Understanding integrative group visits through a public health lens for chronic disease management and prevention

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Abstract

Chronic disease is a prevalent issue in the United States and continues to increase in economic cost and in burden to patients and healthcare. Group medical visits have been an intervention for chronic disease self-management, and in the past twenty year there has been an emergence of integrative group medical visits (IGMVs). These IGMVs bring together alternative medicine practices, such as meditation, yoga, and others, and group sessions, in which individuals are able to learn about their health and discuss their experiences with the presence of peers and providers. While individual studies have been conducted on IGMV implementation and effectiveness, there is limited data on IGMV at a larger scale. A literature review was conducted to determine what is currently understood about the features of the IGMVs, asses how these benefits compare to those of traditional visits, and to identify possible limitations of the IGMV model. The review found that the components of the IGMV that led to its effectiveness include the presence of multiple providers and practitioners, the improved relationship between providers and patients due to interaction in the group setting, interactions between patients, and the use of integrative medical practices. Through data gathered in qualitative, quantitative, and mixed-methods studies, there was evidence, patient reports, and provider feedback that the IGMV model was better than the traditional care model in being able to provide the care that patients need. However, limitations of IGMVs were the logistical barriers to attendance, lack of individualized care, language barriers, confidentiality concerns, economic sustainability, and the increased efforts required by staff. While IGMVs may not be a replacement to the traditional visit model, it is a promising intervention that effectively empower patients to manage their health. Further studies may be required to better understand the cost-effectiveness of this model, but the evidence thus far supports its utility as a tertiary prevention model.

Introduction

The Prevalence Chronic Disease

Chronic diseases have been a significant public health issue for decades and have become more and more prevalent over time. Currently, about 60% of adults in the United States have at least one chronic disease, and 40% have two or more chronic diseases (Jaber et al., 2006). In addition, chronic disease is the leading cause of morbidity, disability, pain, and reduction in quality of life, as they often also exacerbate acute diseases as they arise (Allegrante, 2018). The US healthcare crisis arose after the 1950s, when the prevalence of chronic disease was growing and that of acute diseases was decreasing (Holman, 2020). The latter was the result of increased implementation of public health interventions that reduced the public's exposure to infectious agents associated with disease. The decrease in infectious diseases paired with an increase in life expectancy has led to the increase in chronic disease prevalence we have seen over the past few decades. seen. As public health and healthcare systems are continuing to combat the issue of chronic disease in the United States, it is evident that current interventions and prevention measures have not been able to effectively address the growing prevalence of these diseases.

Chronic Disease Treatment and Its Impact

There are high costs associated with the treatment of chronic disease. The high cost of healthcare in the United States, issues related to insurance and out-of-pocket costs often limit patients' ability to obtain proper care for their chronic diseases. Their treatments and their management are expensive, and when left untreated, the onset of further debilitation only increases the need for medical attention and intervention. In addition, typically chronic diseases do not have a cure, but rather have management regimens, which means that the cost for managing these diseases extend over a long time. Chronic disease management accounts for a significant portion of all US healthcare costs. While these diseases affect 60% of the population, their care consumes more than 85% of healthcare costs (Falagas et al., 2007).

Medicine tends to be a reactive field of practice – often putting more emphasis on attending to illnesses after their onset than on their prevention (Wilper et al., 2008). There is continuous evidence that that there are substantial benefits from investment in preventive measures, including not only healthier individuals but also reductions in overall healthcare costs t (Booth et al., 2000; Walter et al., 1985; Martinez-Gonzalez et al., 2009). Primary prevention methods are practices that work to prevent the onset of disease, and they are often the most effective way to address both the health of individuals and reduce overall healthcare costs. However, it is also important to address the reactive nature of medicine through the funding and implementation of tertiary prevention methods, which are practices that work to reduce the negative impacts associated with the progression of disease. Similarly, secondary prevention targets individuals who are at higher risk for disease, which is yet another method of prevention that addresses individuals that do not already have the condition. In preventing or slowing the disease progression, tertiary prevention reduces the likelihood of comorbidities and further physiological impacts of disease, which can reduce the amount of medication needed, the number of healthcare visits, and the amount of productivity lost. Primary prevention, secondary prevention, and tertiary prevention target different populations, with the first two types of prevention focusing on those that do not have the disease already and the third focusing on those that do. Therefore, primary and secondary prevention alone are not enough to improve the health of all individuals. Tertiary prevention is also necessary.

While there has been important progress in the ability of medical interventions to reduce the mortality and morbidity associated with numerous conditions and diseases, there are also issues within the field of medicine that limit their effectiveness. First, there is the concern of time. Many physicians face challenges managing large caseloads, making it difficult for them to spend much time meeting with each individual patient (Wilper et al., 2008). This limits not only the amount of information they are able to gain about the situational and environmental factors that may impact their patients' health, but also limits the scope of the education they can provide to their patients to help them more effectively self-manage their illness and positively change health behaviors. Chronic diseases can be complex to manage, as they are often the result of a variety of complications over the course of an individual's life (Hung et al., 2011). When this is the case, a specialized and unique intervention is often necessary, and this requires time and collaboration with the patient, which may not always be possible. Second, there is the issue of satisfaction. Studies have shown that patient satisfaction is higher when they perceive a physician and patient partnership (Weiss et al., 2007). Currently, due to the short amount of time allowed during patient visits for patient-physician interactions, this partnership is not always created, which leads to patient dissatisfaction with the care that they have received. Attempts to address these issues within medicine have resulted in many trainings, policies, and new practices have been implemented. However, a specific intervention model that has been promising is the group medical visit model.

Group Medical Visits

Group medical visits are not a new concept, and in fact have been utilized for over 100 years as an intervention method. First started at Massachusetts General Hospital in 1907, group medical visits were employed for tuberculosis patients (Pratt, 1908). Many primary care practices began to employ some sort of group model for care from this point forward for a variety of chronic diseases, and there has been continuous evidence of the benefits that it can provide for health outcomes and costs (MacKensie, 1992). While the group medical visit model itself may have changed over time, its effectiveness has led to an increase in its use.

Also known as shared medical appointments, the current group medical visit model is now widespread in the United States across medical specialties. The model that exists now is based primarily on the shared medical care model, which was first described by Scott and Robertson as the cooperative health care clinic group visit (Scott & Robertson, 1996). The theory from behind this model is that there are two significant determinants of an individual's health – their self-efficacy in being able to manage their health collaboratively with their healthcare team and the support of their community in the adoption of health behavior changes (Scott et al, 1998). By creating an environment for more meaningful interactions between patients, their healthcare team, and their peers, group medical visits create a more efficient method to integrate healthier lifestyle behaviors and reduce the burden of disease for patients and the healthcare system.

The most common disease and medical conditions that use this model are diabetes, obesity, prenatal care, and chronic pain, though they have been used minimally for other chronic diseases including cancer (Riley & Marshall, 2010; Jaber et al, 2006; Masley et al., 2020; Scott & Robertson, 1996; Scott et al., 1998; Scott et al., 2004; Noffsinger & Scott, 2000; Noffsinger, 2002; Noffsinger, 2008; Goodman, 1989; Goldstein & Fransye, 2009; Leszcz, 1998; Ulman, 1993; Ulman, 2000; Ulman, 2003; Edelman et al., 2012; Eisenstat et al., 2013; Thompson-Lastad et al., 2019). While there is variation in the logistical nature of group visits, they generally consist of five main components: socialization time between participants, a break were participants are able to mingle amongst each other, group health education in which a provider or staff member provides education on relevant health topics, a discussion period with participants and providers in a group setting, and one-on-one time between the physician and each patient, during which providers can address individual concerns the participants may have (Scott & Robertson, 1996). Hosted primarily by healthcare providers, though sometimes also with the assistance of other healthcare professionals, these group medical visits attempt to empower individuals, particularly those combatting different chronic diseases, to manage their illnesses through healthy behavioral changes. The various components are intended to work in tandem to enforce the various aspects of health behavior change in order to educate individuals about how to take care of their health while also creating an environment that gives them support from not only health staff, but peers as well.

While there are aspects of the group visit that are necessary to qualify as a true group medical visit, this model can also accommodate variability. Often, these group medical visits need to be adjusted based on resources, provider capabilities funding, and patient needs. This flexibility allows the implementers to optimize the group medical visit to be the most effective for the focus population. For instance, the group educational session may involve facilitation by just one provider or multiple kinds of professionals and can focus on a wide range of topics such as self-management, medication management, nutrition, exercise, and the psychosocial factors that impact health and illness (Hung et al., 2011). Depending on the model, attendance could be required for a period of time, or patients can attend on a drop-in basis. In addition, the medical provider may conduct their visits in a private or semi-private manner. Not only are group medical visit a cost-effective solution in that they allow the physician to allocate a shorter amount of time in the aggregate for a larger number of patients, but it also allows the incorporation of multiple health professionals that can assist the physician in providing the care and education that the patients may need (Riley & Marshall, 2010).

Evidence has shown that group medical visits are associated with comparable or even better health outcomes compared to individual care (Eisenstat et al., 2013). In providing patients with medical support and proper health education augmented by discussion, these programs are able to improve health behaviors among their participants by increasing adherence to physician and healthcare professional recommendations (Scott & Robertson, 1996; Scott et al., 1998; Scott et al., 2004; Noffsinger & Scott, 2000; Goldstein & Fransve, 2009; Leszcz, 1998; Ulman, 1993;

Ulman, 2000; Ulman, 2003; Edelman et al., 2012; Eisenstat et al., 2013; Thompson-Lastad et al., 2019; Monroe et al., 2015).

There is high potential for the utility and effectiveness of group medical visits because it is one of the few interventions that focuses on behavioral change and psychosocial changes (Thompson-Lastad, 2019). Providing a group setting in which individuals discuss their health provides a unique space for patients to come together and deal with the aspects of their illness that extend past the physical. This peer interaction is an essential part of most group medical visit models[4]. Being surrounded by and meeting individuals that are managing the same illnesses can positively influence the behaviors of each individual patient. In addition to offering mutual support and encouragement, patients can also share coping strategies that they have found to be useful. Being surrounded by individuals that are experiencing similar health journeys also reduces the sense of isolation and the shame that can exist when managing particular diseases (Thompson-Lastad, 2019). The benefits of these relationships can provide the encouragement and confidence that patients need to make the changes in their lives to improve their health.

These group visits can also reduce costs not only for the patients, but for healthcare systems as well. Chronic diseases are often associated with additional morbidities and over time, the onset of a secondary or even tertiary chronic disease. By supplementing physician visits with a structured health education program, patients are able to gain the necessary guidance and support to implement effective changes into their lives. These behavioral changes can improve their health overall, which could reduce the onset of further conditions, and also decrease the need for as many visits with their providers. In doing so, the cost of other treatments, procedures, and medication can be significantly reduced.

Integrative Group Medical Visits

In the past decade, there has been the emergence of a newer type of group visit called an integrative group medical visit (IGMVs). Integrative medicine is the practice of medicine that incorporates all types of therapeutics, whether they be conventional or alternative practices. These IMGV interventions bring together the components of a regular group medical visit in addition to alternative medicine approaches such as mindfulness, yoga, and acupuncture[30]. It seems to be a promising approach for chronic disease care, as it is based on practices that are known to be effective. While there are studies that assess the effectiveness of individual clinics or programs utilizing this model for chronic disease management, there is currently little knowledge about the utility of IMGVs as a model.

In addition to the components that exist within the group medical visit model, integrative medicine is introduced within one of two manners: either as a topic of discussion during the health education portion of the session, or as an additional component of its own. Typically, integrative medicine is spoken about or taught by a professional that is an expert in the practice, and the practice itself that is taught can vary depending on the needs of the focus population. Mindfulness tends to be the most common integrative medicine practice that it utilized in the IGMV, though other alternative medicine practices are sometimes included as well. In addition, while most models tend to focus on a specific practice to integrate with the group medical visit, there are some that use multiple alternative medicine practices to increase exposure to participants.

Integrative group medical visits can increase access to care and give patients the opportunity to support each other as a community. Many advocates of group visits see this model as a way to reduce health disparities and address injustices in the healthcare system. Due to the institutional practices that lead to certain populations to be at higher risk for social and environmental exposures of disease, chronic diseases are known to be more prevalent in systemically marginalized and excluded populations. In addition, it is these populations that also have greater difficulty in accessing affordable quality health care. As the importance of patient-centered care is increasingly being highlighted in healthcare, the approach of an integrative group medical visit is becoming more viable to serve patients and improve their health. Integrative group medical visits allow uninsured or underinsured individuals to gain not only longer and more quality time with their healthcare providers, but also the support of peers, both of which can provide better retention of health education and higher adherence to recommended health behavior changes. While integrative care is typically less accessible for individuals that are uninsured and Medicaid and Medicare patients, as these alternative medicine practices are typically not covered by these kinds of insurance, this IGMV model would allow these populations to have access to integrative medical care through a group visit model, which is covered by insurance. This exposure can increase the use of alternative medicine practices among these populations, which currently do not use these practices as often.

Integrative healthcare could improve the quality of care provided to patients in a healthcare setting, as it supports patients to adopt and maintain the health practices that align with their preferences and values (Thompson-Lastad et al., 2019). Introducing non-pharmacological treatment options creates the ability for patients to try different methods of intervention for chronic diseases that may be difficult to treat or manage, such as chronic pain or diabetes. There has been evidence of the effectiveness and benefits of alternative medicine practices and utilizing an integrative medicine approach to these chronic diseases can allow patients to gain various skills for self-management of their health (Barnes et al., 2008; Foster et al., 2000; Astin et al., 2000; Harris & Rees, 2000; Keene et al., 2019). By providing this option and the proper education and skills about how to use alternative medicine practices, patients will be able to independently implement these methods within their lifestyle, outside of the healthcare setting. Empowering individuals to do so gives them the ability to rely on themselves to manage their health.

While IGMVs are growing in use, there is little understanding about how broadly they are being utilized within the clinical setting. There are data and studies conducted on individual cases of this model and its effectiveness. However, further research is required to understand the structure of these IGMVs. The goal of his review is to better understand the alternative health approaches that are most used in an IGMV model, what is successful and challenging in the implementation and use. Better understanding the IGMV model and how it has been used thus far can allow for improvements and changes to be made in its future use to optimize effectiveness based on lessons learned from previous studies.

Aims

The following are the aims of the literature review conducted:

Aim 1: To review what is currently understood about the features of integrative group medical visit programs that are associated with improving patient outcomes and bringing about changes in patient behaviors to improve their health.
Aim 2: To assess how these benefits of integrative group medical visits compare to those of individual visits with a provider based on studies that have compared these two models of visits
Aim 3: To identify limitations of the integrative group medical visit model

Methods

The main purpose of this review is to explore the scientific literature that discusses integrative group medical visits to better understand evidence for the impacts of this model on health and health behaviors. The focus was on integrative group medical visits as their own intervention aimed at improving patients' self-management skills for chronic conditions, rather than one aspect of a bigger approach or model to addressing health conditions and concerns. Furthermore, integrative group medical visits were defined as clinical visits for patients that consists of aspects that address health education, medical care, peer support, and includes at least one more of alternative medicine practices.

<u>Search Strategy</u>

This review was limited to integrative group medical visits (IGMVs) that focused on addressing chronic conditions in adults in the United States. An initial exploratory search was conducted on Google Scholar to discover relevant terminology for this topic. It was determined that group medical visits are also referred to as group medical appointments, shared medical appointments, and shared medical visits. Therefore, a search was conducted using a combination of the following terms: "chronic disease", "United States", "adults", "integrative group medical appointments", "integrative medical appointments", and "shared medical visits".

The primary article databases utilized for this search was Google Scholar, CLIO, and PubMed to ensure adequate coverage of relevant articles on this topic. Google Scholar was used as a convenient place to start the literature review. While Google Scholar is known to efficiently catalogue about 100 million articles in academic literature, there has been evidence of poor overlap with similar databases, indicating that it cannot be used alone in a literature review

(Haddaway et al, 2019). Therefore, it is the most effective when paired with other databases. As a database of over 33 million articles related to biomedical topics and life sciences, PubMed seemed to a relevant resource with which to conduct this literature review. CLIO was utilized in tandem with Google Scholar and PubMed because it is a database of over 1 billion articles provided to the students at Columbia University (about CLIO). Therefore, it will be able to find articles relevant to this topic that may be present in a wide array of journals.

Once the searches were completed, titles and abstracts were read to eliminate articles based on inclusion and exclusion criteria (see below). After this primary screening of articles, a

Each was skimmed to further eliminate articles if they did not align with the criteria necessary for this review. Furthermore, relevant articles that were cited in the articles that were found through the review were also assessed for use in this literature review.

Inclusion Criteria

This review is limited to peer-reviews journal articles that were published in English after 2000. This time period was chosen because it is when the emergence of integrative group medical visits occurred in their current form. Article were chosen if they discussed US based IGMVs and focused on adults with chronic diseases. Focusing on adults removes any additional factors or considerations that are required when children are the focus population for integrative group medical visits. In addition, most group medical visits focus on adults, particularly those with chronic diseases, which makes it an important inclusion criterion. As IGMVs are used to help individuals self-manage chronic diseases, this seems like a reasonable inclusion criterion. The articles that were chosen evaluated integrative group medical visits and were studies that assessed the impact of integrative group medical visits on health outcomes for patients. Articles with any various study designs were included -- i.e., qualitative vs. quantitative, or RCT vs. observational -- as they would all provide insightful information about the IGMVs that are being discussed. Articles were only chosen if they had full texts available online in order to ensure that the entire article could be read.

Exclusion Criteria

Articles that discussed remote integrative group medical visits were also excluded, as the virtual nature of these interventions could add additional elements that influence the impact that they have on patient health. Furthermore, articles were only chosen if they exclusively discussed group medical visits. If IGMVs were one factor of a larger intervention, the article would not discuss the IGMV in detail, making it difficult to not only understand the specifics of that model, but also ascertain which outcomes could be attributed to the IGMV specifically.

Article Selection

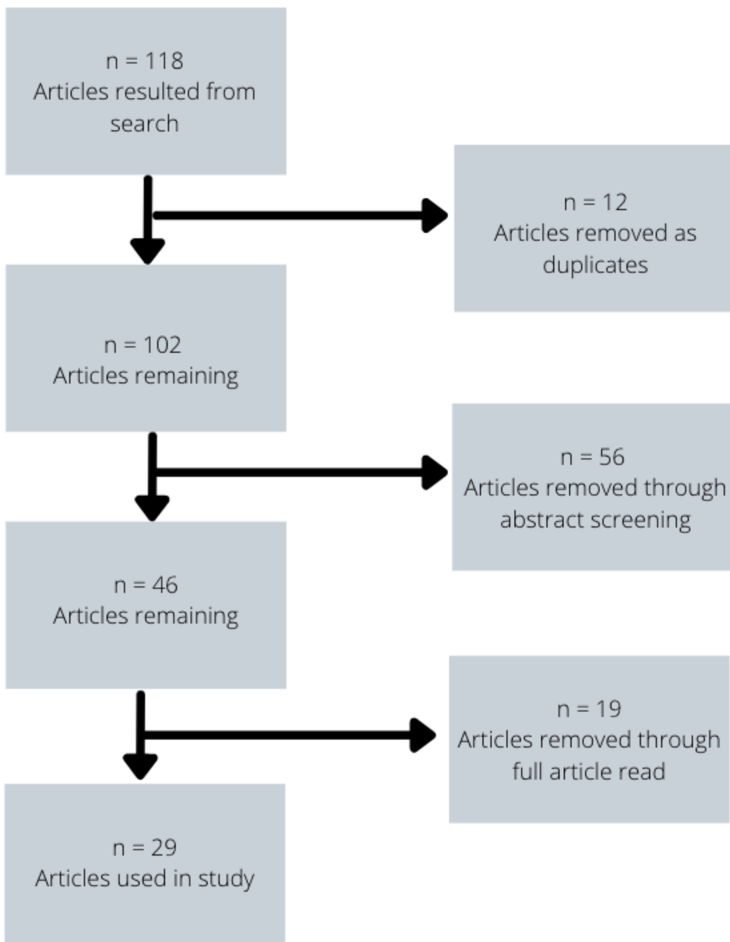

Figure 1. Flow diagram of the article selection for the review

The search strategy used yielded a total of 118 articles, of which 12 were removed as duplicates. From the remaining 102 articles, another 56 articles were removed with an abstract screening, Articles were removed if they discussed IGMVs not in the United States, if the group visits occurred entirely virtually, or if IGMVs were not the focus of the intervention that were discussed. The remaining 46 articles were read fully for assessment. A total of 29 articles were included for the final review. The articles were excluded if they did not discuss outcomes from the implementation of the IGMV. A table of the basic information from each study will be available in Appendix A.

Results

The literature on integrative group medical visits (IGMVs) is recent, with all articles published since 2005 and onwards, 33 of the 36 articles were published after 2012, and 19 of the 36 articles were published after 2015. While all the articles included in this review discuss group medical visits that fall within the parameters of what an IGMV is, there is a lot of variability among the studies, not only in the programming of these visits, but in the study design as well. Table 1 describes the details of each article in more depth.

The heterogeneity of the various aspects of the IGMV is likely due to the differences in needs and assets of the focus populations for the various IGMVs. One of the main differences among the focus populations is the chronic disease that the IGMV focuses on. Due to the many applications of integrative medicine, there were many different types of chronic conditions that were addressed across the integrative group medical visit model. While a majority of the studies focused only on one particular disease, 10 studies aimed to work with participants with different and even multiple chronic illnesses (Geller et al., 2015; Dresner et al., 2016; Gardiner et al., 2014; Gawande et al., 2018; Emmert-Aronson et al., 2019; Murray & Everson, 2005; Jaber et al., 2006; Fuchs et al., 2016; Shaw et al., 2014; Ventura & Chung, 2019). Other studies focused on a singular disease or condition. five studies addressed heart conditions such as congestive heart failure and coronary artery disease (Casey et al., 2009; Kemper et al., 2016; Geller et al., 2011; Law et al., 2019; Singrey et al., 2015). Another four studies targeted patients managing chronic pain (Znidarsic et al., 2021; Gardiner et al., 2019; Lestoquoy et al., 2017; Kiefer, 2019). Other chronic diseases and risk factors that were addressed in the articles reviewed included pelvic pain (Chao et al., 2015), diabetes (Eisenstat et al., 2012; Marthi et al., 2021), smoking (Charlot et al., 2019), Parkinson's disease (Dorsey et al., 2011), and cancer (Grewal et al., 2022). While these chronic conditions all may require differing foci of intervention and treatment, the IGMVs implemented all attempted to provide patients with exposure to and experience with self-management skills that could empower them to manage their own health.

Theory/Model for Framing Intervention

All of the studies except for Murray and Everson (2005) and Geller et al. (2011) cited the use of an existing framework or theory that supported their implementation of the IGMV. The most common theory was the Mindfulness-Based Stress Reduction (MBSR) theory, which was utilized by twelve of the studies (Thompson-Lastad & Rubin, 2020; Gardiner et al., 2019; Kemper et al., 2016; Dresner et al., 2016; Lestoquoy et al., 2017; Gardiner et al., 2014; Gawande et al., 2018; Emmert-Aronson et al., 2019; Kiefer, 2019; Fuchs et al., 2016; Shaw et al., 2014; Singrey et al., 2015). Other theories that were used included the Chronic Care Model (Grewal et al., 2022; Dorsey et al., 2011; Jaber et al., 2006), Integrated Behavioral Health Model (Marthi et al., 2021), Evidence-Based Integrative Medicine (Lestoquoy et al., 2017), Shared Medical Appointment Framework/IGMV Framework (Charlot et al., 2019; Law et al., 2019; Ventura & Chung, 2019), the Complementary and Integrative Medicine (CIM) field (Geller et al., 2015), and the Prochaska Model for Behavioral Change (Eisenstat et al., 2012).

The MSBR program was developed in 1979 by Dr. Jon Kabat-Zinn (Niazi & Niazi, 2011). While originally created as a way to manage stress, it has been adopted as an approach to address chronic diseases (Gardiner et al., 2019). This program consists of 8 weekly 2.5 hour visits, during which patients receive training and education on mindfulness practices and techniques (Niazi & Niazi, 2011). While there is vast evidence of the effectiveness of this model alone (Niazi & Niazi, 2011), the studies in this review that utilized this model adapted it to include other non-mindfulness-based health education topics. The amalgamation of this model with the IGMV model optimized the use of the group visit time.

Another theory often used was the Chronic Care Model. This model is a more general approach to what healthcare delivery should look like for chronic diseases (Gawande et al., 2018). According to this model there are six components necessary for apt healthcare delivery: organizational support, clinical information systems, delivery system design, decision support, self-management support, and community resources (Niazi & Niazi, 2011). The three studies that utilized this model as a basis for the implementation of their IGMV ensured that these components of health delivery were present, and it was delivered through the interdisciplinary team and the group visit model that was adapted for the IGMV model.

The Shared Medical Appointment (SMA) Framework and the IGMV Framework are quite similar, except that the IGMV Framework includes the use of non-traditional medicine and alternative medicine practices in addition to those that are more traditional. However, other than this difference, both frameworks model a group medical visit as one that includes health education in a group setting by a team of medical providers and healthcare professionals (Charlot et al., 2019). Complementary and Integrative Medicine, more than a framework, is a field within medicine that focuses on bringing together traditional and alternative medicine practices (Geller et al., 2015).

The Prochaska Model for Behavioral Change is the Transtheoretical Model, which has strong support for its accuracy in modeling the stages of behavioral change (Prochaska &Velicer, 1997). This model posits that there are six stages in the change of a behavior: precontemplation, contemplation, preparation, action, maintenance, and termination (Prochaska &Velicer, 1997). This study (Eisenstat et al., 2012) is the only one that utilized a model of behavior change in the adaptation of the IGMV model. The use of this model allows the IGMV model to be aware of the different stages that individuals may be at in changing their behavior and use this understanding to cater to the various needs that individuals will have at the different stages (Eisenstat et al., 2012).

<u>AIM 1: Features of Integrated Group Medical Visits</u>

The first aim of this literature review was to determine what features or components of the IGMV programs have been shown to be effective in improving patient outcomes and bringing about changes in patient behaviors to that should contribute to improved health. The section explains the evidence from the articles reviewed to showcase the various features of IGMVs that make them an effective way to improve health outcomes and health behavior changes.

Multiple Providers/ Practitioners

The collaboration of multiple providers and health specialists in the interdisciplinary care provided to patients during these visits allows for the effective implementation of the IGMV model. In doing so, providers are able to positively impact the health of the participants in the program.

As these visits tend to address more than one aspect of the experience of the chronic diseases in question, bringing in different kinds of experts allows patients to get a multi-faceted understanding of what is important when considering their health and different perspectives and insights into what they can do to improve their health. Every article in this review discussed an IGMV model that incorporated multiple providers and clinicians during the intervention. In addition to the facilitating provider, there was typically at least one other provider or health educator, such as a dietician, psychologist, or alternative medicine practitioner, and at least one nurse or medical assistant.

The Lestoquoy, et al. study (2017) is a qualitative study that utilizes semi-structured interviews to collect data from patients about their perceptions of the IGMV model and their health. A theme that was present across multiple interviews was the usefulness of the presence of multiple providers. Patients appreciated being able to see more than one provider at one time, rather than having to navigate the healthcare system to get appointments with each of these providers individually (Lestoquoy et al., 2017). Furthermore, in another qualitative study with semi-structured interviews, though with providers rather than patients, providers witnessed that facilitation by multiple providers made it easier to address the varying concerns that patients had, and to provide the best solutions (Ariana et al., 2019). Having multiple providers present allows each to provide their expertise to the patients, creating a well-rounded team of healthcare professionals that can address the wide array of factors that are impacted by chronic disease in a patient’s life.

As the facilitation of a group visit can be difficult, having multiple healthcare professionals present during the IGMV can also be beneficial for the facilitation and flow of the visit. Unexpected challenges can arise during group discussion, and it can be helpful to have supporting staff that can help mediate issues as they arise or step in when needed (Eisenstat et al., 2013). Furthermore, there are often times when multiple things are occurring simultaneously: for example, patients are getting checked-in while a facilitator is engaging the waiting participants in conversation prior to the start of the program, or a provider is educating the patients as the primary care provider is speaking individually with patients. In situations such as these, it is helpful to have multiple support staff members facilitating smooth transitions and offering logistical assistance to ensure minimal disruption to the group (Eisenstat et al., 2013). Ensuring that the program runs smoothly allows patients to stay engaged and gain the most out of the session. However, it is also imperative to clearly define each healthcare professional's role for the IGMV. As there are many tasks and responsibilities that can be completed by multiple individuals on the healthcare team, it is best to utilize the strengths of each member in order to ensure the best patient care for the participants (Singrey et al., 2015). The interdisciplinary team is able to optimize the care that they provide their patients during the IGMV by not only increasing meaningful interactions with patients, but also effectively collaborating with their co-workers.

Provider Interactions in Group Setting

While patients had the opportunity to meet with the provider through an individual check-in during the IGMV sessions, the relationship between patients and their providers is fostered beyond what happens in the individual meeting through the interactions that patients have with providers in the group setting. These interactions improve the relationship between patients and providers, which in turn positively impact patients' health behaviors and health outcomes.

Providers often partook in the activities of the session alongside patients to encourage the patients' participation. In doing so, they were seen more as peers with experiential knowledge in addition to expert knowledge as a trained professional (Thompson-Lastad, 2018; Ariana et al., 2019). In sharing their own experiences with these conditions and facilitating these discussions as a peer rather than solely as a healthcare professional, these providers are able to create a more trusting relationship with the patients (Thompson-Lastad, 2018). While they still provide their expertise when needed or requested from patients, it appears they are also able to increase their credibility as a resource by stepping back and centering patients and their knowledge.

In the Lestoquoy et al. (2017) qualitative study, patients that participated in the IGMV were interviewed through semi-structured interviews. During these interviews, multiple patients stated that they felt like they were able to play a role in the care that they were receiving in addition to their providers. These patients further explained that the support received from peers and the empowerment gained from health education allowed them to feel like they are on the same levels as the doctors. Patients felt more comfortable disclosing personal information and felt more trustful of the doctors, as their relationship seemed to be stronger (Lestoquoy et al., 2017). Rather than having a short period of time with the provider to quickly discuss all of their health issues, patients were able to share more detailed accounts of their health experiences, and gain insight from providers.

Interaction Between Patients

One of the benefits of the IGMV that many studies discussed is the peer and social interaction that patients get when addressing their health concerns. Creating an environment in which patients attending are experiencing similar symptoms and impacts of health on their lives allows for them to create a community in which they can support one another and share coping strategies.

Evidence collected through quantitative surveys showed that patients are more engaged with health-related information when discussing it with one another (Casey et al., 2009). In the Thompson-Lastad and Rubin (2020) study, staff noted during qualitative interviews that the most important part of the visit was the discussion that participants were able to have with one another. In addition, patients reported that being able to speak freely, learn about each other's experiences, and learn that they are not alone helped them feel less isolated (Casey et al., 2009). In the Dresner et al. (2016) study, a patient that was interviewed explained that feeling less lonely makes them more engaged with making health behavior changes. The patient expressed that knowing that others have been through the same problems as them allows them to see that they can improve their current health status as well (Dresner et al., 2016). Patients are able to hear the experiences of others that are managing the same chronic conditions, and they often find that they are not alone in what they have been feeling in relation to their health. Evidence from interviews with multiple patients showed that the connection they create with their peers allowed them to better accept their condition which in turn led to an increased level of motivation to take action towards better self-management (Lestoquoy et al., 2017; Bruns et al., 2019). Isolation is often associated with chronic diseases, as many individuals feel alone in dealing with the symptoms and barriers that arise when managing chronic conditions. However, the formation of these bonds alleviated some of the burden of dealing with it alone (Ventura & Chung, 2019). Patients found solace in knowing that they are not alone in their struggle with their chronic disease, and that it is not a burden for others when asking for help.

Another benefit of the group setting of these IGMVs is the support that patients gain from one another. In focus groups that were held at the end of the intervention, patients in one study stated that the discussions held during the IGMVs fostered the creation of connections with others (Lestoquoy et al., 2017). Through these check-ins with their peers, patients felt that others noticed their presence, which increased their sense of accountability for attending these sessions (Lestoquoy et al., 2017). Similarly, the Chao et al. study (2015) is a mixed-methods study. Qualitative data were gathered through focus groups with participants while quantitative data were collected through the PHQ-9 and GAD-7 survey that was given to participants before and after the course of the intervention, and a facilitator evaluation form that was given to the providers that conducted the IMGV. Though there was not a comparison group, the results from the PHQ-9 survey showed that participants had a clinically significant decline in self-reported symptoms related to depression and anxiety. In the focus groups, the participants attributed this to the emotional support that they gained from their peers during the facilitated discussions that occurred in the group sessions (Chao et al., 2015). In another mixed-methods study, weekly quantitative surveys were supported with semi-structured interviews at the end of the intervention (Fusch et al., 2016). When asked about their perceived greatest benefit from the IGMV during qualitative interviews, patients mentioned the social support that they gained from their peers. In discussing their issues and concerns with other individuals that are experiencing similar chronic conditions, patients explained that they felt validated in their emotions (Fusch et al., 2016).

In IGMVs, patients are able to discuss their conditions in a setting where others are likely more able to understand what they are going through. Because of the interest that group members have in each other's experiences, individuals are more comfortable sharing thoughts about their chronic conditions, and this is correlated with a higher rate of acceptance of their health (Lestoquoy et al., 2017). This acceptance allows patients to make behavior and lifestyle changes that ll allow them to manage their health with more effectiveness. Patients that were interviewed through a semi-structured model in the Bruns et al., study (2019) also stated that they felt seen, heard, and validated during IGMVs. This validation alleviated the shame that many patients experiencing chronic conditions often face.

The social support that is gained through IGMVs led to a sense of empowerment among the patients to play a more active role in their own health. Patients in focus group in the Chao, et al. mixed-methods study (2015) noted the encouragement that the social support provided in taking action to improve their health. Additionally, self-confidence in meeting health goals was higher after intervention in data collected through a self-reported survey (Emmert-Aronson et al., 2019). Though this result was not directly isolated as a result of peer support, the researchers stated that they believed that it had some impact on this change. Patients during interviews in the Lestoquoy, et al. study (2017) further explained that being told that they were an expert in their condition empowered them to make the decisions that they knew would be best for them. In addition to learning about what has worked for others in managing their chronic diseases, participants in IGMVs also gained a sense of accountability to make changes within their own chronic disease management regimen. In interviews, patients described how working on goals alongside others with similar goals often led to higher rates of continuation of improved health behaviors (Fusch et al., 2016). In the Ventura and Chung study (2019), a mixed-methods approach was used to collect data through a survey that was administered biweekly, which included both quantitative and open-ended questions. Patients explained that forming bonds with other participants during these sessions allowed them to create a social support system that provided guidance and encouragement. The mutual social support shared between patients was instrumental in the implementation of behavior changes for health improvement.

Integrative Medicine Activities

What makes IGMVs stand out from normal group medical visits is the use of integrative medicine activities. In addition to the health education and guidance provided during group medical visits, these specific activities are intended to provide patients the chance to practice new alternative medicine approaches, which have been proven to be useful in improving health outcomes. By pairing these practices with pharmacological and medical interventions, a patient can play a role in their health regimen to manage their chronic diseases.

The mode of alternative medicine varied greatly among these studies. However, the most common practices that were instilled in these IGMVs were mindfulness and meditation. Twenty-three of the total studies incorporated mindfulness or meditation into their model (Znidarsic et al., 2021; Thompson-Lastad &Rubin, 2020; Chao et al., 2015; Eisenstat et al., 2012; Gardiner et al., 2019; Kemper et al., 2016; Dresner et al., 2016; Lestoquoy et al., 2017; Gardiner et al., 2014; Grewal et al., 2022; Charlot et al., 2019; Emmert-Aronson et al., 2019; Kiefer, 2019; Jaber et al., 2006; Fuchs et al., 2016; Shaw et al., 2014; Singrey et al., 2015; Ventura & Chung, 2019; Bruns et al., 2019). Mindfulness is a type of meditation that focuses on bringing attention to sensations and feelings, both physical and emotional[6]. Evidence has continuously shown the benefits of mindfulness practices and exercises in health outcomes (Grewal et al., 2022; Kiefer, 2019; Singrey et al., 2015). Using this practice can allow patients to not only become more aware of what they are feeling, but also instill practices of relaxation and controlling the negative thoughts that are associated with pain or other negative health outcomes (Kemper et al., 2016). Another similar technique to mindfulness is breathing, which was utilized in four of the IGMV models (Casey et al., 2009; Gawande et al., 2018; Murray & Everson, 2005; Kiefer, 2019). Again, breathing practices allow individuals to increase self-awareness in a manner what will allow them to work towards reaching higher levels of relaxation (Murray & Everson, 2005). In IGMVs, patients are able to employ these practices in addition to learning about them, allowing them to acquire the skills needed to adopt these practices into their lifestyle at home.

Some IGMVs used more physical alternative medicine practices. Six studies included yoga within their model, citing the benefits in relaxation and awareness that comes from the combination of bringing breath and movement together (Znidarsic et al., 2021; Casey et al., 2009; Geller et al., 2015; Dresner et al., 2016; Gardiner et al., 2014; Murray & Everson, 2005). Studies also implemented the use of self-massage (Gardiner et al., 2019; Lestoquoy et al., 2017; Gardiner et al., 2014; Bruns et al., 2019), acupuncture (Thompson-Lastad & Rubin, 2020;

Gardiner et al., 2019; Dresner et al., 2016; Lestoquoy et al., 2017; Gardiner et al., 2014; Grewal et al., 2022; Kiefer, 2019), tai chi (Geller et al., 2015; Geller et al., 2011), and exercise more generally (Geller et al., 2015; Emmert-Aronson et al., 2019; Jaber et al., 2006). Integrating the practice of movement rather than just the encouragement to do so independently can be more effective motivation for patients to adhere to the practice. The Dresner, et al. study (2016) is a qualitative study in which patients were interviewed after participating in an IGMV to address chronic pain. In these interviews, twelve of the fourteen individuals increased the amount of exercise they do in their daily life. These patients explained that they knew that it would be helpful to exercise had not done so until they practiced it during the IGMV sessions. Once they started these sessions, it became easier to continue when on their own (Dresner et al., 2016). Similarly, in another qualitative study, patients explained that the IGMVs provided them with more concrete tools to practice in their lives outside of the intervention (Lestoquoy et al., 2017). Patients described that exercise seemed more doable and beginning these practices during the session initiated a drive to continue exercising outside of the sessions as well (Lestoquoy et al., 2017).

Other studies implemented less common alternative medicine practices, such as visualization[4], guided imagery (Chao et al., 2015; Geller et al., 2021), aromatherapy (Grewal et al., 2022), and art therapy (Grewal et al., 2022; Geller et al., 2011). Much like other alternative medicine practices, they have been proven to reduce stress levels by shifting focus towards things that are calming (Casey et al., 2009; Geller et al., 2011). These practices were grouped with other alternative medicine practices. The intention was to expose patients to various practices that exist so that patients can find what works best for them. Including more than one method of alternative medicine can allow patients to tailor their practices to what best suits their lifestyle, their needs, and their abilities (Geller et al., 2011).

In the Lestoquoy et al. (2017) qualitative study, many patients brought up the benefits that they experienced from integrative medical practices. During semi-structured interviews, multiple patients explained that the mindfulness practices allowed them to acknowledge that pain does hinder them even if others cannot see it. In addition, they appreciated having the ability to take action against pain and have concrete tools to deal with their issues as they arose (Lestoquoy et al., 2017). In addition, in the Gardiner et al. (2014) qualitative review of an IGMV, a theme across multiple interviews was how the mindfulness practices led to unanticipated improvements in other aspects of their lives, such as their sleep and daily stress management. The Casey et al. study (2009), conducted a prospective cohort study in which quantitative data through surveys was collected from IGMV participants before and after the intervention. The data showed that there was a statistically significant improvement in psychological outcomes, and that this was attributed to the increased use of relaxation practices and exercises (Casey et al., 2009). Both quantitative and qualitative data from these multiple studies showed benefits from the use of alternative medicine practices in addition to traditional health care.

AIM 2; Comparison to Traditional Visits with Providers

The second aim of this literature review was to assess how the benefits of the IGMV compare to those of the traditional individual visit with providers. Only four of the articles reviewed methodologically compared the health outcomes between individuals using an IGMV and those with a traditional provider visit. While the remaining articles focused on pre-test/post-test analysis to examine the effectiveness of the IGMV intervention, some articles did discuss the outcomes in comparison to a traditional provider visit, though a comparison group was not included in the study itself.

Randomized Controlled Trials

Randomized-controlled trials are the best studies to compare the IGMV model to the traditional care model because of the direct comparison that is done through the methods of these studies. The results from these studies demonstrate the benefits of the IGMV model.

The Gardiner, et al. study (2019) was a quantitative study that compared IGMV patients to patients that utilized traditional primary care visits with their providers. There was a clinically meaningful difference in the reduction of depression between patients that participated in IGMVs and those in the control group. In addition, at 21 weeks, those in the experimental group had a higher quality of life rating, a lower use of pain medications, and a lower number of ED visits, which were all statistically significantly differences. However, there was no statistically significant difference in the change in pain severity. These results indicate that there are long-term effects that participants of IGMVs can gain that are less likely to be realized when using a traditional healthcare model. IGMVs seem to be a feasible model of care for diverse low-income patients and is useful for patients managing chronic pain and depression.

Similarly, the Gawande, et al. (2018) compared an IGMV model with a low-dose comparator (LDC), which consisted of referral to community and digital resources for chronic disease management and mindfulness. While this may not be exactly a traditional primary care visit, this is still a useful study, as it mirrors the main differences between the IGMV model and a traditional visit model. Similar to a traditional visit, the LDC model did not have a group visit model where patients could interact with peers and focus on education rather than practice. This study found statistically significant differences in improvements in emotional regulation, self-compassion, and mindfulness in the experimental group compared to the LDC group. In addition, those in the experimental group had a statistically significantly higher rate of action plan initiative, meaning that they were more likely to create a plan for their chronic disease management that included what they have learned from the intervention.

Another randomized-controlled trial that showed a statistically significant difference between the change in outcomes between participants in an IGMV model and those with traditional care is the Murray & Everson study (2005). In this study, the participants utilizing the IGMV intervention showed a statistically significantly greater improvement in weight loss, cholesterol, triglyceride, and LDL. While there was a small sample size, it was evident that those in the group visit model exhibited greater health improvements as a result of lifestyle modifications encouraged through the intervention.

Alternatively, the Dorsey, et al. study (2011) assessed the outcomes of an IGMV for individuals with Parkinson's disease. Thirty patients were randomized into the case group and the control group for a total of 15 patients in each group of the study, where the control group received traditional care with a provider. Twelve months after the baseline, there were no statistically significant differences between the control group and the experimental group in quality of life, Parkinson's disease symptoms, depression, cognition, patient satisfaction, or caregiver burden. While there were no differences in the outcomes between the two groups in this randomized-controlled trial, there was an acknowledgement that the IGMV model can address limitations that are present in support groups and one-on-one visits, such as the inclusion of a credible group leader to provide education and a longer time allocated for participants to discuss amongst each other about their experiences.

Based on these studies, it is evident that while there are many parallels between the improvements seen in an IGMV compared to that of a traditional medical visit, additional benefits are often gained from the IGMV model. Because there is a higher level of preparation and resources required for IGMVs, it is often a cost-benefit analysis that determines if the improvement in effectiveness is worth the cost of the intervention.

Qualitative Studies

While the five qualitative studies in this review focused more on the patient, provider, and implementer feedback and observations of the IGMVs, they did provide insight into the comparison between the IGMV model and a traditional care model through the discussion of their findings.

Singrey, et al. (2015) was a qualitative study that collected data through researcher observations during the sessions of an IGMV. Similarly, the Thompson-Lastad and Rubin (2020) study also collected data through ethnographic observation, but they also conducted semi-structured interviews with the clinical staff that facilitated and supported the IGMV. Two other studies relied solely on semi-structured interviews with patients for qualitative data (Dresner et al., 2016; Bruns et al., 2019). However, while Dresner, et al. study (2016) only conducted the interviews at the end of the IGMV program, the Bruns, et al. study (2019) conducted interviews at baseline, at the end of the three-month program, and three months after the end of the program (six months from baseline). Alternatively, the Lestoquoy, et al. study (2017) collected qualitative data from patients through four focus groups that were held at the end of the IGMV. Each of these studies collected qualitative data differently, but there were common themes among these studies that highlighted the benefits of the IGMV model in comparison to a traditional visit.

A common theme across multiple qualitative studies was that patients in IGMVs felt that they learned tangible skills that they could use to cope with their chronic conditions. During interviews, patients explained that they found the mindfulness and exercising practices to be direct ways to improve their pain and other symptoms (Dresner et al., 2016; Bruns et al., 2019). Patients reported that they found practices easily accessible, and this made it easier for them to continue adherence to them outside of the IGMV sessions (Bruns et al., 2019). During focus groups, multiple patients also explained that these skills made them feel more in control of their health and their lives, as they had the tools to respond to pain in the moment (Lestoquoy et al., 2017).

Patients also described a difference in their relationship with the provider in the IGMV model compared to a traditional visit. Patients in the Bruns, et al. study (2019), for example, explained during interviews that the IGMV model was a new way for them to interact with physicians. In focus groups, patients stated that they felt that they were able to share the decision-making power in regard to their health, as there was a lack of a power dynamic between providers and patient in the IGMV model (Lestoquoy et al., 2017). As patients felt more comfortable with providers due to the increased time, they were able to spend with them, these patients also felt more trusting of the providers, which led to more open conversations about their health conditions (Lestoquoy et al., 2017). Patients said that they began to see physicians as a resource for maintenance of health, rather than a cure all for issues as they arise (Bruns et al., 2019).

The connection that patients were able to make with other participants during the IGMV visits was another common theme among qualitative studies. During qualitative interviews, patients explained that this connection was beneficial for their health, as they felt seen, heard, and respected by peers. They credited the sense of community that they gained from these visits as a direct source of pain relief (Bruns et al., 2019). Furthermore, in focus groups in the Lestoquoy, et al. study (2017), patients noted a higher sense of validation and acceptance of their health conditions, as they were able to share similar experiences with other participants. This connection that they were able to make with others helped them reduce feelings of loneliness and judgment (Lestoquoy et al., 2017). Patients interviewed in the Dresner, et al. study (2016) also reported similar feelings of connection and an improvement in the loneliness they experienced.

In the Dresner, et al. study (2016), patients were asked in their interview about their appraisal of the IGMV group visit model compared to traditional visits. Six of the nineteen patients explained that group care was superior to traditional one-on-one visits with providers, as there was more time for them to discuss their questions regarding their health and get more detailed feedback. Fourteen of the nineteen patients in this study also stated that they gained more information in this group visit model, as they were able to learn from their peers about aspects of their health that they did not consider before (Dresner et al., 2016). Furthermore, staff that was interviewed in the Thompson-Lastad and Rubin study (2020), found that this group care model allowed them to more effectively address depression and pain compared to traditional visits, as these conditions are often complex, and are more difficult to approach in a fifteen-minute traditional visit.

Quantitative Studies

The eleven quantitative studies utilized the survey method to collect self-reported data about patient outcomes, and in some studies, patient satisfaction through a pre-test/post-test method. There was no comparison group; rather change was assessed within the same population. While the data collected in these quantitative studies focused on health outcomes and patient perceptions of the IGMV, connections were drawn that compared these outcomes to what is understood and witnessed in traditional care. In all of the studies, there was a statistically significant change in health outcomes that were measured, indicating the effectiveness of the IGMV model.

Znidarsic et al., 2021; Casey, et al. (2009); Geller, et al. (2015); Kemper, et al. (2016); Marthi, et al. (2021); Emmert-Aronson, et al. (2019); Law, et al. (2019); Geller, et al. (2011); Fuchs, et al. (2016); and Shaw, et al. (2014) are other prospective cohort studies that used surveys to assess health impacts of IGMVs. All of these studies used a pre-test/post-test model, meaning that the same individuals were assessed at baseline and at the end of the survey, without a comparison group. (Grewal, et al. (2022) is a cross-sectional study that surveyed individuals only at the end of the intervention to assess outcomes). In all of these studies, there were evidence of statistically significant health outcomes improvement, both physically and mentally. As these studies did not have a comparison group, it cannot be confirmed that the IGMV itself was the only causal factor for the effects seen. In addition, these studies were completed with small sample sizes, meaning that statistical power may not be as strong.

Another aspect of the IGMV model that has been shown to be correlated with health outcomes is frequency of the visits. One of the benefits of the IGMV model is that meetings occur at a relatively frequent rate, whether it be monthly, every two weeks, or weekly. There has been a statistically significant correlation between attendance/frequency and health outcomes (Geller et al., 2011; Emmert-Aronson et al., 2019; Law et al., 2022). Frequency is also paired with attendance, as that is the main concern with participation. As IGMVs are often optional, many participants choose not to attend, which leads to less exposure to the intervention itself. Alternatively, individuals are less likely to miss traditional visits because it is their individual time with the physician. A traditional visit seems more structured and thus important, so it is less likely that patients will miss these appointments. In addition, the increase in the amount of time spent with the provider, and in a more casual group setting, increases the approachability of these physicians for the patients (Geller et al., 2017). This increase in approachability allows patients to have a better relationship with their provider, which can lead to better communication and thus, improved outcomes.

Mixed Methods Studies

Eisenstat, et al. (2012); Gardiner, et al. (2014); Kiefer (2019); Charlot, et al. (2019), Bruns, et al. (2019); Ariana, et al. (2019); and Ventura and Chung (2019) are mixed methods studies that assessed the effectiveness of IGMVs. While the quantitative methods collected health outcomes data, the qualitative data tended to be used to collect data about patient satisfaction and feedback about the program. In all of these studies, health outcomes improved, particularly health indicators for diabetes (Eisenstat et al., 2012; Kiefer, 2019), quality of life more generally (Chao et al., 2015), and depression (Gardiner et al., 2014). All of the studies were prospective cohort studies, meaning that there were no comparison groups with the participants that attended the IGMVs. Ventura and Chung (2019) conducted a follow-up after 2 months and 6 months utilizing the same surveying method, and they showed that there were statistically significant lasting impacts. As this was the only study that conducted a more long-term impact study, the long-term outcomes of the other studies are not clear.

Much of the qualitative data in these mixed methods studies showed that the aspect of the IGMV model that patients liked the most was the interaction with peers during the visit. Through semi-structured interviews, patients interviewed in the Bruns, et al. study (2019) expressed happiness in finally feeling understood, as they felt the empathy from their peers. The patients further explained that this comradery with peers also helped them with pain relief, as they learned about methods of pain reduction that work with others, and they felt encouraged by these individuals to make changes in their coping mechanisms (Bruns et al., 2019). While the Ventura and Chung study (2019) used an evaluation form with open-ended questions, they received similar inputs from the patients that completed these forms. Patients stated that the opportunity to form bonds with peers helped them learn skills to cope and gave them the chance to express their emotions without feeling they were being judged (Ventura & Chung, 2019).

Other qualitative data showed high levels of patient satisfaction with the IGMV intervention in comparison to traditional provider visits. The Kiefer study (2019) collected qualitative data through a focus group that was conducted at the end of the program. Patients stated during this focus group that they liked the group visit model because they were able to learn from other patients and spend more time with a provider in a collaborative environment (Kiefer, 2019). Another study utilized semi-structured interviews but obtained similar data – patient satisfaction with the IGMV model was high due to the improved sense of self-efficacy to make health behavior changes (Gardiner et al., 2014). The Charlot, et al. study (2019) utilized both focus groups and in-depth interviews to collect qualitative data and found similar themes across the interviews and groups about high patient satisfaction due to positive lifestyle changes that the patients were able to confidently implement.

The Eisenstat, et al. study (2012) was a mixed methods study, but the qualitative data were collected through researcher observations. However, the data from observations matched what patients reported in other studies – that they were more engaged with the material when there was discussion rather than simply a presentation of the health education material and seemed to learn a lot from their peers in addition to the providers (Eisenstat et al., 2012). Another study, the Ariana, et al. study (2019) collected qualitative data through interviews with providers. The themes that arose in the semi-structured interviews discussed factors such as recruitment and retention and the IGMV program's implementation. The feedback from providers in this studied also aligned with much of the data collected from patients in other studies, as many providers stated the benefits of group cohesion and discussion about chronic conditions and coping with them (Ariana et al., 2019). In addition, providers also discussed the significance of integrating complementary health practices, and how they positively impact the health of their patients.

AIM 3: Limitations of the Group Visit Model

The third aim of this review was to identify limitations of the IGMV model. This section discusses the limitations of IGMVs that were observed in the articles that were reviewed.

Logistical Barriers to Attendance

In almost every study in this review, attendance at meetings was reported to be one aspect of the IGMV model that was difficult to maintain Contrary to the traditional visit with a physician, IGMVs were advertised to patients as an optional intervention that they could take part in. Thus, many patients were not as committed to attending all of the sessions for the length of the program. For example, in the Gawande, et al. study (2018), the average number of sessions attended by the participants was six out of nine. In addition, in the Gardiner, et al. study (2014), only about 64% of participants attended more than one session. The lack of consistency in attendance was common across all of the studies and was also apparent through the smaller sample sizes of the studies, as there were fewer individuals that could be interviewed.

There are various reasons that were cited for the lack of attendance and retention among participants. One major issue was transportation (Ariana et al., 2019). Many of the individuals that participated in IGMVs relied on public transportation or a caregiver's assistance to get to the intervention/treatment appointments. As both of these modes of transportation often are not reliable, some of the participants would simply be unable to attend. In addition, other logistical issues such as the timing of the IGMV sessions or the distance of the location from the participant's residence were also barriers to consistent attendance (Ariana et al., 2019; Fusch et al., 2016). The length of the sessions also played a role in attendance, as retention was lower as the sessions got longer or were more frequent. (Jaber et al., 2006). While patients may face similar barriers for traditional medical visits, the individualized less casual nature of the appointment makes the barriers seem to be less inhibiting.

The issue of poor attendance is a major barrier to the effectiveness of the program. Often, those that attend and attend more consistently are also those more willing to make the changes in their behavior to improve their health (Marthi et al., 2021). A higher rate of motivation also coincides with a higher rate of improvement in health. However, those that do not attend or are unable to attend are more likely to require external assistance with motivation and encouragement to make health behavior changes. Not only does the lack of attendance impact the individual's experience in the IGMVs, but their absences often impact the whole group dynamic, as there is a sense of community formed among the participants, and due to the relatively small nature of these IGMVs, the lack of presence is felt by the rest of the participants (Ariana et al., 2019). It is important to understand the factors that impact attendance (Gardiner et al., 2014).

Lack of Individualized Care

One of the major benefits of IGMVs is that they can address a wide variety of factors that impact health and chronic disease management in a group setting. However, a limitation of the group setting is the lack of individualized care. Due to the high variability among the patients that attend the IGMVs, there are many different needs that they may have regarding their health and how to instill behavior changes (Geller et al., 2017). Providers may have a more difficult time in being able to provide this sort of guidance in this IGMV setting. While there is the check-in with a provider during IGMV sessions, there may be time constraints that prevent a full and in-depth conversation to address these matters.

Flexibility is an important trait for IGMVs to have. While individualized care for each individual may be difficult in this group setting, altering the curriculum and foci of the health education that occurs in these sessions can improve the impact that it has on more participants (Singrey et al., 2015). Providing opportunities for participant feedback and addressing it is the most effective way to give the communities of focus what they need to improve their health. In the qualitative study by Fusch, et al. (2014), patients explained that some of the occurrences that made the IGMV model less engaging was when certain participants monopolized the time during the sessions, the group topic did not meet the needs of the individual, and not having enough time to share personal struggles. All of these concerns made patients less likely to return, as they felt that they were not able to optimize the utility of the program.

Language Barriers

Another issue is language barriers (Gardiner et al., 2014; Thompson-Lastad & Rubin, 2020; Fusch et al., 2016). All groups in this review were only held in one language, and most of them were in English (Gardiner et al., 2014). This language barrier often makes it difficult for non-English speaking individuals to find IGMVs that are offered in their language.

Confidentiality Concerns

There is also a concern associated with confidentiality. Due to the collaborative nature of IGMVs, there is no confidentiality about the matters that patients discuss in relation to their health (Jaber et al., 2006). This may be an issue for some patients, who would prefer to speak about their health in a more private setting alone with their provider. This may limit what some patients share with their peers or their providers in the group and prevent them from sharing concerns or questions that they may have. In a traditional medical visit, this is usually not of concern, as individuals are only interacting with their provider in a setting in which they know their medical information will be kept confidential.

Economic Sustainability of IGMVs

Another limitation of IGMVs is their lack of sustainability. Due to the relative novelty of this model, there is limited information about the economic sustainability of this model (Shaw et al., 2014). Those studies that have assessed IGMV models have not typically focused on cost (Bruns et al., 2019). Despite this lack of assessment of the economic sustainability, many of the studies do discuss the economic limitations that IGMVs face.

The main concern regarding this facet of IGMVs is the lack of proper coverage by insurance of complementary and integrative health practice. Currently, there is very little, if any, coverage of these practices by Medicare and Medicaid (Thompson-Lastad & Rubin, 2020). These practices existed outside of Western medicine and have slowly become adopted into this field over the recent years (Geller et al., 2017). Thus, the insurance policies and practices have not yet evolved to pay for these practices despite their demonstrated utility to patients.

Another concern is the lack of financial resources. In healthcare settings, funding for initiatives is often lacking, making it difficult for interventions to have all the resources necessary to optimize the program (Dorsey et al., 2011). With the wide array of programs and interventions that exist to combat poor health, funding is often spread thin. In comparison, as traditional medical care is the basis of healthcare, it is easier to secure funding and get reimbursement from insurance companies to support this mode of care. The uncertainty and instability of this model makes it difficult to encourage their adoption despite the benefits that they may provide to patients. From an implementation standpoint, it may not be feasible to invest the time and resources presently available to implement this approach to chronic disease management that will inevitably not last long. In these cases, it is better for a clinic to focus on what is known to be effective and sustainable economically as well. Thus, continuation of the traditional medical visit model seems more feasible compared to the adoption of the IGMV.

Another challenge is poor understanding of billing standards and requirements (Jaber et al., 2006). There is no current standard for how to bill for group visits, and clarification and proper guidelines are necessary to ensure proper reimbursement and coverage for patients[6]. While changes must be made to make IGMVs more readily available for patients at relatively low costs, these methods of billing are feasible.

Training of Staff

A properly trained staff is integral to the effectiveness of the IGMV model. While providers are very well-trained in providing health-related care to patients, the facilitation of a group may be difficult for them, as it requires a different set of skills (Eisenstat et al., 2013). Proper training and preparation are vital to learn how to facilitate a conversation that encourages all patients to participate and creates a supportive environment that engages all participants. In addition to facilitators, other clinicians and staff members that are assisting the IGMV must understand the goals of the sessions and their responsibilities within these groups.

There are some traits that may make providers more suitable to be a facilitator of these IGMVs (Thompson-Lastad, 2018). However, even providers that are not facilitating these sessions are vital for the effectiveness of the program. In all of the studies, patients were recruited by referral from their provider. Patients are often more trusting of the providers with whom they have had repeated interactions with. Thus, if these providers are the ones that are introducing this new intervention to patients, it is vital that they understand how this model works and the benefits that it can provide. There is a level of commitment and buy-in necessary from all providers to ensure that the IGMV model is implemented in an optimal manner (Singrey et al., 2015).

In one study, the alternative health practices were taught by trained providers (Ariana et al., 2019). Due to financial restrictions, the clinic was unable to hire experts in alternative medicine to partake in their IGMV. While this is a promising way to work with the limited resources that are available, it is imperative that the providers educating patients about integrative health practices properly learn about the benefits of these practices and how they should be effectively implemented. As providers are already battling issues with limited time, it may be difficult for them to have the time necessary to master these new skills. Incorporating the strengths of a variety of providers and possibly determining other experts such as health coaches or lifestyle coaches as the educators for alternative practices are possible ways to maximize resources.

Not A Replacement for Traditional Care

Two of the qualitative studies also discussed that while beneficial for patients, IMGVs are not be suitable as a replacement for traditional care (Thompson-Lastad & Rubin, 2020; Singrey et al., 2015). Currently, IGMVs are implemented as an intervention headed by individual providers, rather than as a reform for healthcare more generally. While this model does allow low-income individuals to have better access to complementary and integrative health (CIH) approaches, the lack of reimbursement limits the growth and the scope of these IGMV models as the primary method of intervention (Thompson-Lastad & Rubin, 2020). Furthermore, there are benefits to individualized care that are not obtainable with the IGMV model. For instance, an individual may have specific needs or particularities about their health that makes advice in a group setting not the most beneficial for them (Singrey et al., 2015). Attending to individualized needs of patients is less feasible in a group setting and could negatively impact the flow of the program or the cohesion of the participants in the group.

Six of the quantitative studies also discussed that the IGMV model is not a replacement for traditional care, but rather an effective supplement to the care the patients traditionally receive (Fusch et al., 2016; Shaw et al., 2014; Jaber et al., 2006; Marthi et al., 2021; Geller et al., 2015; Znidarsic et al., 2021). One of the main reasons for this is the economic cost of IGMVs. As there is a higher burden for IGMVs compared to traditional visits on providers, further research is required to properly understand the cost-effectiveness of this model compared to traditional models with the addition of IGMVs (Shaw et al., 2014). In addition, many aspects of chronic conditions such as diabetes or chronic pain can be unique to the individual. Therefore, while there are benefits that can be gained in a group setting where patients can share their experiences, there are some aspects of the condition that must be discussed individually with the provider (Marthi et al., 2021; Fusch et al., 2016). These conversations often require time and confidentiality that may not be present during an IGMV session. The dynamic of the IGMV is very important, as it requires the facilitator to be able to balance the varying personalities and desires of the patients. However, due to the inherently social nature of the IGMV, it is clear that this model is not for everyone, as not all individuals will feel comfortable sharing personal matters about their health in a group setting.

Increased Efforts Required from Provider and Healthcare Team

Another major theme from the qualitative studies is that there is a higher level of effort required on the part of the healthcare team to host these IGMVs compared to a traditional model. Thompson-Lastad and Rubin (2020) carried out a qualitative study that used interviews with providers and staff in addition to ethnographic observations to evaluate IGMVs in multiple safety-net clinics. They found that compared to traditional care visits, the IGMV model is more demanding on providers, not only due to the time of the group visits themselves, which are typically longer due to the number of patients attending and the amount of information that is covered during the sessions, but also in terms of the preparation required to effectively facilitate the program weekly. As these providers are already spread thin with their responsibility and caseload, it can be difficult to commit to these sessions. Similarly, the Singrey, et al. study (2015) found that there is a need for flexibility of the curriculum in order to engage the usually diverse participants that attend the sessions.

Discussion

The studies reviewed in this article have provided data regarding the effectiveness of IGMVs, how they compare to the traditional medical visit model, and their limitations. This data was collected and assessed through different types of studies, though they all drew similar conclusions about the factors of an IGMV that make them a promising approach to chronic disease management. These conclusions will enable better comprehension for the optimization of IGMV implementation.

Randomized-controlled trials are typically the best source of data because they enable the researcher to isolate the effect of one or more variables and thereby better establish a causal relationship between the intervention and health outcomes that are assessed through the study. In this review, the randomized-controlled trials were able to directly compare IGMVs with traditional medical visits. While this is beneficial in demonstrating effectiveness, it is important to incorporate the use of observational data as well. Observational data collected either primarily through observations from the researchers themselves or secondarily through interviews with patients and providers can provide insight into how the intervention is effective (i.e., the pathways) and also sometimes identify unintended consequences of an intervention. Gaining the perspectives of those that take part in the program provides insight that might otherwise not be obtained, as they have the expertise of experience. Randomized-controlled trials focuses on solely the outcomes of the experimental and control group, while observational studies can also assess the process of the implementation.

Integrative group medical visits are a complex intervention that incorporate a variety of activities to improve health outcomes for individuals managing chronic diseases. While IGMVs offer many benefits in terms of primary health outcomes such as physiological symptoms of chronic disease, there are also benefits seen in secondary health outcomes such as mental health, social integration, and motivation for health behavior changes. The various benefits of this model are promising for its continued implementation in clinical settings and its expansion as a more common intervention. However, it is also important to address the limitations of this model to optimize the care that patients receive through IGMVs.

As concluded by some of the studies in this review, it seems that while IGMVs may not be a replacement for traditional medical visits, they are a potentially very valuable intervention to use together with the traditional provider visit, as they can lessen the burden that providers face in the amount of information to cover during shorter visits, while also ensuring the privacy and benefits that are provided through these traditional visits.

<u>Participant Retention and Attendance</u>

A feature of the IGMVs that varied greatly was the length and frequency of the sessions. They spanned from weekly to monthly visits and ranged from three month to one year in length. It is difficult to find the perfect length because while only a few sessions may not be enough to have an impact, having too many sessions decreases the likelihood of sustained attendance among patients. The studies reviewed show that the patients that attended fewer sessions had fewer improvements in health outcomes compared to those that attended more sessions. However, retention was also an issue, particularly for the studies that hosted sessions on a weekly or biweekly basis.

One study noticed that providing food during the visits increased retention of participants throughout the program (Dresner et al., 2016). Providing a healthy meal or snack was done in order to showcase how education on nutrition can be implemented into eating. While the main intent of this was to increase comprehension of the nutrition and diet related information provided during the session, patients also mentioned that this was a reason that they returned to each session. In fact, this study was not the only IGMV model that provided food during the sessions. Other studies similarly provided snacks or a meal that related to the nutritional information that they provided to participants (Gardiner et al., 2014; Casey et al., 2009; Emmert-Aronson et al., 2019). As most, if not all IGMV models in this study, included nutritional education within the scope of their program, it is possible that providing meals would increase attendance to the sessions. If resources allow, this could be a beneficial addition to the program which could not only give patients the chance to observe what healthy eating could look like, but also improve the reach of the program.

Ultimately, it seems that the best way to integrate group medical visits is to encourage patients to see this intervention as valuable supplement for their health rather than an optional supplement. While encouragement from a trusted provider can be helpful, an additional approach would be to find ways to reduce the barriers that patients face in attending a program with repeated visits such as IGMVs. For instance, as transportation was cited to be a limitation for many patients, providing shuttling services or ensuring that the program is offered at times that work with the schedules that patients and their families have would be helpful. Another study found that those that attended fewer sessions had higher levels of pain, indicating that pain may have been a barrier to attending IGMV sessions (Gardiner et al., 2019). Understanding the barriers to attendance are for each participant is necessary to properly address the needs of the focus population for the IGMV.

Virtual IGMVs

There is limited research on virtual IGMVs. These studies were purposely excluded from this literature review, as there are many factors that make these models differ from traditional group medical visits. However, while there may be less understanding about the effectiveness of virtual IGMVs, it is important to consider virtual group sessions as a replacement for IGMVs in situations where routine in-person attendance may be of concern.

For example, with the continuation of the COVID-19 pandemic, it is necessary to adapt healthcare functions to accommodate future waves and spikes of COVID-19 infections among patients rather than expecting a future in which this disease does not exist. Offering a virtual program, or a hybrid model of IGMVs is a promising way to provide flexibility that can be beneficial for patients and providers alike. In situations where patients test positive for COVID-19, there is a spike in COVID-19 cases within a community or patients or providers would like to be extra cautious, having the option to attend these programs virtually would allow them to continue their progress during the session without disrupting their routine or the dynamic of the class. Even apart from COVID-19, if a patient is unable to secure transportation to the clinic, or if a patient feels sick in general, having a virtual option will help them take part in the session. Hybrid models are often difficult due to logistical burdens with technology and engagement but having multiple staff members and providers present during the visit might make it easier to manage this model. Consistency in attendance, an important factor when it comes to making health behavior changes and creating a program that allows for maximum engagement by participants, is a valuable trait for the IGMV to have.

Utility of IGMVs in Resource-Limited Settings

One of the major issues that low-income individuals face when receiving medical care is the lack of quality often attributed to the short nature of their interaction with providers, lack of resources for additional medical and behavioral support, and the lack of social capital that positively influences health behaviors (Lestoquoy et al., 2017; Dresner et al., 2016). The IGMV model can alleviate many of these concerns. This IGMV model allows for a more in-depth conversation between patients and providers regarding the challenging experiential aspects of the chronic diseases these patients may face (Dresner et al., 2016; Shaw et al., 2014). For low-income patients, it is often difficult to have access to resources for health behavior and lifestyle changes. However, the ability to share information and experiences with other patients with similar backgrounds and chronic illnesses can help them determine coping strategies and sources of assistance to optimize their chronic disease management. In the IGMV model, rather than solely relying on the information and insight provided by a healthcare provider, who may not be experientially aware of the barriers that patients face in improving their health, patients are able to work collaboratively with other patients and providers to find the strategies and methods to promote sustainable health behavior changes (Bruns et al., 2019). Furthermore, having more time in the presence of providers allows patients to have conversations that are not limited by time, which is an often concern of the traditional visit model.

In the Thompson-Lastad and Rubin study (2020), the IGMV took place in a safety-net clinic and was implemented as a response to the limited resources and public investment in improved care for chronic pain. Similarly, the Dresner, et al. (2016) study took place in a low-income safety net hospital. The IGMV model seemed to be better equipped to address the needs of both the clinician and patient compared to standard pain management. As chronic conditions such as chronic pain, diabetes, or obesity are often complex and thus require multi-faceted approaches to management, the IGMV model is able to optimize not only the time patients spend in the clinic but also the time that the team of clinicians are able to spend truly understanding the needs of the patients. The increased and higher quality of time spent with providers in tandem with the support from peers gives patients the ability to comprehensively discuss their health in the scope of their circumstances, leading to the best advice and health care for them. Additionally, IGMVs address various levels of an individual's system such as their personal behaviors, their social connections, and their social settings.

Maintenance of IGMVs

Improvements to the sustainability of the program require the proper funding for IGMVs that are implemented. The evidence shows that economic evaluation is necessary in order to truly understand the economic and financial implications of the maintenance of IGMVs. The main concern for the sustainability of this model is its reimbursement, which is in relation to the group nature of the sessions, as well as the integration of complementary and alternative practices.

As mentioned previously, because of the lack of clarity around the codes used for group visit billing, there is confusion regarding the best methods to get proper coverage for patients and proper payment for providers. Particularly with Medicare, there is no official payment or coding related to group medical visits (Dorsey et al., 2016). Proper coverage under insurance and proper education for providers about how the billing works will incentivize not only a sustained implementation of IGMV models, but also a higher rate of adoption in clinical settings.

Another aspect worth noting is that under the Affordable Care Act, services from complementary and alternative medicine practitioners are not covered for patients (Ariana et al., 2019). It is vital for experts in integrative medicine to be employed in IGMVs, as they will be the best resources for patients to not only learn these practices, but also increase their uptake of these practices outside of these visits. Furthermore, in order to be an accessible intervention for all individuals, including systemically marginalized and excluded populations, coverage by insurance is vital to ensure that the financial burden is not unequally placed on these individuals. Broad and equitable implementation will only be feasible if public and private reimbursement is available. In light of this lack of coverage, funding from external sources such as the government or private funding may be the most realistic manner through which proper funding is available for IGMVs in the near future. Currently, in some IGMV models, healthcare professionals get trained in complementary medical practices such as meditation, which has been effective in providing these practices when hiring alternative medicine practitioners are not feasible. While there may be future changes in what is covered by insurance, and it could include alternative medical practices, it is likely that this will take a much longer time to occur.

Systems Thinking Approach to Care

The main difference between medicine and public health is that the former focuses on treatment of disease and illness at the individual level while the latter focuses on its prevention at a population level. While these may seem inherently separate, there are many instances of overlap where one can benefit from the other. The IGMV model is an instance in which the convergence of public health and medicine can optimize the utility of this intervention.

The IGMV model as discussed has many benefits for chronic disease self-management, as it incorporates practices that can improve various aspects of chronic diseases and its impact on an individual's life. This systems-thinking approach is the cornerstone of public health, and this implies the utility of this model within the scope of public health. Systems-thinking in public health is assessing a problem in the larger context to truly understand the direct and indirect factors that impact a health problem. It is evidence that the IGMV model's approach to chronic conditions aligns with this. Rather than focusing solely on the clinical factors and implications that are associated with various chronic diseases that individuals face, this model hopes to integrate physiological factors with social, mental, environmental, and emotional factors that impact the experience of these participants in the scope of their illness. In doing so, this model allows individuals to see their health more holistically, and as a part of their life, rather than an isolate entity that exists within it.

Using a public health lens to assess the IGMV model illuminates some of the mechanisms through which health is impacted by this model and indicates possible areas of improvement to further support patients in chronic disease self-management. For instance, social support that patients gain through this intervention can be understood as social capital. In these visits, participants are able to form bonds with their peers, and in doing so, create a network of mutual support that can help enable them to improve not only their health, but also other aspects of their lives that can directly or indirectly impact their health. Not only are participants able to learn from the experiences of others, but also can gain insight from others about aspects of living that may not be directly related to health but could still indirectly impact their health, such as advice on childcare, job searches, or maybe resources for financial planning. Stressors from like indirectly impact health and facilitating these conversations among participants and providers in these groups could be a useful way for individuals to build their social capital in a manner that will help them create the circumstances in which their health will improve.

Another example of integrating the public health approach with the IGMV model is through the provision of resources by the staff or clinic that may be useful for participants and patients. Patients are often aware of the changes that they need to make in their lives to improve it, but they sometimes do not have the means or the knowledge of how to implement them. In such cases, resources such as contacts for housing and social work or notification about local farmers' markets can provide participants with the opportunity to make the changes that they wish to. There are many promising ways in which the IGMV model can integrate useful services and information for patients that can further improve health outcomes directly and indirectly at little cost.

<u>Expansion as a Mode of Primary or Secondary Prevention</u>

This model is currently a tertiary prevention model – it focuses on individuals that have already been diagnosed with chronic disease conditions. However, it is possible that a community-based approach could allow this model to be used for secondary or primary prevention. Specific populations, such as those at higher risk for disease, could be the focus of these interventions in order to prevent the onset of these diseases. Many of the components of the IGMV can be beneficial for prevention measures in addition to being used for treatment.

Working in a community-based setting can allow for a more direct approach to prevention of chronic disease. In assessing the needs and assets of a community that is more likely to be predisposed to chronic conditions can greatly benefit from a model such as the IGMV model, which can be implemented as a prevention strategy to prevent the onset of chronic conditions, rather than as only a treatment once there is already a diagnosis.

Strengths and Limitations of the Review

A strength of this literature review is the variety of types of studies that were included. utilized. Because there were studies with qualitative and quantitative measures to assess the effectiveness of IGMVs, there is a wider range of data that can be used to understand IGMVs more holistically. For instance, qualitative studies used semi-structured interviews and focus groups, allowing for flexibility in the topics covered. That is, patients and providers that are interviewed are able to discuss what they deem to be relevant for them on any given topic, rather than researchers making assumptions about the topics upon which to focus. Furthermore, some of the studies also collected data from sources other than the patients, such as providers and implementers. In doing so, the evidence regarding this intervention model incorporates multiple aspects of the program, which is beneficial when understanding not only the effectiveness of IGMVs as a practice, but also their implementation and their feasibility.

Another strength of this literature review is the recency of the studies that were conducted. While group medical visits have existed for quite some time, the evolution to IGMVs has been recent, and this allows the adoption of new understandings of medicine and health. As the knowledge of chronic diseases and the multi-faceted impact that it has on an individual expands, it is important to adopt practices and interventions to address new understandings of these conditions. As the data assessed in this literature review is from the last fifteen years, it has adopted many of the recently shifts in knowledge regarding wellness and disease. For instance, the importance on a holistic approach to illness, and the significance of mental health and social support are emphasized in these studies and in this intervention itself. This shows that the IGMV model is utilizing relatively recent information in order to have the more effective impact on patients and their health.

A third strength of the review is the diversity of the types of chronic diseases that are covered through the articles in this review. IGMVs have been adapted and implemented for various health conditions, and the literature review seems to encompass a wide range of them. Chronic diseases that have been addressed through this model include cancer, Parkinson's disease, heart conditions, diabetes, obesity, chronic pain, and others. While this is not an extensive list of chronic diseases that exist, this is a broad range of those that do. While the results from this study may not be generalizable to every single chronic condition that exists, there are many concepts and themes that do relate to chronic diseases more generally, and thus can provide some insight when assessing the use of IGMV models to various types of chronic conditions.

One of the limitations of the study is the breadth of the articles that were reviewed. Integrative group medical visits are a relatively newly coined term, so there could be instances in which a model similar to this has been implemented but was not identified by the search conducted. Because the search for the article included the term "integrative" isolated from group medical visits, it is likely that articles that do not use the phrase in its entirety were still present in the results, but there is a possibility that those studies that did not identify their integrative practices as such were not.

Another limitation of this review is that most of the studies had a small sample size. Due to the nature of the IGMV intervention (where there are around 10-12 individuals per group), there are few individuals that can be included in the study, and because of this, there is low statistical power in the quantitative data that was analyzed in this review. Furthermore, as these interviews are conducted face-to-face, there is no anonymity for participants and providers that consent to being interviewed. This could read to response biases such as social desirability, which could skew the data that is collected through these methods. While there is also qualitative data that was assessed, it is possible that this data is not representative of the general population due to concerns of self-selection bias – individuals were able to choose whether or not to participate in these qualitative interviews and because those who chose to do so may differ in important ways from those that did not. In addition, patients who participate in interventions like IMGVs may be more motivated to change their behavior or experience more illness related distress and studies other than randomized controlled triads are not designed to be able to take account of these potential differences.

A third limitation of this literature review is the lack of data in the studies reviewed on the long-term impacts of the IGMV model. While a small number of the studies reviewed did reassess health outcomes months after the completion of the intervention, most of the studies only conducted a post-intervention assessment right at the end of the program. Due to this limitation, it is difficult to draw conclusions about the sustained impacts of this intervention. Further study is required to determine this, and that information could be useful in determining the true benefits that this model could have in comparison to the traditional model.

Conclusion

In this review article, studies that assessed the effects of integrative group medical visits (IGMVs) were reviewed to understand the features of IGMVs that are beneficial to an individual's health, how IGMVs compare and differ from the traditional medical visit with a provider, and the limitations of IGMVs. It is evident that while there are many benefits from IGMVs such as social support and better support for tangible health behavior changes, there are limitations to this model that make it unsuitable to be a replacement for traditional medical visits.

Due to concerns such as the difficulty for patients to return to the clinic frequently for group meetings, the lack of confidentiality, and the issues with reimbursement, IGMVs must be improved and better supported by healthcare systems to be a sustainable intervention for chronic disease management. There are changes that can be made in future implementations of this model, such as providing assistance with transportation, assessing the barriers that patients have in attending, and improving the support that physicians have in getting trained and prepared for these sessions. However, it seems that the most effective model would be to provide IGMVs in addition to the traditional medical visit. As IGMVs are not suitable for all individuals, this would allow for these individuals to continue to seek individualized care, while those that would benefit from social support and group interactions would be able to do so through the IGMV model.

Though currently a secondary prevention model, there is promise for this to be a primary prevention model to prevent the onset of conditions. Individuals at higher risk can be targeted through collaboration between providers and public health professionals. Working with the government and other community-based organizations can create a collective of funds and resources that can optimize the accessibility of this program to those that will require it the most. The IGMV model also holds promise for other applications within public health. For instance, in addition to secondary prevention, a similar model could be implemented for primary prevention measures, with children or with adults, in order to focus on higher risk populations to prevent the onset of chronic diseases. In addition, it is possible to utilize this model in a community-based setting in order optimize the resources of these organizations in addition to that of healthcare to provide support with health behavior changes in the community setting. The IGMV is an effective tool to empower individuals to take care of their own health and thus, should be optimized and utilized in appropriate settings to improve the health outcomes of the community.

Appendix A

STUDY	Year	Integrative Medicine Practices	Program Features	Patient Characteristics	Study Design	Results
Znidarsic et al.	2021	Yoga, acupuncture, meditation	* Weekly 3 hour visits for 8 weeks * Facilitated by physician and holistic psychotherapist * Measurement of patient vitals and assessment, individual check-in with physician, topic lectures	* Patients self-reporting as living with chronic pain	* Retrospective pre-post review * Quantitative study using survey	Statistically significant improvements in physical functioning, anxiety, depression, fatigue, social roles, pain interference, and sleep disturbance. Average opioid usage did decrease as well, though unsignificantly
Thompson-Lastad and Rubin	2020	Meditation and mindfulness	* Facilitated by physician or nurse practitioner, and co-facilitation with psychologists, health educators, and medical assistants * Frequency of visits not provided in study	* Providers from six public or non-profit safety-net health care organizations, four in the San Francisco Bay Area and two in Boston * Individuals with chronic pain	* Qualitative study * Semi-structured interviews with staff and ethnographic observations by researchers	Clinicians found that IGMVs were useful for addressing multiple elements of physical and mental health that are assoicated with chronic pain. Particular conditions had to be in plce for the implementation of these programs, and there are limitations that exist in its adoption and expansion. However, IGMVs are seen as a alteration to standard care, rather than a major overhaul.
Casey et al.	2009	Yoga, breath focus, meditation, mindfulnes, visualization	* 13 weekly 3 hour sessions * Initial data collection, 45 minutes of supervised exercise, 45 minutes of relaxation, 20 minute snack/meal break, 45-60 minute minute group discussion * Facilitated by provider, clinical nurse specialist, and interdsciplinary team	* CAD outpatients referred by provider	* Review of pre- and post-assessment * Quantitative study	There was statistically significant improvements in medical outcomes such as blood pressure, lipids, weight, and frequency of symtpoms, and psychological outcomes such as general severity index, depression, anxiety, and hostility. Increased relaxation response practice and exercise had a statistically significant contribution to the outcomes that were improved. Younger patients and female patients had greater improvements than older patients and male patients.
Chao et al.	2015	Pelvic floor therapy, mindfulness, guided imagery, anti-inflammatory diet and herbs education	* Weekly 2 hour group visit for 10 weeks * Brief check-in with NP, Self-Assessment Sheet completion, health education and discussion * Facilitators and guest experts	* Women with CPP that sought care from academic, community, and public hospitals in the San Francisco Bay Area and participated in the Study of Pelvic Problems, hysterectomy, and Intervention alternatives	* Mixed methods study that collected data through surveys and open-ended questions * Review of pre- and post-assessment	Women who attended four or more sesions had improved health-related quality of life, including decreases in the average number of healthy days in the past month, depressive symptoms, and symptom severity. Sexual health outcomes had also improved.
Eisenstat et al.	2012	Relaxation and meditation exercises	* 1.5-2.5 hours in length, 8 sessions once a month * Individual visit with physician or NP, vital signs assessment, disease-related education, facilitated discussion focused on psychological functioning and behavior change	* Women with type 2 diabetes or prediabetes/metabolic syndrome	* Observational data and pre- and post-assessment surveys * Mixed methods * Looked at long term impacts	Observational data suggested that there are positive effects to diabetes-related targets, such as HbA1c, weight, and cholesterol reduction over 1 year. In addition patients explained that they enjoyed grou pdiscussion about specific topics. Medical providers should have training in grou facilitation and motivational interviewing and need to be willing to refer patients. Furthermore, patients must be willing to attend these sessions.

Gardiner et al.	2019	Mindfulness, accupressure, and massage	* 2.5 hour weekly visit for 9 weeks, followed by one more visit 12 weeks later * Vital signs and mood/pain levels assessed, medical assessment by trained physician, MBSR facilitator-led mindfulness practices, education on mindfulness and self-management techniques, health discussion * Two internet-based platforms used for at-ome enforcement - Our Whole Lives and ECA, which included education materials	* low-income, racially and ethnically diverse populations living in the Boston area dealing with chronic pain	* Randomized controlled trial when control group had primary care provider visit * Quantitative study using survey measures * Assessed pre- and post-assessment, in addition to survey at Week 21 as well	There was no statistically significant difference between the control and experimental group (IGMV group) in pain or depression at any time point. At 9 weeks, the IGMV group did have fewer emergency department visits compared to the control group. At 21 weeks, the IGMV group had a statistically signficant lower use of pain medication compared to the control group.
Geller et al.	2015	Yoga, tai chi, meditation, light exercise	* first 4-12 weekly visits were 90 minutes, then switched to 3 1-hour visits weekly for a total of 6 months * Weekly visit (and 1 visit weekly after week 12 is hosted by physician and co-facilitated by group coordinator, then other 2 weekly visits were just hostec by group facilitator * 15 minute empowerment check-in for group connection, 15 minute physician discussion about pain-related topics, 45 minutes of low-impact chair yoga, tai chi, meditation, or light exercise, and individual visit with physician * 2 additional sessions during the week are exercises hosted by group facilitator, with the activity determined by participants	* High Caribbean Latino population, women with at least one chronic pain diagnosis at GLFHC	* Prospective cohort study, with data collected at baseline and then after 6 months	There were statistically signficant chagnes seen in role functioning, physical and bodily pain, general health, social function, and mental health. However, all factors of the SF-36 survey trended towards improvement.
Ariana et al.	2019	Yoga, tai chi, and exercise	* Weekly sessions for 8 weeks * Group discussion regarding health topics with patients and providers * Individual check-in with providers	* Individuals with chronic pain, diabetes, or cardiovascular disease	* Mixed methods study with paper quant surveys and qualitative interviews	Fifty-seven clinicians reported on group medical visits. Forty percent worked in federally qualified health centers, 57% in safety-net or teaching hospitals, 23% in other settings such as free clinics. Thirty-seven respon- dents in 11 states provided care in IGMVs, most commonly for chronic pain and diabetes. Nutrition (70%), mind-fulness/meditation/breathing (59%), and tai chi/yoga/other movement practices (51%) were the most common treatment approaches in IGMVs.

Kemper et al.	2016	Mindfulness, practicing compassion and loving-kindness for self and others	* 8 weekly session * Family physician that sees patients weekly * Physician co-leads group visit with clinical psychologist, and presenters such as dieticians, pharmacy faculty, exercise physiologist, clinical nurse specialist * Patients took their own vitals, discussion of mindfulness paired with general health topic hosted by facilitators	* Participants discharged from hospital within last 12 months for symptoms of heart failure * Eligible if they received care in the Cardiomyopathy Clinic at University of Massacheusettes	* Pre- and post-assessment at baseline and end of program * Quantitative study	After the session, 100% of the patients planned to make changes to their diet, exercise, and stress management practices. Statistically significant improvements were observed in depression, fatigue, and satisfaction with life.
Dresner et al.	2016	Mindfulness, acupressure, yoga, nutrition and mindful eating	* 8 weekly sessions * Meditation practices/exercise, group discussion about health and wellness, healthy meal provided at the end of each session, individual meetings with physician, participants take their own vitals	* Large, urban safety-net clinic in Boston where participants are primarily low-income minority adults with at least one of the following diagnoses: chronic pain, diabetes mellitus, obes- ity, depression, or anxiety	* Qualitative study with semi-structured interviewing with patients	Participants found benefits in self-monitoring, self-regulation, and increased mindfulness. Patients reported that the group setting led patients to feel "not alone" in their health conditions, gain perspective, and find coping mechanisms from their peers. They found improvements in their physical and mental health.
Lestoquoy et al.	2017	Mindfulness, accupressure, and massage	* 10 2.5-hour sessions * Vital signs and mood/pain levels assessed, medical assessment by trained physician, MBSR facilitator-led mindfulness practices, education on mindfulness and self-management techniques, health discussion	* low-income minority adults with chronic pain lasting at least 12 weeks and comorbid depression	* Qualitative study, with data collected through 4 semi-structured focus groups	Patients had a better acceptance of their identity with pain and control over their health. In addition, patients found connection with those that had similar experiences. In making shared decisions with their providers, patients felt empowered to take control of their lives and their health.
Marthi et al.	2021	Exploration and education of mind-body connection	* 4 visits held every other month * Visits facilitated by psychologist, along with nurse case manager who is also certified diabetes educator * CBT intervention individually with psychologist * Education and discussion regarding healthy eating and medication adherence, handouts and supplementary materials given	* Adults diagnosed with type 2 diabetes	* Quantitative study, pre- and post-assessment survey, using Diabetes Distress Scale, data collected every two months for a year	There was a statistically significant decline in HbA1c and distress related to diabetes. Those that did have a high score on the Diabetes Distress Scale but did not attend the session had an increased level of A1c.
Gardiner et al.	2014	Self-massage, yoga, acupuncture, meditation	* 8 visits weekly for 2.5 hours each * Co-led by family medicine physician and meditation instructor, with occasional guest facilitators * Patients trained to take their own vitals at each sessions, one-on-one time with physician, health education and discussion, healthy meal buffet	* Racially diverse, low health literacy patients with chronic health conditions including pain	* Mixed methods study were pre- and post-program questionnaires were given and qualitative data collected through open-ended survey questions and semi-structured interviews	There was a statistically significant mean difference in pain level and deprsesion between the baseline and at the end of the program, at 8 weeks.

Gawande et al.	2018	Awareness of body sensations and breathing, stress response, mindful self-compassion	* Control is a low dose comparator (LDC), which is 60 minute introduction to mindfulness with referral to community and digital mindfulness resources * MTPC - mindfulness training for primary care, led by 13 trained providers * 8 weekly 2 hour session, one 7-hour all day session, and guided recordings for home practice	* Metro-North Boston area that have DSM-V diagnosis	* Randomized controlled comparative effectiveness trial comparing 8 week MTPC versus LDC * Data collected at baseline, at 8 weeks, and at 24 weeks	Patients that were randomized to the experimental group, the MTPC, had a statistically signficantly higher odds of self-management action plan initiation compared to the control group, the LDC group.
Grewal et al.	2022	Aromatherapy, acupressure, meditation, and art therapy	* 90-120 minutes per session * Individual time with physician, education and practice with new modalities of healing * Facilitated by multiple practitioners - physical therapists, social workers, dieticians, etc.	* Patients enrolled in lifestyle medicine-based survivorship program at LSU Health Center	* Cross-sectional survey of patients through quantitative interviews	100% of respondents found the program to be helpful to some degree, with 66.7% of them finding IGMVs to be signficantly helpful and 33% of patients finding them to be somewhat helpful. Patients reported great sense of support, improvement in appetite, and improvement in pain as benefits of the model. All patients reported at least some improvement in their subjective well-being.
Charlot et al.	2019	Mindfulness	* 8 weekly 2 hour visits * individual check-in with provider, health education, mindfulness practice	* Racially diverse and low-income individuals that are smokers	* Quantitative data collected weekly during visit intake, and qualitative interviews and focus groups conducted at the end	There was a statistically signficant decrease in the cigarette intake compared to baseline, though none of the particpants quit smoking. However, all patients were satisfied with the program and reported positive lifestyle changes.
Emmert-Aronson et al.	2019	Mindfulness, meditation	* 16 weekly 2-hour meetings * 30 minute socially engagement physical activity, 5 minute mindfulness meditation, 10-minute education/discussion, individual meeting with provider, and 60-minute small group discussion wit hearty plant-based snack * Facilitated by health coaches, with co-facilitation by dietician, primary care provider, social workers, medical assistants * Food vouchers for vegetable stand at the clinic is offered	* 49 patients from FQHC in Hayward, CA that have at least one chronic disease diagnosis	* Quantitative data collected monthly through surveys	Respondents had statstically significant increase in daily servings of fruit and vegetables, exercise, and significant reductions in BMI. There was also reductions in acute care utilization, depression and blood pressure, though not statistically significant.
Murray and Everson	2005	Yoga, breathing, stress management	* Monthly 75 minute visits * Vitals collected, patient one-on-one check-in with provider that is not private, health education and discussion with guest speaker	* All women (though not intentional) that are patients at Sastun Center in Mission, Kansas and have at least one of the following diagnoses: obesity, hypertension, type 2 diabetes, or hyperlipidemia	* Observational study comparing group visit group to control group, which has normal physician visits * Quantitative data collected via survey	The experimental group had greater reductions in weight loss compared to the weight loss in the control group. While the experimental group had decreases in cholesterol level, trigylcerides, and LDL levels, the control group had increases in these levels. However, the HDL levels did not change for either group.
Kiefer	2019	Mindfulness, meditation, breathing, acupuncture	* 9 weekly visits * Led by physician and guest providers and staff on various topics in wellness, nutrition, and depression * Vitals collected, health education and discussion, individual time with provider	* 19 people with chronic pain for at least 12 weeks and whose first language was Spanish	* Quantitative data collected through surveys and qualitative data collected through focus groups at the end of the 9 sessions * Pre and post study design	The mean pain score dropped by 1.7 points at the end of the IGMV. Based on the PROMIS-29 survey, there were improvements in fatigue and depression, but not in physical function or anxiety. The depression score dropped in a statistiaclly signficant manner, however that of perceived stress decreases insignificantly.

Dorsey et al.	2011	Nondrug therapies for PD	* 90 minute visits, once every 3 months for 12 months * Vitals and patient history/update collection, 40 minute education session, discussion on topic, one-on-one visit with provider	* 30 individuals with Parkinson's disease who regularly attended the movement disorders clinic at the University of Rochester and 27 caregivers	* Randomized trial with control as individual care with provider	The quality of life measured 12 months after the baseline for the experiemental group and the control group were not statstically signficantly different.
Jaber et al.	2006	Mind/body education, meditation	* Individual time with provider, health education, meals and nutrition discussion * 2.5 hour visits that occur weekly, with refreshers once or twice a year as needed by patient	* Indivduals with chronic diseases such as asthma, osteoporosis, and lipid management	* Pre and post assessment collected through quantitative survey	Challenges include billing, wait times and patient flow, confidentiality, and drop-out rates
Geller et al.	2011	Tai chi, meditation, art or guided imagery	* 1.5 hour physician led group visit with exercises, medical education discussion, and group relaxation practice * Second visit is weekly hour long exercise class wit culturally approporiate activities	* adults with risk factors for heart disease, which included diabetes, hypertension, hypercholesterolemia, low physical activity, strong family history, or age greater than 55 years old	* Pre and post assessment collected through quantitative survey	There was a statistically significant reduction in the levels of depression and loneliness, and an statsitically signficant increase in quality-of-life indicators, such as general health, vitality, bodily pain, mental health, and role-emotional, for participants that had high rates of attendance.
Law et al.	2019	Empowering themes	* 6 weekly 1-hour visits * nutritionist, exercise science expert, chef, and pharmacist * Vital assessment and physical exam, health education and discussion	* 13 patients ages 40 to 75 years who have a current diagnosis of CHF within the family practice setting	* pretest/posttest pilot study through quantitative survey	Patients reported improvements in depression, quality of life, and health promotion behaviors.
Fuchs et al.	2016	Mindfulness	* 60 minute group every two weeks * Health education and discussion, vital assessment and individual provider visit	* 29 adult family medicine patients age 18 years or older, who were fluent in English, and scored [greater than or equal to] 5 on the Patient Health Questionnaire-9 (PHQ-9) and/or Generalized Anxiety Disorder Scale-7 (GAD-7), consistent with minimal or greater depression and/or anxiety symptoms	* Quantitative data collected at the beginning of each visit every two weeks, pre and post assessment	There was a statistically signficant reduction in depression and anxiety for participants that attended more than four sessions. In addition, patients that attended more than one session reported high satisfaction with the program.
Shaw et al.	2014	Mindfulness and meditation	* 8 weekly visits * Health education and discussion, individual visit with physician	* low-income minority adults	* Quantitative data collected through chart review for 6 months prior, during, and 6 months after	There was a statistically significant decrease in the number of ED visits among individuals that attended the IMGV over the course of 6 months. Though not significant, there were improvements in the self-reported quality of life, depression, and anxiety.
Singrey et al.	2015	Mindfulness exercises	* 8 weekly 2 hour sessions * Individual visit with provider, health education and discussion on nutrition, movement, and heart health, mindfulness exercise * Co-facilitation by nutritionists, dieticians, and pharmacists	* Adults that have been discharged within the prior two weeks from a hospital due to acute decompensated heart failure	* Observational data collected qualitatively	The researchers observed that it is important to clearly define each healthcare professional's role on the interdisciplinary team and utilize each person's expertise. Second, they determined that there is still a necessity for individualized care, as i is necessary to cater to the unique interests of the group and each individual. The best way to engage patients in visits is to provide information that addresses their questions and concerns.

Ventura and Chung	2019	Mindfulness activities	* 4 1-hour sessions over the course of 2 weeks * Educational discussion about depressions, goal setting, treatment options, and medication with nurse practitioner * Visit with NP, and routine communication via text	* 35 patients with self-reported depressive symptoms and one or more comorbid chronic pain condition	* Mixed methods pilot design * Quantitative data collection using survey pre and post intervention * Qualitative data collected via post-educational session evaluation forms	There was a statistically significant difference in depression scores before and after the sessions of the IGMV. From the qualitative data collected through evaluation forms, patients reported group gratitude and forming bonds as important aspects of the IGMV that improved their motivation for health behavior changes.
Bruns et al.	2019	mindfulness, meditation, self-massage	* 12 week, weekly 2 hour visits * Led by program coordinator, health educator, invited specialists, including individual meeting with each participant	* Individuals with chronic pain	* Qualitative methods - interviewing at baseline and and at end, with three month follow-up	Patients described that the intervention allowed them to learn how to properly cope with the physical, mental, and emotional burden associated with chronic conditions. Movement and mindfulness strategies were helpful in combating the symptoms of their chronic conditions. They gained an emerging sense of well-being and hope, and were able to separate their pain from their emotional state and self-worth. Curating a community through these sessions also helped with pain relief through friendships, feeling understood and moving beyond pain identity.
Thompson-Lastad and Rubin	2018	Yoga and accupuncture	* Licensed clinician, health educator, and medical assistant present * Health education session with discussion in groups * Meeting with clinician * Weekly 90-minute sessions for 8 weeks	* Individuals with chronic pain	* Qualitative study * Observational data and qualitative interviews with patients and providers	Through these interviews, it was determined that patient's found it beneficial to take active roles in each other's care. In addition, they were able to supprt, challenge and advocate with providers in ways that changes the relationship between patient and provider.

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