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Review

Clinical health psychology in healthcare: Psychology's contributions to the medical team



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ABSTRACT

The specialty of clinical health psychology is focused on the intersection of, and interplay between, physical and behavioral health. Many clinical health psychologists are employed in medical settings and embedded within healthcare teams. While the value of clinical health psychologists in healthcare has been well documented, literature synthesizing the contributions of clinical health psychologists in optimizing outcomes in team-based healthcare is limited. In this article, we provide an overview of the history of the field of clinical health psychology, as well as current established training requirements and competencies, and models of professional practice within the medical setting. We clarify the unique contributions of clinical health psychologists as members of healthcare teams, highlighting areas of expertise in assessment, treatment, consultation, education, and advocacy. Specifically, we describe the ways in which clinical health psychologists partnering with medical providers to address psychological and behavioral factors in health and illness can optimize patient functioning, outcomes, and quality of life; improve healthcare policy; and streamline healthcare costs, above and beyond a traditional medical model. The Mayo Clinic Rochester practice in the Department of Psychiatry and Psychology and Clinical Health Psychology Postdoctoral Fellowship program are presented as an example to illustrate the ways in which clinical health psychologists integrate within healthcare teams and specialty areas to improve patients' health, functioning, quality of life, and treatment outcomes. Overall, this paper explicitly outlines the value of the specialty within the healthcare setting.

Clinical health psychology focuses on the intersection of, and interplay between, physical and behavioral health. As such, the practice of clinical health psychology is relevant to the medical sector given the bidirectional ways in which physical and psychological factors interact with or influence disease prevention and management. Consequently, clinical health psychologists play an integral role in team-based healthcare to promote optimal outcomes among patients, providers, and healthcare teams alike. In this paper, we review the history of

clinical health psychology then provide an overview of the training, competencies, and professional practice of clinical health psychologists. We highlight the unique and essential ways in which clinical health psychologists contribute to whole-person healthcare and healthcare systems through assessment, treatment, consultation, education, and advocacy. Finally, we present the Mayo Clinic as a case study to demonstrate the significance of clinical health psychology's involvement in academic medicine. As we will detail below, clinical health

Abbreviations: APA, American Psychological Association; EST, empirically supported treatments; IEC, Interprofessional Education Collaborative; MBC, measurement-based care; EBP, evidence-based practice; QOL, quality of life; CBT, cognitive behavioral therapy; ACT, acceptance and commitment therapy; MI, motivational interviewing; HIV, human immunodeficiency virus.

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psychologists offer invaluable contributions to patient care, the medical team, and the healthcare system that must be leveraged in a robust and evolving healthcare system.

1. A brief history of clinical health psychology

Clinical health psychology was formally recognized as a specialty by the American Psychological Association (APA) in 1997.¹ Clinical health psychologists use the scientific method to promote and maintain health; support the prevention, treatment, and rehabilitation of illness and disability; and improve public health and the healthcare system.² Clinical health psychologists seek to understand the intersection and interrelationships between biological, psychological, and sociocultural components of physical and behavioral health through engagement in research and clinical practice. Though this specialty was formalized less than 30 years ago, recognition of the intersection between biomedical processes and psychosocial factors dates to the 5th century BCE when health was viewed as an interplay between physical, emotional, and environmental factors relating to humors and seasons.^{1,3}

In the early 20th century, collaboration between modern eras of medicine and psychology began in earnest after years of separation philosophies driven primarily by the notion of mind-body dualism. Collaboration between psychology and medicine began with hopes of incorporating psychological principles into physician-training programs to provide holistic patient care rooted in culture and science.⁴ Initially, professionals who worked in psychology and medicine focused primarily on healthcare over-utilization, psychosomatic disorders, and surgical readiness.⁴ Skepticism towards mind-body dualism, ongoing frustrations with limitations of the biomedical model, and increasing recognition of the influence of lifestyle factors on health led to the development of the biopsychosocial model^{5,6}, which in turn, spurred the growth of clinical health psychology.

Integral to the foundation of clinical health psychology is the understanding that an effective healthcare system requires cross-disciplinary collaboration to ensure high quality outcomes, patient- and policy-based advocacy, payment, reimbursement, and empirically supported treatments (ESTs) for complex health conditions. Over the past 50 years, clinical health psychologists have been actively engaged in medical and surgical specialty practices. The integration of clinical health psychologists within healthcare teams has resulted in advancements in theory development, treatment, and health policy.^{3,7} The financial benefits of integrated, interdisciplinary care teams include decreased healthcare costs and errors, increased patient safety, and improved patient and provider satisfaction.⁸ The Institute of Medicine now recognizes interdisciplinary teamwork as essential to healthcare delivery.^{9,10} This is evident in clinical practice as a 2015 survey of health service psychologists found that 60% collaborate with physicians and nearly 45% with nurses.¹¹

1.1. Training

The first clinical psychology training programs were established in 1946 following the Veterans Administration's request for more providers to meet the needs of returning veterans.¹² It was not until 1983 that specific clinical health psychology competencies and curriculum guidelines were proposed,¹³ which were reaffirmed in the specialty's petition for recognition by the APA. Training in clinical health psychology begins with foundational elements of knowledge and basic applied skills at the doctoral level, which prepares trainees for acquisition of advanced competency at the postdoctoral level.¹⁴

2. Professional competencies

2.1. Intraprofessional competencies

In the early development of professional psychology, there was

limited operationalization of professional competence.¹⁵ Competency in medicine has been defined as "the habitual and judicious use of communication, knowledge, technical skills, clinical reasoning, emotions, values, and reflection in daily practice for the benefit of the individual and community being served"¹⁶ dependent upon "habits of mind, including attentiveness, clipped critical curiosity, self-awareness, and presence."¹⁷ This definition certainly applies to the practice of professional psychology, and to clinical health psychology more specifically. The iterative process of defining professional competencies in psychology has yielded a current model regarding training-to-competence rather than the sole accumulation of supervised hours, a shift that is reflected in the *Standards of Accreditation in Health Service Psychology*.¹⁸ Fundamental to these competencies are theoretical frameworks focused on the confluence of evidence-based science and practice.¹⁹ A summary of the professional competencies in clinical

Table 1

Summary of clinical health psychology postdoctoral fellowship competencies, submitted by the Clinical Health Psychology subcommittee to the APA Commission on Accreditation.²⁰

Domain	Description
1. Integration of Science and Practice	Utilize evidence-based approaches to practice; formulate and test empirical questions; consider new and emerging health technologies
2. Ethical and Legal Standards	Ethical and legal actions in accordance with hospital/medical center organizational bylaws and professional ethics code
3. Individual and Cultural Diversity	Awareness of self as healthcare provider and others; consider health belief models and attitudes towards health and wellness; pursue continuing education and multicultural experiences
4. Research and/or Program Evaluation	Apply scientific method to examine biopsychosocial processes related to health promotion, illness prevention, or disease progression or maintenance; engage in program evaluation
5. Professional Values and Attitudes	Demonstrate professional identity as a clinical health psychologist; understand unique contributions of clinical health psychology to healthcare; advocate for individual/groups for equity and access to quality care
6. Management/Administration and Leadership	Effective communication with interdisciplinary colleagues in healthcare setting; demonstrate leadership within an interdisciplinary team
7. Assessment	Conduct evidence-based biopsychosocial assessment methods to incorporate objective biological and psychosocial findings relevant to patient health outcomes, health literacy, and health behaviors; assess for the biopsychosocial impact of undergoing medical procedures
8. Intervention	Integrate biopsychosocial information when designing evidence-based treatment and intervention for disease management, health promotion, or prevention; evaluate intervention outcomes to include monitoring adherence to medical treatment and psychological intervention; address health behaviors to improve adherence
9. Teaching and Supervision	Provide effective teaching and supervision regarding clinical health psychology concepts and practices to other healthcare profession
10. Consultation and Interprofessional/ Interdisciplinary Skills	Fulfill roles and expectations of a clinical health psychologist while respecting the roles and perspectives of interprofessional colleagues and teams in healthcare setting; conceptualize and answer consultation questions effectively; engage professional colleagues in teams to increase likelihood of early referral as opposed to "last resort" consultation

health psychology submitted to the APA Commission on Accreditation are presented in Table 1.

2.2. Interprofessional competencies

The Interprofessional Education Collaborative (IEC) developed core competencies for interprofessional education and practice aimed at ensuring high quality care, bolstering population health, reducing healthcare costs, and improving satisfaction with healthcare delivery.²¹ These competencies are overarching across professional psychology; however, specific benchmarks are provided to illustrate the implementation in the specialty areas of clinical practice. As members of healthcare teams, clinical health psychologists synthesize and integrate biological, psychological, and sociocultural factors to optimize healthcare. The intraprofessional competencies expected of clinical health psychologists detailed in Table 1 are consistent with the IEC's interprofessional core competencies. The APA is a supporting member of the core competencies for interprofessional education and practice, which are detailed in Table 2. There is a clear overlap between the two set of competencies with the clinical health psychology postdoctoral fellowship competencies of 6. Management/Administration and Leadership and 10. Consultation and Interprofessional/Interdisciplinary Skills most closely aligning with the core competencies for interprofessional education and practice.

3. Professional practice

3.1. Settings

Clinical health psychologists deliver services in a variety of healthcare sectors including academic and Veterans Administration medical centers, private and public hospitals, and private or group practices. Within these sectors, they may practice in specialized or general settings. For example, clinical health psychologists have a long history of working in pain rehabilitation programs,²³ cancer centers,²⁴ and primary care clinics.²⁵ Their presence is rapidly growing in medical specialties such as gastroenterology²⁶ and inpatient consultation-liaison.²⁷

3.2. Roles and responsibilities

Clinical health psychologists have varied roles and responsibilities within healthcare teams inclusive of clinical practice, consultation, education, research, and administration. These roles vary in depth and breadth; and focus on the individual patient, family system, and healthcare system. Clinical health psychologists are responsible for adhering to legal and ethical standards, maintaining a current knowledge base on biopsychosocial aspects of the conditions they treat,

Table 2
Summary of description of IEC core competencies for interprofessional education and practice.²²

Domain	Description
1. Values/Ethics for Interprofessional Practice	Value mutual respect and shared values across health service professions
2. Roles and Responsibilities	Knowledge of own and others' roles and responsibilities to assess and address the health needs of patients to advance the health of populations
3. Interpersonal Communication	Ability to effectively communicate with patients, families, communities, and health professionals in other fields to support the promotion and maintenance of health, and the prevention and treatment of disease
4. Teams and Teamwork	Application of relational skills and values to promote effective teams and individual and population health in a safe, efficient, equitable, and effective manner

providing services within their scope of practice, integrating information obtained from team members in case conceptualization and treatment planning, and adapting to demands of the medical setting. From this frame, clinical health psychologists strive to optimize team-based care, highlight psychological factors impacting health concerns, and identify targets for psychological intervention to decrease the impact of modifiable or non-modifiable factors on health outcomes.

3.3. Collaboration

Healthcare has become an increasingly collaborative field, which holds true for clinical health psychologists who often work within teams. There is a continuum of healthcare delivery models in which clinical health psychologists practice that demonstrate increasingly comprehensive, collaborative, and complex factors such as provider involvement, services offered, and outcomes targeted.²⁸ Coordinated, multidisciplinary, interdisciplinary, and integrative models all include a team working together to varying degrees. *Coordinated* teams independently identify care plans and deliver services with important information relayed between providers and patients by a case manager.²⁸ This is implemented in primary care-based collaborative care for depression,²⁹ which has been extended to medically complex populations.³⁰

Though the terms multidisciplinary and interdisciplinary are often used interchangeably,³¹ there are important distinctions between the two models. *Multidisciplinary* teams have a shared care plan, which is created by a team leader based on recommendations from team members who independently deliver services.²⁸ This is employed in cancer tumor boards.³² *Interdisciplinary* teams consistently meet to create shared care plans, discuss patient progress, and collaboratively problem solve emerging challenges.²⁸ This is practiced in tertiary-level programs for chronic pain,²³ which have recently taken on the task of assisting in addressing the opioid epidemic.³³ Integrative approaches move beyond traditional models by eliminating the hierarchical structure, adopting a whole-person perspective, incorporating integrative medicine practices, and expanding focus to health promotion and disease prevention.²⁸ While aspects of the integrative model are incorporated into clinical practice, it is not typically employed due to structural, financial, and cultural barriers within the current healthcare system.³⁴

4. Contributions to medical care

4.1. Assessment

4.1.1. Assessment using the biopsychosocial model

The biopsychosocial model accepts biomedical factors as central to prevention and treatment of disease while simultaneously recognizing psychological and sociocultural factors as crucial to providing whole-person care and optimizing outcomes.⁵ This model accounts for pathophysiological relationships as well as the human experience of living with disease risk or burden. The role of the biopsychosocial model is supported by the many examples of behavioral and psychosocial factors that influence medical and/or behavioral health conditions and response to biomedical interventions. This model acknowledges the complexity of human factors that influence every aspect of an individual's engagement with healthcare across the lifespan during times of wellness and illness. The use of the biopsychosocial model represents a shift from the biomedical model, which over-emphasized "technical procedures and laboratory measurements," compared to patients' report of symptoms.⁵ In using this model, clinical health psychologists support patients and healthcare providers in minimizing barriers to optimal health and treatment outcomes to a degree that, in many cases, could not be otherwise achieved.

4.1.2. Case conceptualization

Case conceptualization involves the thoughtful integration of biological, psychological, and social contributors to etiology and

management of medical and psychiatric conditions using the biopsychosocial model.⁵ For example, insomnia impacts up to 50% of cancer patients with sleep disruption reported by larger proportions of the population.^{35,36} Biomedical factors contributing to insomnia include chemotherapy side effects, steroid medications, acute or chronic pain,³⁵ treatment-induced hot flashes, or substance use.³⁷ Psychological factors include preexisting insomnia, cancer-related distress, and poor sleep hygiene. Social factors include having dependents at home, a disruptive bed partner, or environmental factors.³⁸ In this case, simply prescribing a benzodiazepine or sedative-hypnotic medication might provide a short-term reduction in sleep disturbance but would not address the constellation of factors maintaining insomnia and associated distress. Case conceptualization through the biopsychosocial lens enables healthcare providers to recognize the confluence of interacting factors that predispose, precipitate, and perpetuate complex conditions like insomnia³⁹ and respond accordingly by implementing appropriate ESTs.

4.1.3. Cultural considerations

While not a direct outgrowth of the biopsychosocial model, the adjacent concept of *intersectionality* has entered the vernacular of healthcare. This construct by Crenshaw⁴⁰ posits that patients' experience of the world and, by extension healthcare, is influenced by the interaction of their various sociocultural identities and how these identities are experienced within one's society. Intersectionality dictates that it is not possible, nor desirable, to parse out the unique impact of intersecting identities on lived experience and thus, health outcomes.

Relatedly, both historical and contemporary sociopolitical factors (e.g., medical mistrust associated with exploitation of Black men in the Tuskegee syphilis study⁴¹) may exacerbate overall stress levels and related physiologic symptoms, increase risk of disease onset or exacerbation, and interfere with effective engagement with healthcare teams and adherence to treatment recommendations.⁵ Engel's 1977 appeal to use the biopsychosocial model for assessment, treatment planning, and intervention remains apropos today, as the biomedical model is "no longer adequate for the scientific tasks and social responsibilities of either medicine or psychiatry."⁵ There are myriad ways in which individuals' worldview, cultural beliefs, and/or spiritual traditions influence engagement with healthcare. Understanding these factors in a patient's illness presentation is paramount to building patient-provider relationships and optimizing patient outcomes.

4.1.4. Measurement-based care

Measurement-based care (MBC) is an integral part of clinical health psychology practice that is consistent with other behavioral health disciplines (e.g., psychiatry). MBC is an evidence-based practice (EBP) defined as routine assessment of patients' symptoms and outcomes using validated measures to inform treatment planning and evaluate treatment progress. The proposed core components of MBC include administering valid and reliable measures, reviewing outcomes, discussing outcomes with patients, and using outcomes to inform treatment and clinical decision making.⁴²

In clinical health psychology, relevant metrics include assessment of psychological symptoms and processes (e.g., depressive symptoms), physiological variables (e.g., weight), and quality of life (QOL) or functional measures (e.g., daily step count). These are measured using standardized patient- and provider-reported outcome measures such as the Patient Health Questionnaire-9 for depression symptoms, physiological measurements like weight, and ecological momentary assessment including pedometers. MBC in clinical health psychology may be implemented as its own intervention or to assess outcomes associated with other ESTs. This strong emphasis on measurement and systematic outcome monitoring is a unique contribution that clinical health psychologists provide to team-based care. Clinical health psychologists are trained in the process of selecting the most applicable, evidence-based, and culturally appropriate measurements, interpretation of results, and integration of results in clinically meaningful ways to improve patient

outcomes. Clinical health psychologists use similar skills for program evaluation to evaluate big-picture outcomes of clinical programs, which is necessary not only to optimize patient care, but also to meet accreditation and third-party payer requirements.

4.2. Treatment

4.2.1. Treatment planning

As detailed above, a comprehensive biopsychosocial case conceptualization is crucial for effective treatment planning of medical and behavioral health conditions. Such conceptualizations support the building of a collaborative alliance with patients, regardless of their condition and/or treatment plan. Clinical health psychologists establish therapeutic alliance in part by educating patients about the complex interplay of emotions, cognitions, and behaviors and their impact on symptom experience. Clinical health psychologists lay the groundwork for establishing therapeutic alliance, underscoring the importance of holistic care. Careful communication about emotional and behavioral contributions to symptoms is especially beneficial when patients have had negative healthcare experiences or have complicated symptom presentation (e.g., fibromyalgia). This model also supports the recognition of patients' individual preferences, belief systems, worldviews, values, goals, strengths (e.g., adaptive coping), and barriers (e.g., limited resources) to healthcare engagement and allows healthcare teams the opportunity to partner with their patients in addressing both the controllable and uncontrollable aspects of their health and treatment planning through shared decision making.⁴³ This practice empowers providers and patients to create personalized applications of evidence-based strategies to optimize health, functioning, QOL, and treatment outcomes.

4.2.2. Treatment delivery

Clinical health psychologists contribute to treatment plans and provide direct treatment for a wide range of presenting problems. As detailed by Belar⁴⁴ this includes: 1. behavioral health conditions occurring within the context of, or complicated, by medical conditions (e.g., depression following myocardial infarction); 2. behavioral health conditions presenting with predominant physical symptoms (e.g., vasovagal syncope in blood-injury-injection specific phobia); 3. medical conditions with a psychological aspect (e.g., high-impact chronic pain with comorbid opioid use disorder); 4. medical conditions (e.g., irritable bowel syndrome) or physical symptoms (e.g., chronic nausea) that can be managed using psychological approaches; 5. procedures that cause significant distress that can be managed using psychological approaches (e.g., pelvic exams in trauma survivors); and 6. health promotion and disease prevention (e.g., tobacco cessation).

Of note, certain presenting problems are typically assessed and treated by other health service psychology specialties rather than clinical health psychologists. For example, clinical neuropsychologists are often involved in assessment and treatment planning for individuals with neurodegenerative disease (e.g., Parkinson's, Alzheimer's). This is also true for behavioral health conditions (e.g., substance use) occurring outside of the context of acute or chronic medical conditions. Ultimately, the goal of clinical health psychology treatments is to improve patients' health, functioning, QOL, and treatment outcomes. Given the bidirectional relationship between medical and behavioral health concerns, participation in psychological treatment can have significant implications for optimizing medical management and reducing service utilization and healthcare costs.⁴⁵

4.2.3. Empirically supported treatments

ESTs utilized by clinical health psychologists in medical settings are summarized in Table 3. Given the extensive literature detailing their efficacy and effectiveness, the empirical support for each EST is only reviewed below for medical, rather than behavioral health, conditions. It is important to note the information captured in the table below

Table 3
ESTs utilized by clinical health psychologists in medical settings.

Treatment modality	Treatment strategies	Treatment targets	Empirical support
Cognitive behavioral therapy (CBT)	Self-monitor; behavioral activation; cognitive reframing	Adaptive thinking; reduced avoidance of desired behaviors; increased engagement in desired behaviors	<i>Strong support:</i> chronic headache, chronic pain conditions, diabetes, insomnia, irritable bowel syndrome, substance use; <i>Modest support:</i> smoking cessation with weight gain prevention ⁴⁷
Behavior therapy	Self-monitor; functional analysis; contingency management; reinforcement	Increased engagement in desired behavior; reduced engagement in/cessation of undesired behavior	<i>Strong support:</i> chronic low back pain, insomnia, substance use, weight management ⁴⁷
Acceptance and commitment therapy (ACT)	Mindfulness; present moment contact; cognitive defusion; self as context; values identification; committed action	Increased openness to experience, present moment awareness, and engagement in valued activities	<i>Strong support:</i> chronic pain ⁴⁷ ; <i>Preliminary support:</i> cancer, ⁴⁸ epilepsy, multiple sclerosis, type II diabetes ⁴⁹
Motivational interviewing (MI)	Active listening; open-ended questions; affirming, reflective, and summary statements	Increased motivation for and movement toward desired or valued behavior	<i>Strong support:</i> substance use; <i>Preliminary support:</i> diet, physical activity, weight management ⁵⁰
Stress management interventions	Health behavior modification; treatment adherence; assertive communication; social support enhancement; relaxation training; mindfulness	Reduced physiological stress markers, distress, and likelihood of recurrence and death; increased likelihood of survival; improved quality of life outcomes	<i>Preliminary support:</i> cancer ^{51–57} , chronic medical conditions ^{58,59} , human immunodeficiency virus (HIV) ^{60,61}

represents but a few of the ESTs that clinical health psychologists frequently deploy. There is a growing literature on novel interventions designed to address gaps in current treatment approaches (e.g., emotional awareness and expression therapy for chronic pain⁴⁶).

Cognitive behavioral therapy (CBT) focuses on the connection between cognitive (i.e., thoughts), behavioral, affective, and physiological factors in understanding behavioral health conditions. The model proposes that precipitating events lead to negative cognitive appraisals, which influence mood and physiological reactivity, and lead to maladaptive behaviors (e.g., avoidance), further reinforcing negative mood/affect states and negative cognitive appraisals. CBT teaches patients to employ cognitive and behavioral strategies to challenge maladaptive thoughts and behaviors, to decrease intensity of negative mood and physiological reactivity and increase adaptive coping.⁶²

Behavior therapy is a subtype of CBT that can be implemented as a stand-alone treatment, or as a complement to cognitive interventions. Learning theory explains the development and maintenance of physical and/or behavioral health conditions through operant and respondent conditioning and observational learning. Functional analysis is a component of behavior therapy which identifies specific factors that precipitate and maintain maladaptive behaviors, which are then targeted in treatment.⁶³

Acceptance and commitment therapy (ACT), like CBT, focuses on the connection between cognitive, behavioral, affective, and physiological factors in conceptualizing psychological distress. ACT additionally focuses on increasing willingness to experience challenging internal processes (e.g., negative emotions and thoughts) while engaging in value-driven actions. ACT employs experiential exercises to increase awareness of the present moment and identification of the patient's core values, acceptance of internal and external experiences, and committed action in line with personal values to increase psychological flexibility.⁶⁴

Motivational interviewing (MI) aims to understand and enhance motivation for, address ambivalence about, and increase confidence in behavioral change.⁶⁵ Originally developed for excessive alcohol use, MI has been applied across healthcare settings for numerous health behaviors to increase the likelihood for change.⁶⁶

Stress management interventions encompass a variety of strategies targeting the physiological and psychological concomitants of stress known to impact physical and psychological functioning. Psychoneuroimmunology research has identified changes in immune marker functioning in response to stress, negative affect, and limited social support, which has important implications for health.⁶⁷ These findings have informed the development of behavioral interventions designed to mitigate the negative impact of stress on physiological, psychological, and QOL outcomes through relaxation practices that can be taught to patients for home practice to mitigate the impact of stress from both

daily hassles and major life events. In the last few decades, significant progress has been made in exploring the efficacy and mechanisms underlying the positive benefits of stress management approaches.

4.2.4. Dissemination, implementation, and research

A well-documented public health challenge is the lack of dissemination, implementation, and access to ESTs in routine clinical practice. The time it takes for interventions to proceed through RCTs and then become available in real-world practice is lengthy. One review found that it takes about 17 years to translate 14% of original research into clinical practice.⁶⁸ Consequently, there has been a concerted effort to efficiently incorporate EBP into clinical practice settings. Implementation science is a field of research that emerged to address the gap between research and practice with the overarching goal of successfully implementing and improving access to EBPs across healthcare.^{69,70} Common areas of focus within implementation science are understanding barriers and facilitators of EST implementation and testing strategies designed to support EBP and EST implementation.

Clinical health psychologists play an integral role in the dissemination and implementation of EBP within behavioral medicine. Clinical health psychologists conduct research examining strategies to effectively implement health interventions such as weight management⁷¹ and tobacco cessation.⁷² Clinical health psychologists who develop interventions may partner with implementation scientists to assess whether interventions are effective and feasible to be disseminated and implemented in real-world clinical settings. Clinical health psychologists who provide clinical care or serve in administrative roles are stakeholders whose feedback and perspectives are typically included in implementation research. Within these roles, they may spearhead efforts to establish or enhance services/service lines at their healthcare institution through program development and quality improvement projects. Lastly, clinical health psychologists may serve the role of implementation practitioners or engage in dissemination efforts (e.g., provide EST training).

4.3. Consultation

Consultation efforts are typically requested to identify or manage behavioral health issues affecting overall patient health and/or treatment engagement for a specific health condition. This can be provided in several ways. Consultation may be provided through clinical services, like the consultation-liaison specialty service within psychiatry. This may include conducting decisional capacity assessments and suicide risk assessments, fielding warm-handoffs, and providing brief psychotherapy.²⁷ Consultation may also be provided to other healthcare providers through provision of recommendations and referrals, or

administratively through program development and quality improvement efforts.

4.3.1. Recommendations

Clinical health psychologists are often consulted by other healthcare providers for specific recommendations on patient care. Recommendations may be relayed formally or informally. Formal channels include documentation, which typically consists of diagnostic considerations, treatment recommendations, and referrals to address patient concerns. Documentation outlines the psychosocial factors that may serve as barriers or facilitators to health behavior change, treatment adherence, effective provider-patient communication, and medical decision-making. Informal channels include provider-to-provider communication through the electronic medical record or during individual or team meetings, whether in-person or virtually.

4.3.2. Referrals

Clinical health psychologists may make referrals to address physical and/or behavioral health, sociocultural, or socioeconomic concerns. This is particularly true when working within a consultative model. Referrals to other psychological services (e.g., substance use specialty care), disciplines (e.g., nutrition), services (e.g., physical therapy), and supports (e.g., case management) may be recommended to optimize overall health, functioning, QOL, and treatment outcomes or in preparation for a procedure (e.g., organ transplantation).

4.4. Education

Clinical health psychologists assume educator roles with the goal of optimizing the delivery of evidence-based, patient-centered care within healthcare systems and teams utilizing a biopsychosocial framework. Given the breadth of their knowledge, clinical health psychologists contribute to the training and development of a range of individuals, both within and outside of the medical teams and specialties within which they practice. Trainees taught or mentored by clinical health psychologists can include psychology trainees (e.g., undergraduate and graduate students, doctoral interns, postdoctoral fellows); medical students, residents, and fellows; and allied health professionals. Clinical health psychologists primarily teach curricula related to human behavior, behavioral sciences, the biopsychosocial model, and EBP.⁷³ Additionally, clinical health psychologists specialize in teaching healthcare providers about the interpersonal aspects of health service delivery (e.g., shared decision-making). Given the breadth of their skills, clinical health psychologists are well equipped to work within any medical specialty or practice setting and play a vital role in developing and implementing education interventions that optimize patient-centered, team-based care from a biopsychosocial framework.

4.5. Advocacy

4.5.1. Professional advocacy within healthcare

The biopsychosocial foundation of clinical health psychology informs the role of clinical health psychologists as patient advocates within a healthcare institution.⁷⁴ At the Convention of the Medical Committee for Human Rights, Dr. Martin Luther King, Jr.⁷⁵ asserted “of all the forms of inequality, injustice in healthcare is the most shocking and inhumane.” During his address to the APA the following year, Dr. King⁷⁶ remarked on the role and responsibility of behavioral scientists in addressing discrimination and oppression. He tasked psychologists to use their competencies in critical thinking, research, and knowledge of human behavior to “tell it like it is” to identify and dismantle oppressive and abusive structural systems. Clinical health psychologists are equipped to assess and address health disparities perpetuated by individual (e.g., provider cognitive implicit bias) and systemic societal (e.g., limited access to care for patients residing in rural areas)^{77,78} factors.

The role of clinical health psychologists as social advocates is a direct

extension of professional competencies, which emphasize the role of clinical health psychologists in advocacy, patient care, research, and education to address health inequity.²⁰ Clinical health psychologists advocate for patients through recognition of the role of psychosocial determinants of health and the detrimental or mitigating impact this can have on physical and behavioral health outcomes. As educators, clinical health psychologists train and supervise interprofessional trainees and colleagues in biopsychosocial models of illness and wellness through a lens of cultural agility and humility to promote awareness of existence and impact of health inequities. Competency in the integration of science and practice facilitates the interplay between clinical outcomes related to health inequity and social injustice, and the need for research exploring mechanisms for mitigating these factors to diminish suffering at individual and community levels. Activation of these competencies to promote health equity for individuals and communities lends itself to the engagement of clinical health psychologists in promoting population-based initiatives for social advocacy through lobbying and policy change.⁷⁴

4.5.2. Social advocacy in public health

Psychologists have long been involved in advocacy and education on public health matters at local and national levels. A large proportion of this work occurs through the APA, which represents and governs psychologists, and “is committed to achieving universal access to physical and mental health and substance use services,” asserting that “health coverage is fundamental to reducing health disparities and promoting the just and equitable treatment of all segments of society.”⁷⁹ The APA is heavily involved in advocacy efforts related to several issues regarding the intersection of physical and behavioral health that are common challenges for medical teams. For example, stigma regarding mental illness is a significant barrier to seeking treatment, which negatively impacts physical and behavioral health outcomes.⁸⁰ To better understand and combat the impact of stigma, the APA founded a peer-reviewed journal entitled *Stigma and Health* in 2016 that highlights research and practice on a public health level.⁸¹ The APA also emphasizes the importance of training in social advocacy and offers a post-doctoral fellowship in public policy designed to facilitate the integration of psychologists into government activities to impact public health outcomes.⁸²

5. Mayo Clinic case study

In the following section, Mayo Clinic is used as a case study on the integration of clinical health psychology within a healthcare setting. The Clinical Health Psychology Postdoctoral Fellowship program and Mayo Clinic Rochester practice in the Department of Psychiatry and Psychology provide examples of training and practice, respectively. Recent assessment, treatment, research initiatives, consultation, education, and advocacy efforts by Mayo Clinic faculty and fellows are detailed to illustrate the contributions clinical health psychologists make within academic medicine.

5.1. Training

The Clinical Health Psychology Postdoctoral Fellowship, one of three specialty training programs offered within the Medical Psychology Postdoctoral Fellowship at Mayo Clinic, has been accredited by the APA since 2005. Fellows select a major area of clinical focus with the ability to obtain additional ‘minor rotation’ experiences across areas of clinical focus as outlined in Table 4. Additional training can be completed within other specialties (i.e., neuropsychology, child/pediatric psychology) or in clinics without an embedded psychologist (e.g., sleep medicine). Fellows are involved in practice, research, teaching, and administrative experiences and engage in clinical health psychology-specific, departmental, and institution-wide didactics. Twenty clinical health psychology fellows have graduated from the program between 2009 and 2021.

Table 4
Mayo Clinic Clinical Health Psychology Postdoctoral Fellowship areas of clinical focus.

	Clinics
Primary areas of clinical focus	Family Medicine Obesity and Bariatric Surgery Oncology Pain Rehabilitation Primary Care Transgender and Intersex Specialty Care
Additional areas of clinical focus	Behavioral Medicine Menopause and Women's Sexual Health Transplant

All alumni have obtained state licensure for independent practice. The majority (85.7%) practice within academic medical centers or hospital settings and over half (57.1%) are board certified in clinical health psychology by the American Board of Professional Psychology.

5.2. Professional practice

Faculty within the fellowship training program are themselves practitioners who work within a wide range of specialties in primary and specialty care clinics. As detailed in Table 5, most work is conducted within interdisciplinary, rather than multidisciplinary, teams. Consultation and referrals are received from across the institution. Faculty collaborate with medical colleagues through clinical practice, research, and teaching and have been involved in clinical research, program development, quality improvement, and administrative efforts.

5.3. Assessment

Faculty and fellows are involved in improving assessment through standardization within and across clinics. Quality improvement efforts have enhanced MBC within clinical practice. For example, an online psychotherapy tracking database was developed to systematically collect data at each psychotherapy session in primary care, enabling the evaluation of service utilization, symptomatic change, and intervention use.⁸³ This has been implemented across all primary care practices at Mayo Clinic Rochester to obtain population-level data that can be used to continue refining treatment approaches to optimize patient outcomes. Clinical research studies have utilized assessment measures to better understand the unique needs of specific patient populations. Self-report measures have been used to assess associations between health behaviors, psychological constructs, and treatment and surgical outcomes among various patient populations including bariatric,⁸⁴⁻⁸⁷ cancer,⁸⁸⁻⁹¹ and chronic pain.⁹²⁻⁹⁷

5.4. Treatment

Faculty and fellows provide psychological services for a variety of medical and behavioral health concerns. Program evaluation efforts have been conducted to ensure that patients are receiving high-quality, evidence-based care. Treatment outcomes for individual and group-based psychological services have been assessed in primary and

Table 5
Mayo Clinic Rochester practice clinic team structure.

	Primary care clinics	Specialty care clinics
Interdisciplinary	Family Medicine Primary Care	Menopause and Women's Sexual Health Pain Rehabilitation Transgender and Intersex Specialty Care
Multidisciplinary		Behavioral Medicine Obesity and Bariatric Surgery Oncology Transplant

specialty care clinics. Primary care patients engaged in individual CBT reported significant decreases in self-reported anxiety and depression symptoms.⁹⁸⁻¹⁰⁰ Patients with chronic pain enrolled in the pain rehabilitation center exhibited significant improvements in self-reported pain, mood, QOL, and performance-based functional measures following group-based CBT regardless of pre-treatment opioid use and opioid tapering during treatment.¹⁰¹ Similarly promising findings have been reported among older adults with pain¹⁰² and patients with comorbid pain and posttraumatic stress disorder.¹⁰³ In addition, treatment outcomes for individual and group-based health coaching programs have been assessed. Breast cancer survivors,¹⁰⁴ pre-diabetic primary care patients,^{105,106} and Mayo Clinic employees who engaged in wellness coaching¹⁰⁷⁻¹⁰⁹, healthy diet,¹¹⁰ sleep,¹¹¹ or stress reduction programs; or resiliency training^{112,113} reported significant improvements in perceived health and QOL outcomes.

5.5. Consultation

Faculty and fellows collaborate with other medical specialties to meet patient and population needs. The institutional response to COVID-19 offers a prime example of clinical health psychology involvement in quality improvement initiatives. Clinical health psychologists played an integral role in identifying strategies for behavioral health clinical service provision within the context of the pandemic. This included adapting clinic procedures and practice to ensure access to behavioral health services and meet growing behavioral health needs during a public health emergency.¹¹⁴⁻¹¹⁶

5.6. Education

Faculty and fellows participate in a multitude of educational activities. Educational efforts span across medical specialties and developmental levels among staff, fellows, residents, and students in a variety of training contexts. Curricula on chronic pain management and opioid use¹¹⁷ and training in the delivery of culturally humble and agile patient care¹¹⁸ have been developed and implemented in the simulation education center, which provides interactive learning with patient-actors, audiovisual recording, and real-time feedback. Faculty supervise psychology fellows, medical students, psychiatry residents and fellows, and allied health professionals. Psychology fellows are also involved in teaching and training, facilitating the development of their supervisory skills through tiered supervision.

5.7. Advocacy

Faculty and fellows are involved in advocacy efforts. This includes initiatives to increase awareness, knowledge, and skills related to cultural factors; recruit and retain diverse providers; improve clinical care for under-resourced patients; and increase research outreach to under-resourced patients through engagement in departmental, institutional, and national diversity, equity, and inclusion efforts. Faculty and fellows have participated in the development of APA guidelines for providing psychological services to sexual minorities¹¹⁹ and implementation of institution-wide sexual orientation and gender identity questionnaires.¹²⁰ Our clinical health psychology group has also authored scholarly work on inclusive cancer clinical trial practices¹²¹ and primary care services¹²² for 2SLGBTQIA+ populations; sexual health among female urologic cancer survivors¹²³, health behavior intervention for immigrant and refugee populations¹²⁴, and national bariatric surgery guidelines on cannabis use.¹²⁵

6. Conclusion

Though the history of clinical health psychology as it is currently defined spans only a few decades, its roots date back centuries to early understandings of the mind-body connection and the relationships

between physical and psychological health. Today, the leading causes of death (i.e., cardiovascular diseases, diabetes, cancer) and disability (i.e., depression) all have modifiable risk factors that can be influenced by lifestyle factors.¹²⁶ Clinical health psychologists are trained in the skills needed to address these modifiable risk factors. In addition, clinical health psychologists assist patients living with chronic illnesses to maintain optimal quality of life by incorporating unique knowledge of behavioral health and psychological barriers to behavior change into treatment plans for health promotion and disease management. As detailed in this paper, clinical health psychologists have unique skills in assessment, treatment, consultation, education, and advocacy that are critical contributions to the medical team and ensure that all patients receive evidence-based, comprehensive, whole-person care. The Mayo Clinic case study provides clear examples of how clinical health psychologists serve a critical role in academic medicine. The impact of clinical health psychology on patient outcomes and experience, provider support, service utilization, and healthcare costs provide significant support for the value of the specialty within the healthcare setting.

CRedit statement

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