stated that this would allow access to patients who would otherwise be interested and benefit from these services but who have a variety of barriers (e.g., limited amount of time at

the clinic, transportation issues, illness) to accessing services. Additionally, several responses highlighted the need for additional education regarding the potential use of IPC, specifically noting the need for physicians to be better aware of patient issues which could be addressed through an IPC consult.

Aim 4: Examine the Impact of PCBH Consults on Total Length of a Primary Care Visit

Data was collected for total length of appointment for 62 primary care visits in MFFM where an IPC consult was also completed. On average, appointments took 89 minutes, ranging from 21 to 182 minutes, with a standard deviation of 32.93 minutes. Of these 62 appointments, no data was available for the duration of the IPC consult for 19 appointments. As a result, percentage of time could not be assessed for these 19. Of the 43 analyzed, the average duration of IPC consults was 21.88 minutes, ranging from 5 to 110 minutes, with a standard deviation of 15.43 minutes. IPC consults ranged from 9.6% to 95% of the total appointment, with a mean of 29% and a standard deviation of 20%.

Hypotheses

Duration of IPC consult is the dependent variable for both hypotheses. Data regarding duration was missing for two consults and so these were not included in the analysis. Visual examination of box and whisker plots indicated 38 outliers, each lying 1.5 times above the interquartile range of the distribution (each consult was 50 minutes or greater), a common method of identifying outliers (Saleem et al., 2021). These consults were excluded from the analyses, resulting in a total of 1135 consults included in the analyses for Hypotheses 1 and 2.

Review of covariates indicated that more than 100 unique physicians provided referrals for IPC and more than 50 BHPs and combination of BHPs completed consults. Given the number of levels in each of these covariates, each covariate was recoded. Referring provider and

BHP completing the consult were recoded to the number of consults referred and completed by each provider. This created two continuous covariates that allow for accounting the impact on frequency of providing and completing referrals on duration of consults. An assumption for inclusion of covariates is that they have a linear relationship with the dependent variable (Kaymaz et al., 2020). To test for this relationship, correlations were tested for each covariate with the dependent variable (Table 13). As age of patient, PGY status of referring provider, and behavioral health consult, were not associated with the dependent variable, and PCP making the referral was only slightly correlated with the dependent variable, no covariate was included in the analyses.

Table 13

Correlations with Confidence Intervals

Variable	1	2	3	4	5
1. Duration of Visit					
2. Referral Source	-.06* [-.12, .00]				
3. Age	.06 [.00, .12]	.05 [-.01, .10]			
4. Resident Status	.03 [-.03, .09]	.30*** [.25, .36]	.06 [.00, .12]		
5. Behavioral Health Consultant	-.04 [-.09, .02]	.07* [.01, .13]	.08** [.02, .14]	.05 [-.01, .11]	

Note. Values in square brackets indicate the 95% confidence interval for each correlation. * $p < .05$. ** $p < .01$. *** $p < .001$.

Hypothesis 1: IPC Consults for Patients with Multiple Diagnoses Will Take Longer Than IPC Consults for Patients With Any Other Diagnosis Type

General linear regression models were used to assess the relationship of patient diagnoses on duration of IPC consults. Separate analysis of variance analyses were conducted on both initial and follow-up consults to assess the impact of diagnosis on duration in these two separate groups of consults. For initial consults, Levene's test, a measure of homogeneity of variance, indicated that variances between groups were equal, $F(8, 590) = 1.46$, $p = .17$; thus, the assumption of homogeneity of variances was not violated. Additionally, review of Q-Q plots indicated that residuals are normally distributed. The analysis of variance for initial consults predicting duration of consult from diagnosis type was not statistically significant, $F(8, 590) = .79$, $p = .60$. For follow-up consults, Levene's test was not violated, $F(8, 368) = 1.17$, $p = .32$, and review of Q-Q plots indicated that residuals were normally distributed. The analysis of variance for follow-up consults predicting duration of consult from diagnosis type was not statistically significant, $F(8, 368) = 1.39$, $p = .20$.

Hypothesis 2: Initial IPC Consults Will Take Longer Than a Follow-Up IPC Consult

Mixed effects models were used to determine a statistically significant difference between follow up IPC consults on duration of IPC consults. There were 337 consults, including initial and follow-up consults. All follow-up consults included were less than six months after than the previous consult. Fourteen of these consults were identified as outliers (i.e., greater than 50 minutes) and excluded from the analysis, leaving a total of 323 consults (Table 14).

Table 14

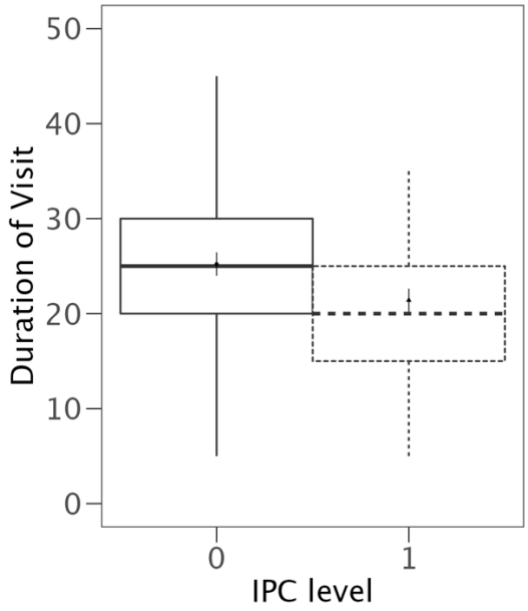
Number of Follow-Up Consults

IPC #	Frequency	Percent
1	133	41.18
2	137	42.42
3	39	12.07
4	11	3.41
5	3	0.93

Most consults were either an initial or a first follow-up consult, with a minority of follow-up consults being a third, fourth, or fifth follow-up consult. As most consults were a first or second consult, two models were created to determine which model best fit the data, one with two levels containing data from only first and second consults (Model 1), and a second model including data from all consults (Model 2). The Akaike information criterion (AIC) and Bayesian Information criterion (BIC) were used to test model fit, with a lower AIC and BIC values indicating a better quality of fit. Model 1 had an AIC of 1847 and BIC of 1861, and Model 2 had an AIC of 2228 and a BIC of 2254, indicating that Model 1 was a better fit and thus the model that was chosen. The model testing the relationship between follow-up consult and duration of visit was statistically significant, $F(1, 131) = 21.04$, $p < .001$. Review of main effects indicate that initial consults took an average of 25.21 minutes, SE = .63, 95% CI [23.99, 26.44]. Conversely, follow-up consults took on average 21.41 minutes, SE = .62, 95% CI [20.20, 22.62]. Graphical representation of the main effects can be seen in Figure 1.

Figure 1

Differences in IPC Duration Between Initial and Follow-Up Consults



Note. IPC levels defining initial and follow-up consults, with initial represented by 0 and follow-up represented by 1. Duration of visit is reported in minutes.

Discussion

The current study reviewed the process of IPC in two primary care clinics during pre and peri-COVID-19. The following section reviews the results regarding the four aims of this study: Evaluate the characteristics of the McLaren PCBH clinics, and compare these characteristics between the internal and family medicine clinics (Aim 1); determine if IPC practice has changed between pre- and peri-COVID-19 and the factors assessed include frequency of IPC referrals, most common reasons for referral, length of IPC encounters, and most common diagnoses given (Aim 2); assess healthcare provider opinion on IPC process and patient presenting problems during COVID-19 (Aim 3); examine the impact of PCBH consults on total length of a primary care visit (Aim 4). Additionally, the results for the two hypotheses will be discussed: IPC consults for patients with multiple diagnoses will take longer than IPC consults for patients with any other diagnosis type (Hypothesis 1), and initial IPC consults will take longer than a follow up IPC consult (Hypothesis 2).

Summary of Findings for Aim 1

In general, providers in MFFM utilized IPC services more often than providers in MFIM. There are a variety of site-specific factors that may have influenced this difference. The physical location of the BHP offices is on the same floor and adjacent to MFFM. In contrast, the MFIM clinic is on the floor above the BHP offices. Referencing the qualitative analysis, one theme identified was that availability of BHPs, including difficulty with finding a BHP, was a barrier to IPC consults. It is possible that the physical proximity to MFFM increases IPC utilization in that clinic. Research suggests that proximity can increase likelihood of completed behavioral health referrals (Heath et al., 2013; Valleley et al., 2020) as it can increase communication between providers (Collins et al., 2010; Levy et al., 2017). Additionally, processes and clinic flow are also

different between the clinics. As part of the screening process in MFFM for each appointment, physicians use a behavioral health screening form which assess for a variety of behavioral health concerns and social determinants of health that could be addressed through an IPC consult. As these needs are being assessed as part of the normal MFFM process, it is possible that patients who could benefit from an IPC consult are more frequently identified and thus consults more likely to be made.

The reasons and problem addressed in IPC consults were very similar in both clinics. Diagnoses given and reasons for consults were disproportionately focused on mental health problems (e.g., anxiety, depression) compared to behavioral health problems (e.g., insomnia, hypertension). Drawing from the qualitative analysis, several respondents highlighted that lack of physician understanding of IPC and what problems it can address is a barrier to IPC utilization. Comparing that perspective with the data from this study, it appears that a potential area of improvement could be providing additional education to physicians on BHPs ability to address health behaviors and chronic health conditions (e.g., diabetes management, management of chronic pain; Miller et al., 2014). This idea is partially supported the frequency of IPC consults by provider education level. Specifically, in both MFFM and MFIM, physicians in their third year of residency most frequently made consults. This could suggest that as physicians obtain more education and clinical experience, and have had experience making IPC consults, they learn when IPC consults could be useful and make more consults. However, this is inconsistent with the fact that physicians in their second year of residency made the least number of consults. It is possible that other factors, such as changes in the physicians training schedule (e.g., less hours at the clinic), could account for this difference.

Duration of IPC consults only slightly differed between MFFM and MFIM. Of note, the average duration of IPC consults was within the 15–30-minute time frame indicated by the model (Hunter et al., 2017; Robinson & Reiter, 2016). This seems to suggest that PCBH model's conceptual prediction of time required to complete IPC consults is accurate. However, it is important to notice that there was a notable amount of variability in consult duration in both clinics, with a standard deviation of 11.13 minutes in MFFM and 9.62 minutes in MFIM. Additionally, approximately 10% of all consults were greater than 30 minutes, with some consults lasting up to 120 minutes. Respondents to the provider survey frequently identified that patients in crisis and with greater symptom severity and complexity took more time. While this relationship seems likely, symptom severity and presence of risk was not directly tracked (e.g., via quantitive measures of symptoms) for patients in this data set. The sections below reviewing results for Hypotheses 1 and 2 discuss more in depth factors that potentially could impact duration of consult.

Summary of Findings for Aim 2

Overall, there were more IPC consults completed during peri-COVID-19 compared to pre-COVID-19. However, as the peri-COVID-19 period, the average amount of IPC consults during the two periods were nearly identical. This is somewhat unexpected, given the large decline in healthcare utilization and accessibility during peri-COVID-19, especially during the beginning of the pandemic (Cantor et al., 2022). Additionally, provider responses to this study's survey identified a theme of COVID-19 related barriers to IPC, including the mentioned decline in access to healthcare during COVID-19, as well as patients needing missing appointments due to illness. While services shifted to telehealth to try and address these barriers (Cutler et al., 2020; Smith et al., 2020), responses in this study's survey highlighted that many of their patients

could not afford the technology to access these services. This is understandable, as almost 40% of those living in Flint are below the poverty line (U.S. Census Bureau, 2021). Given all these barriers, the fact that the rate of IPC consults have remained mostly unchanged likely reflect the increase in patient behavioral and mental health needs (O'Connor et al., 2021; Schafer et al., 2022). This is consistent with the opinion of surveyed providers, as they believe that their patients are experiencing more anxiety, depression, and social isolation. This opinion is also partially consistent with the data regarding diagnoses, as anxiety disorders double in rate during peri-COVID-19, however, the rate of depressive disorders remained the same. Additionally, trauma and stressor induced disorders also had a notable increase during peri-COVID-19. It is likely that this increase is related to COVID-19 related stress (Taylor et al., 2020), loss or potential loss of employment (Falk et al., 2021), and social isolation (Galea et al., 2020).

While patient mental and behavioral health needs appear to have increased, the specific reasons for consults also have changed. There were notable increases in consults to address anxiety, depression, and substance use, consistent with current research suggesting these presenting problems are increasing in the general population (Czeisler, Lane et al., 2020; Hansel et al., 2022). Additionally, there has been a significant decrease in the frequency of consults for behavioral health problems. This is consistent with the general reduction in diagnoses for chronic health conditions (Sisó-Almirall et al., 2022), suggesting that many people are experiencing these conditions undiagnosed, and not receiving potential behavioral health interventions that could address these conditions. Alternatively, it is possible that with the increase in mental health needs in their patients, physicians are seeing mental health issues as a more pressing issue for an IPC consult compared to behavioral health concerns.

Duration was slightly different between pre- and peri-COVID-19, with consults during peri-COVID-19 taking on average more than two minutes longer. While this sounds negligible, it can be meaningful given the current context of primary care clinics. As physicians are often behind schedule, and their appointments regularly exceed their scheduled time by at least a few minutes (Neprash et al., 2021), additional time required to complete an IPC consult can directly impact the referring physician. Additionally, it is possible that the increase in the duration of consults represent increase in patient symptom severity and complexity, requiring additional time for assessment and intervention by the BHP.

Summary of Findings for Aim 3

Respondents to the survey assessing providers perspectives on IPC during COVID-19 reflect much of the current research. Providers highlighted the increase mental health need of their patients, seen in much of the literature (Czeisler, Lane et al., 2020; Hansel et al., 2022). One notable difference is that responses in this study emphasized patient increases in anxiety, over increases in depression. It is possible that this difference could be related to the patient population served by the surveyed providers. As the population of Flint generally has few financial resources (U.S. Census Bureau, 2021), it is possible that this led many patients to experience unique challenges that could cause higher anxiety. Specifically, responses highlighted many patients having more exposure to COVID-19 (e.g., working in high-risk jobs, taking public transportation), which could understandably lead to more COVID-19 related anxiety (Taylor et al., 2020).

Similarly for barriers to care, responses reflected the current literature, noting reductions in clinic volume due to less face-to-face visits (Cantor et al., 2022). However, respondents also highlighted some specific barriers related to the low SES patient population they are treating.

Peaks of COVID-19, and especially the beginning of COVID-19, were noted as particularly problematic for access to care due to the reduction of clinic in-person appointments. While these services were changed to telehealth, similar to many other healthcare systems (Cutler et al., 2020; Smith et al., 2020), responses highlighted that many patients were not able to access these services due to financial barriers. Specifically, if patients lack financial resources, they may be less likely to own cell phones or computers to access telehealth services, especially if they experience any disruptions in employment due to COVID-19 (Falk et al., 2021). Notably, responses also highlighted that their patients of racial and ethnic minorities, especially African American patients, expressed more distrust of the medical system and reported more stress, consistent with current research (Proto & Quintana-Domeque, 2021). Recognizing these different barriers for low SES and racial and ethnic minorities is crucial for implementing systemic changes to IPC that do not exclude patients in these populations. While it may take more time, it is likely important to spend additional time in assessment and obtaining buy-in. For instance, while shifts to telehealth can increase access, it is crucial to assess for patient resources and access to cell phones or computers to be sure that they can participate in IPC telehealth interventions. Additionally, for patients without these devices, development of programs for loaning or gifting devices could be considered. For patients expressing distrust of the medical system, spending more time obtaining buy-in, through development of rapport, explaining the services, walking the patient through how to access the telehealth IPC, may also be important for patients to access and participate in IPC services. From a systems perspective, this would require additional time built into the clinical process to allow them to do so. Problem solving for these barriers is especially important, given the reported need for IPC. While respondents noted a lack of available BHPs as a barrier, many other logistical issues (e.g., patients needing to leave due to

scheduled transportation, lack of available appointments when patients are at the clinic, patients cancelling appointments due to illness) when telehealth services could be very useful.

Summary of Findings for Aim 4

IPC consults, on average, were approximately 30% of the patient's entire primary care visit. Notably, this was quite variable, ranging from 9% to 95% of the total visit. Interpretation of this data should be done with caution, however, due to the limited sample size for this aim. Cautious interpretation could suggest that IPC consults do not greatly extend the overall length of primary care appointments. Current research suggests that primary care clinic appointments take an average of 84 minutes, only a few minutes shorter than the average length of duration of primary care appointments in this study that also included an IPC consult. While IPCs still took up a notable amount of the primary care appointment, it is possible that the inclusion of behavioral health services could save physicians time, as these providers may be better trained, and therefore more efficient, in assessing and treating the presenting problem. Ultimately, this data is likely best interpreted as a call for additional research in this area because if future research could confirm this impact of IPC on primary care appointment length, it could highlight another strength of PCBH and how psychological services can be efficiently integrated in a primary care setting.

Summary of Findings for Hypothesis 1

Based on the analysis conducted, patient diagnosis did not have a significant impact on IPC consult duration. As no other literature exploring this relationship was identified, it is possible this is the first study to examine how diagnosis may impact duration of IPC. However, the hypothesis that multiple diagnosis will take longer than IPC consults for patients with any other diagnosis type was not supported. Notably, the model was not statistically significant,

indicating that none of the diagnostic categories included in the analysis had a statistically significant relationship with duration of consult.

There may be inherent limitations within the analyses and categorization of data that may influence these results. Primarily, the assumption that multiple diagnosis means that patients presenting problem is more complex. Diagnostic categories themselves are only a cluster of symptoms, but do not account for the etiology of the symptoms. Two patients may both meet criteria for a given diagnosis, but their symptom frequency, intensity, may be very different, as diagnostic qualifiers (e.g., mild, moderate, severe) were often not included in the data.

Additionally, other contextual factors (e.g., financial resources, family support, comorbid health conditions) may be extremely different between patients which are likely to have a significant impact on patient complexity. An inherent limitation to the data set, and thus this hypothesis, as is a lack of quantitative data, such as a screener (e.g., PHQ-9), which could potentially serve as a better measure of patient symptom severity and complexity. Additionally, another limitation within the analysis is the inherent variability within the multiple diagnosis group. While most consults with multiple diagnoses included diagnoses of anxiety, depression, or both, there are is still a considerable amount of variability in presentation and potential severity of these different diagnoses, which was not accounted for in this analysis. Future research with a larger sample size may be better able to account for differences between patients with multiple diagnoses. Additionally, future research could benefit from inclusion of quantitative measures of symptom severity and complexity to better asses for its relationship to consult duration.

Summary of Findings for Hypothesis 2

Similarly to Hypothesis 1, no other literature assessing the relationship between follow-up IPC consults and duration of visit were identified, suggesting that it is possible this is the first study to examine this relationship. Based on the analysis conducted, whether a consult was an initial or follow-up visit did have a significant impact on IPC consult duration. Specifically, follow-up consults took approximately 3.8 minutes less than initial consults. Thus, the hypothesis that initial IPC consults will take longer than follow-up IPC consults was supported. This partially supports the conceptual PCBH model, which suggests that follow-up consults should take less time (Robinson & Reiter, 2016). However, follow-up consults appear to, on average, take longer (on average 21.4 minutes) than the model suggests (approximately 15 minutes). While the model assumes that the initial assessment as already been completed, requiring the BHPP to only assess the impact of their intervention, it is possible that this is not reflected in practice. For example, many patients in both MFFM and MFIM returned for a follow-up consult after an extended period (e.g., months), over which much could have changed in their life and presenting problem, requiring additional assessment. Future research is indicated to test the relationship between time delay between initial and follow-up consult and duration of the appointment.

Limitations and Future Directions

There are several limitations to this study. In general, there is likely error in the method of data collection. Duration of data was often obviously rounded up or down, as most of data was reported in intervals of five (e.g., 15, 20, 25). It is highly unlikely that BHPs tracked most of this data to the minute, thus there is likely variability and error in the rounding of the duration reported. Data about reason for consult and presenting problem is also influenced by both the

provider and the BHP associated with the consult. Patients may present with a variety of problems (anxiety, depression, chronic health problems) and different providers may conceptualize, prioritize, assess, and intervene, differently. Additionally, the data used in this study may not be represented of PCBH services in general. Clinic process could impact frequency of IPC utilization, with even the two clinics measured using different processes for IPC (e.g., MFFM using a specific screening form). Additionally, the population served by the clinics used in this study are generally very low SES, and thus may present with more symptom intensity and complexity than the general population. This could likely impact many of the outcomes measured in this study, including frequency of different presenting problems and duration of consults. Similarly, qualitative data obtained in this study may not be representative of providers in general. Providers working in MFFM and MFIM may encounter different presenting problems at different frequencies than providers in general, or more frequently encounter barriers associated with low SES patients (e.g., not able to access telehealth due to no cellphone or computer). In general, future research should explore IPC processes in other clinics to see if the findings of this study generalize to other PCBH settings.

For Hypothesis 1, the assumption that multiple diagnosis means that patients presenting problem is more complex is a limitation. As discussed previously, diagnostic categories themselves are only a cluster of symptoms, but do not account for the etiology or severity of the symptoms. Inclusion of quantitative measures (e.g., PHQ-9) could account for this limitation in future research. For Hypothesis 2, as mentioned previously, there was a good deal of variability in time delay between initial and follow-up consults (between one day and six months). It is likely that a follow-up consult the next day would take less time than a follow-up consult up to six months later; however, given the sample size, testing the impact of delay was not possible in

this study. Future research is indicated to test the relationship between time delay between initial and follow-up consult and duration of the appointment. Additionally, a consult marked as a follow-up does not rule out that the patient was not seen for a new presenting problem. For example, it is possible that a patient may initially be seen for anxiety but return in four weeks with the primary presenting problem of depression. This would potentially require additional assessment and intervention, making this consult more similar in process to an initial consult. Future research could explore more closely if a follow-up consult was related to the problem treated at the initial visit by providing more specific data on the presenting problem for each visit.

Conclusion

The results of this study provide an overview of the process of two PCBH clinics treating a low SES population during COVID-19. In general, IPC was more frequently utilized in a family medicine clinic than an internal medicine clinic. However, the presenting problems of patients seen in IPC in these clinics was quite similar, depression, anxiety, and trauma/stressor induced disorders being the most frequent diagnoses. Between pre- and peri-COVID-19, the rate of IPC utilization remained relatively the same. Notably, diagnoses of anxiety, substance use, and trauma/stressor induced disorders increased in frequency during peri-COVID-19, while consults with multiple diagnoses and diagnoses of serious mental illness declined in frequency. Diagnoses given during the IPC consult did not have an impact on the duration of the consult, while follow-up consults took less time than initial consults. The implementation of IPC, and specifically PCBH, continues to be an exciting area of research, with hopes that research following this can replicate this study expanding on the highlighted limitations.

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APPENDICES

Appendix A: Survey Questions

Survey Questions

1. In what ways does COVID impact your use of IPC?
2. How do you feel COVID has impacted the physical and mental health needs of your patients?
    a. How did patients' needs change at the beginning of COVID?
    b. How have you noticed any changes during the peaks of COVID?
    c. How have you noticed a disproportionate impact on different populations? (e.g., race, ethnicity, SES, sexual orientation)
3. How long do you think an average patient appointment takes with the addition of an IPC consult?
4. What factors do you think may contribute to IPC consults taking more time than usual?
5. What challenges have you experienced in delivering IPC to your patients?
    a. What unique challenges do you believe COVID has added?
6. What recommendations would you give to improve IPC during COVID?

Appendix B: Consent Form

Consent Form

Project Title: Primary Care Behavioral Health in the Time of COVID-19

Principal Investigator: Michael Vriesman, Graduate Student
Faculty Advisor: Dr. Alexandros Maragakis, Assistant Professor of Psychology

Purpose: The purpose of this research study is to examine the process of integrated primary care (IPC) during the time of COVID-19.

Study Procedures: Participation in this study involves completing a survey. It should take approximately 10-20 minutes. Data will be collected on your experiences, perspectives, and opinions on use of IPC during COVID-19. Demographic information will only be collected on your role in the clinic (e.g., primary care provider, medical assistant).

Risks: The primary risk of participation in this study is a potential loss of confidentiality. You do not have to answer any questions that make you uncomfortable or that you do not want to answer.

Benefits: Participants may benefit from this study by improving the process of IPC at McLaren Flint. Other clinics may also benefit from information provided that could improve their process of IPC.

Confidentiality We plan to publish the results of this study. We will not publish any information that can identify you.

We will keep your information confidential by not collecting any identifiable information other than your role at the clinic.

Compensation: No compensation is offered for participation in this study.

Contact Information: If you have any questions about the research, you can contact the Principal Investigator, Michael Vriesman at mvriesm1@emich.edu or by phone at 231-450-0094. You can also contact Michael's adviser, Dr. Alexandros Maragakis, at amaragak@emich.edu or by phone at 734-487-2147.

For questions about your rights as a research subject, you can contact the Eastern Michigan University Office of Research Compliance at human.subjects@emich.edu or by phone at 734-487-3090.

Voluntary participation

Participation in this research study is your choice. You may refuse to participate at any time, even after signing this form, with no penalty or loss of benefits to which you are otherwise

entitled. You may choose to leave the study at any time. If you do not finish the survey, the information you provided will be kept confidential. You may request, in writing, that your information be destroyed. However, we cannot destroy any information that has already been published.

Statement of Consent

I have read this form. I have had an opportunity to ask questions and am satisfied with the answers I received. By answering "yes" I indicate my consent to participate in this research study.

[ ] Yes
[ ] No