

Review Article

Healthcare Practitioners' Perceptions of the Barriers to Prescribing or Promoting Exercise in the Treatment of People with Mental Illness: A Scoping Review

Kate Kelly , Andrew Moloney , Gideon de Jong , and Richard Lakeman 

Southern Cross University, Faculty of Health, Lismore, Australia

Correspondence should be addressed to Richard Lakeman; richard.lakeman@scu.edu.au

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Contemporary healthcare for those experiencing mental illness requires healthcare practitioners (HCPs) to effectively incorporate the prescription of exercise in their treatment, in accordance with clinical guidelines. However, there has been a lack of effective implementation of such recommendations. The purpose of this review was to identify barriers to exercise prescription in the treatment of people diagnosed with mental illness as perceived by HCPs. APA PsycINFO, CINAHL, MEDLINE, and PubMed electronic databases were searched for relevant articles published in the period from January 2005 to September 2023. A total of 18 papers were included for thematic synthesis. Four key themes were identified across the qualitative (8), quantitative (6), and mixed method (4) papers, including a lack of knowledge and confidence of HCPs in prescribing exercise; role and responsibility; HCPs' misconceptions of client barriers; and systemic issues impacting exercise prescription practices. A lack of knowledge or confidence was the most common barrier. Some HCPs indicated a desire to develop their skills in exercise prescription, while others indicated a preference for an exercise professional to take responsibility for this aspect of treatment. Systemic barriers were spread across a range of issues, with lack of time, excessive workload, and difficulties accessing qualified staff most commonly cited. This review provides further insight into the barriers to exercise prescription faced by HCPs and makes recommendations regarding how to address these barriers in order to better implement clinical guidelines and thus improve the quality of treatment provided to people diagnosed with a mental illness.

1. Introduction

Lifestyle psychiatry is a growing field of practice addressing how protective factors such as physical activity and prescribed exercise can reduce both physical and mental health symptomatology [1]. Exercise is a subset of physical activity which is structured, planned, and intended to improve fitness, health, or well-being [2]. High-quality evidence demonstrates the efficacy of exercise as an adjunct to existing treatment (e.g., psychotherapy and pharmaceutical) and as an independent intervention across a spectrum of mental illness [1, 3, 4]. The prescription of exercise has been shown to be effective in a range of mental disorders including major depressive disorder [5], anxiety disorders [6], posttraumatic stress disorder (PTSD) [7], and schizophrenia [8, 9]. Aerobic

exercise specifically has been associated with exercise-induced enhancement of fear extinction learning in PTSD [10], and is considered to have significant antidepressant effects in major depressive disorder [11]. Individual or group-based exercise of moderate intensity supervised by an exercise professional (EP) has been found to be particularly helpful in reducing symptoms of depression [12].

Physical exercise is recommended as a first-line treatment in several Western countries. The Royal Australian and New Zealand College of Psychiatry [13] recommends that physical health promotion should be a central part of the treatment modalities provided within specialist mental health services, both inpatient and in community services. The United Kingdom's National Institute for Health and Care Excellence (NICE) guidelines [14] recommend that

people with less severe depression should choose from a range of treatment options including group exercise, cognitive behavioural therapy, and psychotherapy before being offered antidepressant medication. The European Psychiatric Association also recommends exercise as an adjunctive treatment for both depression and schizophrenia-spectrum disorders [15].

Research into lived experience suggests that treatment of persons diagnosed with a mental illness often leaves physical health needs unmet [16], possibly supporting an ongoing false dichotomy between the physical and mental aspects of health. A meta-analysis by Firth et al. [17] found that of the 6431 respondents from 12 independent studies, 91% endorsed physical activity as it improved their health; however, low mood (61%) and lack of support (50%) were barriers to their engagement. Those in secure forensic facilities with mental illness also considered physical activity to reduce risk behaviours and provide relief from mental symptoms, although barriers such as medication side effects, low mood, and staff time constraints were limiting engagement [18]. The interaction between the iatrogenic effects of medication, physical health conditions, and the stigma of living with mental illness can create barriers to engaging with appropriate healthcare practitioners (HCPs) [19].

Emerging evidence suggests that engaging an EP in mental health services can lead to improved outcomes [7, 20], due to their confidence in prescribing a bespoke exercise regime with customised intensity, frequency, use of specialised equipment, and combination of exercises [21]. However, EPs also contend with barriers to prescribing exercise, including perceived client barriers such as motivation, and situational barriers such as a lack of priority within healthcare settings [22].

While international authoritative guidelines are calling for a greater focus on physical health and lifestyle for those experiencing mental illness, and the evidence in favour of exercise as a treatment modality is strong, it is far from clear that exercise prescription has been successfully implemented as a part of routine treatment. Research suggests that one reason people diagnosed with a mental illness are not consistently accessing exercise as a treatment may be the reticence of frontline HCPs to either refer to EPs or incorporate exercise prescriptions in their treatment plans [23]. This seeming inability or reluctance of HCPs to prescribe exercise in accordance with clinical guidelines is arguably a contributory factor to the poor outcomes associated with high prevalence and low severity mental health problems.

This scoping review aims to map the primary research conducted into the perceptions of HCPs regarding the barriers to prescribing or promoting exercise or physical activity in the treatment of people diagnosed with mental illness across different healthcare settings. A better understanding of the HCP's perceptions of barriers, and how or whether these perceptions vary across different types of HCPs and different mental healthcare settings, is required in order to address the apparent reticence to prescribe exercise as a part of treatment.

This review followed the PRISMA guidelines for scoping reviews [24, 25]. A scoping review was considered appropriate to map, synthesise, and interpret the results of qualitative, quantitative, and mixed-method studies in a manner which facilitates the evaluation of the findings and subsequent action by stakeholders [24, 26]. The search was guided by the following question:

What are healthcare practitioners' perceptions of the barriers to prescribing or promoting exercise in the treatment for people with mental illness, across all mental health treatment settings (inpatient, outpatient, community, and primary care)?

2. Methods

2.1. Search Strategy. For this review, the APA PsycINFO, CINAHL, MEDLINE, and PubMed electronic databases were selected as they include a broad range of medical (including allied health) empirical research data (qualitative, quantitative, and mixed method), and have no preset filters. A protocol was not registered for this review as this requirement does not apply to scoping reviews [25].

The research question followed a so-called PICO-structure, where P stands for "population", I for "phenomenon of interest", and C for the "context" (Munn et al., 2018). Key search terms were selected with respect to each component of the research question, and combined using Boolean operators in each database. With respect to population (HCPs who treat people with a mental illness), the key terms used were "clinician(s)," "doctor(s)," "health personnel," "health professional(s)," "nurse(s)," "practitioner(s)," "psychiatrist(s)," "psychologist(s)," "psychotherapist(s)" and "therapist(s)." With respect to the phenomenon of interest (HCPs' perceptions of the barriers to prescribing or promoting exercise in the treatment of people with mental illness), the key terms used were "exercise," "physical activity," and "physical exercise" and "physical therapy" combined with the key terms "attitude(s)," "barrier(s)," or "obstacle(s)." With respect to context (the treatment of people with a mental illness in all mental health treatment settings: inpatient, outpatient, community, and primary care), the key terms used were "mental health," "mental illness," "depression," "anxiety," "psychotic disorder(s)," "schizophrenia," "bipolar disorder," and "mood disorder(s)."

A search for relevant articles published in the period from January 2005 to September 2023. Search fields were not restricted. The key search terms and limiters used in each database are set out in Table 1.

2.2. Eligibility Criteria

2.2.1. Study Design. Original qualitative, quantitative, and mixed-method studies were included. Studies with a qualitative design were included to facilitate enquiry into the subjective experience of HCPs with respect to barriers faced, consistent with the adoption of the philosophical paradigm of nonpositivist phenomenological interpretivism [27].

TABLE 1: Databases and search terms used to identify articles for review.

Database	Search terms	Number of articles
MEDLINE	(mental ADJ health) OR (mental ADJ illness) OR depression OR anxiety OR (psychotic ADJ disorder*) OR schizophrenia OR (bipolar ADJ disorder) OR (mood ADJ disorder*)	
AND	clinician* or doctor* or (health ADJ personnel) or (health ADJ professional*) or nurse* or practitioner* or psychiatrist* or psychologist* or psychotherapist* or therapist*	484
AND	Exercise OR (physical ADJ activity) OR (physical ADJ therapy)	
AND	attitude* OR barrier* OR obstacle*	
Limiters	Publication year: 2005–2023; English	
CINAHL	(“mental health” OR “mental illness” OR depression OR “mood disorder”)	
AND	(clinician* OR doctor* OR “health personnel” OR “health professional” OR “health professionals” OR nurse* OR practitioner* OR psychiatrist* OR psychologist* OR psychotherapist* OR therapist*)	129
AND	(Exercise OR “physical activity” OR “physical exercise” OR “physical therapy”)	
AND	(attitude* OR barrier* OR obstacle*)	
Limiters	Scholarly (peer- reviewed) journals; 2005–2023; English; exclude MEDLINE	
APA PsychINFO	(“mental health” OR “mental illness” OR depression OR “mood disorder”)	
AND	(clinician* OR doctor* OR “health personnel” OR “health professional” OR “health professionals” OR nurse* OR practitioner* OR psychiatrist* OR psychologist* OR psychotherapist* OR therapist*)	381
AND	(Exercise OR “physical activity” OR “physical exercise” OR “physical therapy”)	
AND	(attitude* OR barrier* OR obstacle*)	
Limiters	Scholarly (peer reviewed) journals; 2005–2023; English	
PubMed	(“mental health” OR “mental illness” OR depression OR “mood disorder”)	
AND	(clinician* OR doctor* OR “health personnel” OR “health professional” OR “health professionals” OR nurse* OR practitioner* OR psychiatrist* OR psychologist* OR psychotherapist* OR therapist*)	806
AND	(Exercise OR “physical activity” OR “physical exercise” OR “physical therapy”)	
AND	(attitude* OR barrier* OR obstacle*)	
Limiters	Publication year: 2005–2023	
	Total records identified after database searching	1800
	Total records after duplicates ($n = 711$) removed	1089

Quantitative and mixed-method studies were included to capture data collected through the use of the exercise in mental illness questionnaire (EMIQ) [28] and other similar quantitative research. The EMIQ was developed in Australia in 2014 in order to facilitate the assessment of the knowledge, attitudes, beliefs, and behaviours of health professionals in relation to the use of exercise in the treatment of persons with a mental illness and has successfully undergone content validation and test-retest reliability analysis [28]. Part 4, Subsection 1 of the EMIQ comprises eleven questions on barriers to HCPs prescribing exercise for persons with a mental illness, with a five-point Likert scale response [28].

The focus of this review was on research examining the perceptions HCPs hold regarding barriers to exercise prescription. As such, secondary sources were excluded from the scope of the study design. It was decided to only include research that was subject to peer review to ensure that the best quality of evidence available was included; consequently, grey literature was also excluded.

2.2.2. Population. The population of HCPs included general practitioners, psychiatrists, psychologists, psychotherapists, nurses, social workers, occupational therapists, nursing

assistants, and other healthcare assistants. A broad range of HCPs engaged in the treatment and care of persons with a mental illness were included, based on the view that the subjective experience of all HCPs involved in treatment can impact the potential for implementation of best practice guidelines. The category of “healthcare assistants” covers HCPs who provide assistance with activities of daily living and direct personal care to persons in either an inpatient or mental health community home setting, and who either have specific mental health training or a minimum amount of work experience in that setting (see Tables 2 and 3 for further detail). Physiotherapists and EPs were excluded, as the focus was to understand the position of HCPs without these specialised qualifications in the area of physical activity and exercise. The population scope adopted in this review distinguishes it from previous reviews, which either included EPs [23] or did not include a broad range of allied health professionals and healthcare assistants [46].

2.2.3. Phenomenon of Interest and Context. There is a lack of definitional clarity in much of the research regarding the precise meaning of physical activity and exercise, and the scope of prescribing versus recommending or promoting

TABLE 2: Key methodological features and findings (qualitative).

Authors; Country	Aim	Healthcare practitioner types ¹ and sample size/number of participants ²	Setting	Mental health conditions being treated	Data collection and saturation	Barriers identified in the study (using the terminology adopted for coding in this review)	Limitations
Ball et al. [29] United Kingdom	To explore multidisciplinary staff attitudes towards exercise promotion and facilitation in British National Health Service (NHS) inpatient mental health services	Occupational therapist × 6 Nurse (various) × 8 Psychiatrist × 2 Psychologist × 3 Support worker × 2 Nursing assistant × 4 N = 25	Inpatient mental health services	Serious mental illness	Individual semistructured interviews; data saturation achieved	Lack of awareness of evidence base (implied); insufficient staff; someone else's responsibility; perceived physical health risk; lack of knowledge and confidence on how to prescribe exercise; lack of physical resources; perceived unwillingness of person with mental illness	Some professions were underrepresented (e.g., clinical psychology and psychiatry); limited participants from other professions prohibited conclusions about differences in attitudes across disciplines; although efforts were made to ensure methodological rigour, member checking would have improved this
Carlbo et al. [30] Sweden	To describe nurses' experience, including personal motivation, in using physical activity as a complementary treatment in patients with schizophrenia	Nurses and nursing assistants N = 12	Inpatient unit and associated outpatient unit for adult patients with schizophrenia	Schizophrenia	Focus group interviews	Lack of awareness of evidence base; lack of knowledge and confidence on how to prescribe exercise; insufficient staff; lack of time; lack of leadership; perceived risk to mental health; perceived unwillingness of person with mental illness; structural issues; someone else's responsibility	Small number of participants may limit generalisability; responses possibly affected as authors worked in the same organisation as participants
Garvey et al. [31] Australia	To investigate: (i) mental health clinicians' understanding of the relationship between exercise and mental health, (ii) if and how exercise is used in their treatment approach of consumers with depression and anxiety, and (iii) the barriers to prescription of exercise	Mental health nurses × 3 Social workers × 2 Psychologists × 4 Mental health general practitioner × 1 N = 10	Community health organisation providing a range of mental health services to young people	Various mental illnesses	Individual semistructured interviews; data saturation achieved	Lack of knowledge and confidence on how to prescribe exercise; lack of knowledge role of EPs and referral pathways; perceived risk to physical and mental health; someone else's responsibility	Results may not be generalisable beyond the community context; the study was undertaken during the COVID-19 pandemic impacting recruitment of HCPs

TABLE 2: Continued.

Authors; Country	Aim	Healthcare practitioner types ¹ and sample size/number of participants ²	Setting	Mental health conditions being treated	Data collection and saturation	Barriers identified in the study (using the terminology adopted for coding in this review)	Limitations
Harding [32] USA Mixed method-qualitative aspect	To examine the perceived barriers and resource needs related to physical activity in mental health group homes from the perspective of direct care staff	Direct care staff (healthcare assistants) working in mental health group homes at least one shift a week with at least 40 hours of mental health training N = 73	Community group care homes	Serious mental illness	Paper-based survey; qualitative aspect asked open-ended questions	Insufficient staff; lack of time; someone else's responsibility; lack of knowledge or confidence on how to prescribe exercise (in particular remotivational strategies); lack of physical resources	Demographic information was not available; due to the setting, the results may not be generalisable
Kinnafick et al. [33] United Kingdom	To explore healthcare assistants' perceptions of exercise and attitudes to its promotion for adult patients in a secure mental health hospital	Healthcare assistants who had worked in the institution for a minimum of 6 months N = 11	Secure mental health hospital	Serious mental illness	Individual semistructured interviews	Lack of awareness of evidence base (implied); insufficient staff; lack of time; lack of knowledge or confidence on how to prescribe exercise; someone else's responsibility; perceived risk to physical and mental health; perceived unwillingness of person with mental illness; lack of leadership; structural issues	Possible influence of interviews being conducted at participants' place of work; possible participation bias
Leyland et al. [34] United Kingdom	To use the theory of planned behaviour to identify the beliefs of mental healthcare professionals working in community settings regarding motivation for advising health-related physical activity	Nurse × 13 Support worker × 10 Clinical psychologist × 4 Team leader (member of healthcare staff) × 3 Psychiatrist × 2 N = 32 N (HCP) = 29	Community mental health teams	Serious mental illness	Focus group interviews; data saturation achieved	Insufficient staff; lack of time; lack of physical resources; someone else's responsibility; lack of knowledge or confidence on how to prescribe exercise; lack of leadership; perceived risk to physical and mental health; perceived unwillingness of person with mental illness; structural issues	Small number of participants; however, "data saturation" was achieved after the first two focus groups completed

TABLE 2: Continued.

Authors; Country	Aim	Healthcare practitioner types ¹ and sample size/number of participants ²	Setting	Mental health conditions being treated	Data collection and saturation	Barriers identified in the study (using the terminology adopted for coding in this review)	Limitations
Martland et al. [35] United Kingdom	To qualitatively investigate, inpatient, carer, and staff groups, perspectives on implementing HIIT interventions for service users in inpatient settings, including perceived barriers and enablers	Psychiatrist × 1 Mental health nurse × 7 Healthcare assistant × 1 Undisclosed × 1 N = 39 N (HCP) = 10	Inpatient mental health services	Serious mental illness	Focus group interviews; data saturation achieved	Perceived impact of patient choice and control; insufficient staff; lack of time; lack of physical resources; perceived risk to physical and mental health; perceived unwillingness of person with mental illness	Data possibly missed due to lack of audio recording of focus groups; possible participation bias
Matthews et al. [36] Ireland	To carry out a multistakeholder exploration of structured and unstructured PA experiences in outpatient rehabilitation and recovery mental health services	Mental health nurse × 4 Prescribing psychiatric doctor × 1 Occupational therapist × 1 N = 15 N (HCP) = 6	Rehabilitation and recovery mental health services	Serious mental illness	Individual interviews using photo elicitation and open-ended questions	Insufficient staff; lack of time; lack of knowledge or confidence on how to prescribe exercise; perceived risk to physical and mental health; perceived unwillingness of person with mental illness; lack of leadership	Only one participant from some disciplines and small numbers from others reduced the potential generalisability of findings
Searle et al. [37] United Kingdom	To determine general practitioners' views of physical activity for managing depression and the extent that GPs promote and legitimise engagement in physical activity as a potential treatment option and their awareness of evidence and guidelines to support its use	General practitioners N = 15	General practices in the Bristol and Exeter areas	Depression	Individual semistructured interviews	Lack of awareness of evidence base; lack of physical resources; perceived risk to mental health; perceived unwillingness of person with mental illness	Concurrence with patient intervention and possible participant interaction with those patients may have affected HCP's responses; possible participation bias; brevity of interviews

TABLE 2: Continued.

Authors; Country	Aim	Healthcare practitioner types ¹ and sample size/number of participants ²	Setting	Mental health conditions being treated	Data collection and saturation	Barriers identified in the study (using the terminology adopted for coding in this review)	Limitations
Shrestha et al. [38] Australia	To explore the attitudes and practices of mental health professionals in recommending more physical activity and less sedentary behaviour to their clients	Nurse × 2 Psychologist × 12 Social worker × 1 Clinical lead/psychologist × 4 N = 17	Australia's national youth mental health service network (headspace)	Various mental illnesses	Semistructured focus group interviews; data saturation achieved	Lack of knowledge or confidence on how to prescribe exercise; lack of awareness of evidence base (implied)	Small number of participants from a specific setting, may not be generalisable; focus groups took place after the HCPs received an intervention to increase their own PA; possible researcher interpretation bias, mitigated through reflexivity component and involvement of researchers from outside the speciality area
Way et al. [39] Australia and New Zealand	To further investigate self-reported barriers to the prescription of exercise for mental health, faced by a range of HCPs in Australia and New Zealand	Psychologist × 136 Social worker × 72 General practitioner × 25 Mental health nurses × 20 Occupational therapist × 12 Psychiatrist × 8 Mental health manager × 8 Support workers × 22 Counsellors × 20 Other × 2 N = 325 N (HCP) = 318	Various mental health settings	Various mental illnesses	Qualitative aspect elicited individual written responses to the question "what reasons do you consider to prevent you from prescribing exercise to manage mental health concerns"	Lack of knowledge or confidence on how to prescribe exercise; perceived risk of damage to therapeutic relationship; perceived unwillingness of person with mental illness; lack of physical resources; perceived risk to physical and mental health; lack of leadership; insufficient staff; lack of time; lack of awareness of evidence base; someone else's responsibility	Relatively small representations in the participants' number for general practitioners, mental health nurses, occupational therapists, and psychiatrists reducing generalisability; social desirability bias may have been a confound; likely that nature of the survey, sample biased towards HCPs with an interest in and appreciation of exercise

¹In some studies, participants included persons other than HCPs. In those instances, only the HCPs are listed in this column. ²In studies with participants other than HCPs, both the total sample size and HCP sample size are listed.

TABLE 3: Key methodological features and findings (quantitative).

Authors; Country; Study design; Setting	Aim	Healthcare practitioner types ¹ and sample size/number of participants ²	Mental health conditions being treated	Data collection; outcome measures (quantitative)	Results	Limitations
Burton et al. [40] Australia Quantitative: cross-sectional Primary care	To assess psychologists' attitudes and frequency of providing activity advice and counselling	Psychologists N = 236	Various mental illnesses	14-page written questionnaire; Likert scale response	<p>The most significant barriers were a lack of knowledge and/or confidence regarding the prescription of exercise.</p> <p>The majority viewed PA as more relevant to physical health than MH, while also acknowledging that it could have MH benefits. 80% indicated they were confident to discuss general activity and identify problems;</p> <p>75% reported engaging in regular PA which was the strongest predictor of providing advice;</p> <p>only 12% indicated they had received undergraduate training, and just under 1/3 had postgraduate training; and</p> <p>53% reported recommending activity most of the time, and 30% sometimes, even though 93% believed that PA would be beneficial to treatment</p>	Participant pool is not representative of psychologists in general; self-reporting is potentially influenced by social desirability
Escobar-Roldan et al. [41] USA Quantitative: cross-sectional Survey of large tertiary care medical centre	The goal of this study was to characterize the exercise prescribing practices of healthcare providers from different subspecialties and evaluate factors that may influence their prescribing practices	Psychiatrist × 50 Doctor (family medicine) × 20 Doctor (internal medicine) × 50 Doctor (combined medicine and psychiatry) × 12 Psychologists × 40 Other HCPs × 13 N = 185	Serious mental illness	11-item survey developed by the authors	<p>35.7% reported insufficient knowledge or training;</p> <p>29.2% reported their patients are not interested or will not adhere (27.6%);</p> <p>60% reported they regularly recommend exercise to patients; and</p> <p>a very high proportion recommended exercise for depression (84.9%);</p> <p>Only 24% were prescribed with instructions on type, frequency, duration, and intensity. Only 12% wrote them down</p>	All participants were from the same tertiary facility, and therefore may not represent the larger profession; response bias or recall bias may have had an effect
Harding [32] USA Mixed-methods study: cross-sectional Community group care homes	To examine the perceived barriers and resource needs related to PA in MH group homes from the perspective of direct care staff	Direct care MH staff having completed a minimum of 40 hours of training in mental healthcare N = 73	Serious mental illness	Seven-item survey; Likert scale response	<p>The most significant barriers were a lack of knowledge and/or confidence regarding how to conduct PA programs and the perception that individuals do not want to engage in PA.</p> <p>Despite participating in PA, staff believe that information on PA in SMI would be helpful.</p> <p>Staff did not perceive time, fear of human rights violations, and fear of injury as significant barriers.</p> <p>There was acceptance that promoting PA was a part of their role.</p> <p>The barriers could be addressed through additional training</p>	Investigator-design survey and potential misinformation; demographic information was not available; due to location, the results cannot be generalised

TABLE 3: Continued.

Authors; Country; Study design; Setting	Aim	Healthcare practitioner types ¹ and sample size/number of participants ²	Mental health conditions being treated	Data collection; outcome measures (quantitative)	Results	Limitations
Kleemann et al. [42] Brazil Quantitative: cross-sectional Psychosocial care units for community-dwelling individuals	To understand the knowledge, beliefs, barriers, and behaviours of MH professionals about physical activity and exercise for people with mental illness	Psychiatrist or other specialist × 5 Psychologist × 10 GP × 4 OT or recreationist or physiotherapist × 1 Nurse × 25 Nurse technician × 21 Social worker × 6 Exercise professional × 1 N = 73	Serious mental illness	Translated and modified version of EMIQ (Portuguese); Likert scale response	The most significant barriers were the belief that exercise prescription should be delivered by exercise professionals (72.6%); lack of prescription knowledge (38.3%); and potential injury risk (24.7%). Barriers to patient participation were social stigma, medication side effects, and lack of family/friend support. Other barriers included unclear diagnosis, lack of organisational and financial support, competing priorities, and integration of healthcare team. 92% of participants reported receiving no formal training in exercise prescription. Relevantly, in Brazil only those with a degree in physical education or physical therapy are legally permitted to prescribe exercise. Exercise ranked fifth ($n = 1$) as the most beneficial treatment, with medication ranking first ($n = 19$). 41.1% ($n = 30$) reported they never prescribed exercise, and 12.3% ($n = 9$) reported they always prescribed it. Those participants who did not prescribe PA or exercise did not achieve the recommended PA levels themselves, and those who always did were more likely to achieve the PA recommendations. Therefore, encouraging lifestyle change in HCP may result in greater adherence.	The psychometric properties of the Portuguese language were not tested in cultural translation and transcultural adaptation; geographical limitations may prevent generalisability; and we could not explore the differences between HCP classes due to sample size
Mailey et al. [43] USA Mixed-method: quantitative (only included) cross-sectional Private and community settings	The present study aimed to gather information about therapists' current physical activity counselling practices related to ParkRx	Psychologists × 68 Family/marriage therapists × 27 Social workers × 16 Other therapists × 13 N = 125 (note breakdown of HCP roles in the study results in a total of 124)	Various mental illnesses	10-item survey; 1–5 Likert scale	The most salient barriers were lack of clients' willingness to engage in physical activity, lack of time to discuss physical activity with clients, and concerns about client safety. 59.7% also reported providing verbal physical activity recommendations to most or all clients. However, only 3.1% reported frequently providing a written physical activity recommendation, compared to 79% who rarely or never did	We cannot say with certainty that sampling saturation was achieved; although the researchers were mindful of their preexisting biases, they did not formally document their reflexivity insights, and acknowledge that their perspectives may have influenced the analyses and results

TABLE 3: Continued.

Authors; Country; Study design; Setting	Aim	Healthcare practitioner types ¹ and sample size/number of participants ²	Mental health conditions being treated	Data collection; outcome measures (quantitative)	Results	Limitations
Radovic et al. [44] Australia Quantitative and qualitative; cross-sectional Inpatient, outpatient, primary care, and community healthcare	To examine the perspectives and practices of MH clinicians regarding the use of exercise in the treatment of adolescent depression	Psychologists × 69 Social workers × 17 Counsellors × 9 Youth workers × 6 GPs × 5 Nurse × 7 OT × 4 Psychiatrist × 3 Speech pathologist × 2 Other × 3N = 125	Youth depression	Modified version of EMIQ; Likert scale response	The most significant barriers were lack of knowledge (24.6%), the belief that exercise prescriptions should be delivered by an EP (27.8%), and the perception that clients would not adhere to the program (23%). Other barriers included systemic issues such as excessive workload. Notwithstanding this, a significant percentage (42.8%) expressed confidence in their ability to prescribe exercise "most of the time," with 43.4% prescribing "most of the time." A substantial portion (41.2%) were "aware" of the current public health recommendations, however, only 13.3% could accurately describe the current recommendations of 60 min of daily moderate to vigorous PA amongst adolescents. 50% of clinicians engaged in moderate PA; however, no significant relationship was found between this and prescription rates. 63.2% indicated that they were interested in further training in exercise prescription	Self-selecting nature of the modest-sized sample; possible recruitment bias toward those interested in exercise; analysis largely descriptive
Romain et al. [45] Canada Quantitative: cross-sectional survey Outpatient clinics	Investigate the factors and barriers associated with health promotion practice among mental health professionals Note: findings with respect to barriers to promoting exercise were separately identifiable. Only this aspect was relevant to this scoping review	Psychiatrists/doctors × 20 Nurses × 29 OTs × 16 Social workers × 16 Psychologists × 5 Other mental health professionals × 14 N = 100	Serious mental illness	Translated and modified version of EMIQ-HP; Likert scale response; stages of change questionnaire	Barriers include overwhelming workload (62%), low confidence, role confusion, and low priority. 88% believed that mental illness could not constitute as a barrier to HPP. Professionals promoting HPP were less likely to endorse psychological barriers, more confident in their ability to do so, and more likely to give higher value to healthy behaviour. About 11% had received formal training in PA promotion, and 47% reported they would definitely engage in further training. 60% engaged in PA promotion had higher levels of self-confidence, however, no significant relationship was found between this and the prescription of exercise. 75% of professionals considered antipsychotic medication more important than PA	Variability in professional patient load and location; small sample size; survey based on self-reporting

TABLE 3. Continued.

Authors; Country; Study design; Setting	Aim	Healthcare practitioner types and sample size/number of participants ²	Mental health conditions being treated	Data collection; outcome measures (quantitative)	Results	Limitations
Shrestha et al. [38] Australia Mixed-methods study; cross-sectional; social constructivism framework Community healthcare	To explore the attitudes and practices of HCPs in recommending more PA and less sedentary behaviour to their clients	Nurse × 2 Psychologist × 12 Social worker × 1 Clinical lead/psychologist × 4 N = 17	Various mental illnesses	Modified version of EMIQ; Likert scale response	<p>The most significant barriers were lack of knowledge, low confidence, the belief that exercise prescription should be delivered by an EP, the perception that clients would not adhere to the program, and excessive workload.</p> <p>A key perceived barrier was the concern that PA recommendations may detract and harm the therapeutic relationship.</p> <p>Only 35.3% had undergone formal training in exercise prescription, 64.7% ranked PA among the top three treatments, and 94.1% agreed that PA is valuable for those hospitalised with MI.</p> <p>Some health professionals believed it was inappropriate to discuss PA with more complex patients.</p> <p>Recommendations were more directed toward what made them “feel better,” rather than specific intensity and duration</p>	Small sample size; the study was conducted after an education course, indicating possible strong social bias to adhere; the author acknowledged her bias toward PA in participant interactions

TABLE 3: Continued.

Authors; Country; Study design; Setting	Aim	Healthcare practitioner types and sample size/number of participants ²	Mental health conditions being treated	Data collection; outcome measures (quantitative)	Results	Limitations
Stanton et al. [28] Australia Quantitative: cross-sectional Inpatient MH facilities in regional towns	To examine the exercise prescription practices of nurses in relationship to their own PA levels. Also, to understand relevant barriers within the inpatient setting to exercise prescription and referrals	Nurses working in inpatient MH units N = 34	Serious mental illness	EMIQ; Likert scale response	The most significant barriers were a lack of knowledge and the belief that exercise prescriptions should be delivered by an EP. 72% reported prescribing exercise, 18% reported never prescribing, and 21% always prescribed to consumers. Half (56%) of the participants reported achieving high levels of PA, and the remainder was classified as moderate. Only <i>n</i> = 4 reported having formal training in exercise prescription and none specifically for SMI. However, almost all (94%) reported an interest in additional training in exercise prescription. Self-reported PA participation in participants is not related to the frequency of exercise prescription working in MH settings. Personal barriers were low confidence in exercise prescription, and systemic barriers were competing demands. Only 21% of participants reported using referrals to exercise professionals and only 11% of participants recommended exercise at the intensity which makes them "feel good"	Not all settings were included from the hospital; only one geographical area and profession; small sample size

EMIQ, exercise in mental illness questionnaire; health professionals version [28], EP, exercise professional; HCP, healthcare practitioner; MH, mental health; GP, general practitioner; OT, occupational therapist; PA, physical activity. ¹In some studies, participants included persons other than HCPs. In those instances, only the HCPs are listed in this column. ²In those instances, only the HCPs are listed. ³In those instances, only the HCPs are listed. ⁴In those instances, only the HCPs are listed.

physical activity or exercise [2]. An analysis of this issue is beyond the scope of this review. While our focus is on the prescription and promotion of exercise, we took a broad approach to inclusion with respect to this aspect of the phenomenon of interest, due to the lack of precise use of the various terminologies in most of the underlying research. It must also be noted that it is impossible to rigorously distinguish between physical activity and exercise due to most research being vague on this matter; however, it is the underlying mentality on the issue and lack of knowledge that needs to be addressed.

Studies in the context of treatment of any mental illness were included regardless of the specific diagnosis or severity of illness. This approach further distinguishes this review from that of Newsome [46], which was limited to mental healthcare settings for the treatment of serious mental illness. As many HCPs work across multiple environments, studies conducted in either inpatient, outpatient, or community settings or primary care were included.

Studies were excluded if conducted in a low-resource setting with limited relevance to high-income countries. Various studies which investigated barriers to lifestyle prescription in general were excluded, as there was no separate analysis or separable data with respect to the prescription or promotion of physical activity or exercise. Studies were also excluded if their primary focus was to investigate the correlation between the exercise practices of HCPs and exercise prescription, as this did not necessarily provide an indication of the HCP's perceptions of barriers.

2.2.4. Date Range and Language. The date range was limited from 2005 to September 2013, reflecting the period over which exercise has become increasingly recognised as a component of treatment for persons with a mental illness [15]. All papers were primary peer-reviewed sources of evidence available in English.

The search strategy and yield are illustrated in Figure 1 using the PRISMA reporting guidelines. The search was conducted by the first and second authors (KK and AM) and resulted in a total of 1800 articles. After duplicates were removed, the titles and abstracts of the remaining 1089 articles were reviewed and 1029 were excluded.

Of the remaining 60 articles, full text was unable to be retrieved for two. An additional three articles were identified through citation searching of the remaining 58 articles. A full-text assessment was conducted for these 61 articles and 43 articles were excluded as shown in Figure 1 (Supplementary Materials: summary of reasons for exclusion (available here)). Where there was doubt about the inclusion of a paper, the wider team was consulted.

2.3. Data Extraction. The selected articles were independently reviewed by KK and AM and the following information was extracted:

- (i) For qualitative studies (and the qualitative data from mixed-method studies): author, year, country, title, aim, HCP-type, number of participants/sample size,

setting, mental health condition being treated, data collection and saturation (if stated), barriers identified, and limitations (Table 2).

- (ii) For quantitative articles (and the quantitative data from mixed-method studies): author, year, country, aim, study design, setting, aim, HCP-type, sample size, mental health condition being treated, data collection and outcome measures, key results, and limitations (Table 3).

Of the quantitative studies (or the quantitative data from mixed-method studies), five studies used the EMIQ. Quantitative data from these studies was extracted by KK to facilitate comparison of results (corresponding with part 4, subsection 1 of the EMIQ).

2.4. Data Analysis. Data analysis was conducted in a series of defined steps. The first step adopted a segregated methodology to separately synthesise the qualitative data and the quantitative data [47]. The second step applied a mixed-method synthesis of both data types, informed by a qualitative approach in order to facilitate enquiry into the subjective experience of HCPs [47].

First, in the case of qualitative studies (or the qualitative data from mixed-method studies), barriers to exercise prescription were categorised by KK into codes. Initially, the codes used were based on the barriers set out in part 4, subsection 1 of the EMIQ. Through an iterative and reflexive approach to coding, new codes were added, and code descriptions were adapted through consultation between KK and AM as the review progressed. The coding was facilitated using NVivo software [48]. In the case of the quantitative studies, initial coding was also based on the EMIQ barriers.

Following these initial steps, an inductive analytic approach was applied by KK to the coded qualitative data to generate themes arising from the barriers to exercise prescription that had been identified. A theme can be considered as a pattern of shared meaning that is underpinned or united by a core concept [49]. A mixed-method synthesis was then conducted, whereby the quantitative data were mapped against the themes identified from the qualitative data in order to analyse whether it fitted within those themes or gave rise to additional concepts. It was found that no additional themes arose from the quantitative data that had not already been identified from the qualitative data.

This reflective and recursive approach generated four key themes as follows:

- (1) Lack of knowledge and confidence of healthcare practitioners in prescribing exercise
- (2) Role and responsibility
- (3) Healthcare practitioners' misconceptions of client barriers
- (4) Systemic issues impacting exercise prescription practices

These themes are discussed in the next section.

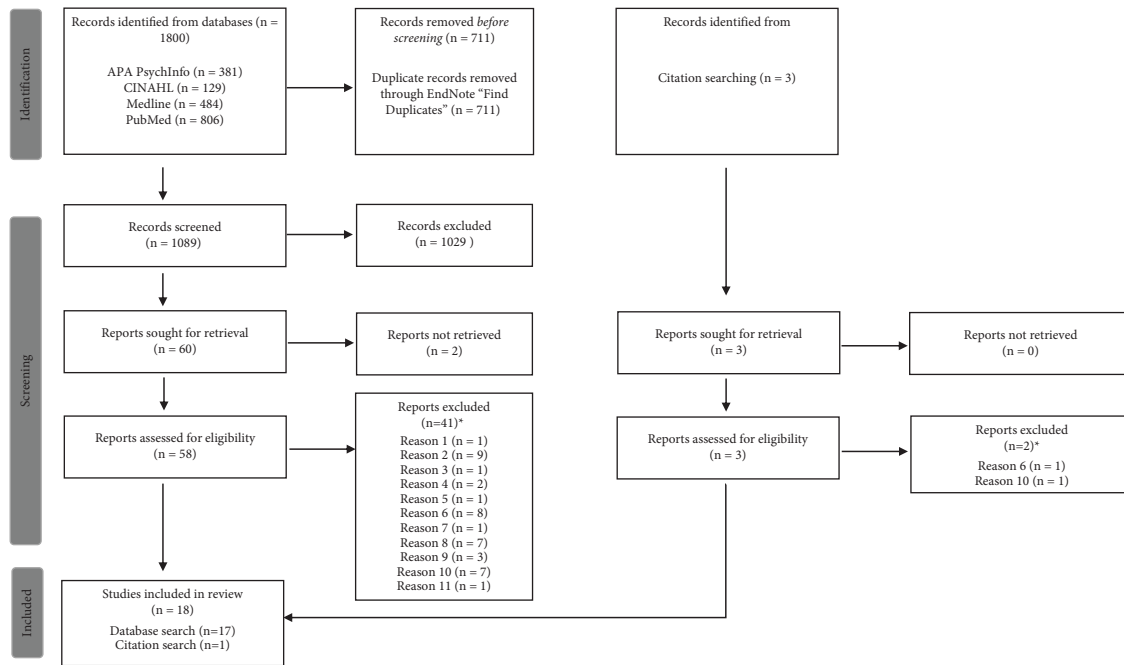


FIGURE 1: PRISMA 2020 flow diagram [24]. *For details refer to Supplementary Materials: articles assessed for eligibility and summary of reasons for exclusion.

3. Findings

3.1. Study Characteristics. The 18 studies which met the inclusion criteria were conducted in Australia ($n = 5$), the United Kingdom ($n = 5$), Sweden ($n = 1$), the United States of America ($n = 3$), Australia and New Zealand together ($n = 1$), Brazil ($n = 1$), Canada ($n = 1$), and Ireland ($n = 1$). Sample sizes ranged from a small group in one location ($n = 10$) to a broad range of HCPs across Australia and New Zealand ($n = 325$). The studies were conducted in a variety of settings including inpatient ($n = 4$), outpatient ($n = 3$), community ($n = 5$), and primary care ($n = 2$), or across a range of those settings ($n = 4$). There were two studies specific to the treatment of depression and one specific to the treatment of schizophrenia. The remaining studies were either in the context of the treatment of serious mental illnesses ($n = 11$) or the treatment of various mental illnesses of unspecified type, severity, or chronicity ($n = 4$).

Twelve studies sampled a range of HCPs (including, variously, general practitioners, psychiatrists, psychologists, occupational therapists, social workers, nurses, and healthcare assistants). Six studies were specific to one HCP role, including general practitioners ($n = 1$), psychologists ($n = 1$), nurses and nursing assistants ($n = 2$), and healthcare assistants ($n = 2$). Studies which included a range of HCPs were unable to offer analysis of any differences between perspectives of the different types of HCP, due to the small number of participants in several of the individual categories.

Each of the quantitative and mixed-method studies adopted a cross-sectional design. Five studies used the EMIQ (EMIQ-HP) as a basis for data collection. The quantitative studies which predated the development of the EMIQ also

used questionnaires scored on a five-point Likert scale. One recent study used a 10-item survey of barriers similar in scope to the EMIQ [43].

Qualitative study data collection was conducted through focus group interviews ($n = 4$), semistructured individual interviews ($n = 4$), individual interviews using photo elicitation and open-ended questions ($n = 1$), and open-ended written questions ($n = 2$). All qualitative studies used a form of thematic analysis to interpret the data.

The key results of the scoping review are shown in Tables 2 and 3. In one mixed-method study, only the qualitative component met the inclusion criteria [39], therefore this study is only included in Table 2. In another mixed-method study, only the quantitative component met the inclusion criteria [43], therefore this study is only included in Table 3. The other two mixed-method studies are included in both Tables 2 and 3 [32, 38].

3.2. Lack of Knowledge and Confidence. The theme of lack of knowledge and confidence in relation to the prescription or promotion of exercise by HCPs emerged strongly across almost all studies. A lack of knowledge was indicated through the identification of various barriers including the belief that exercise would not be beneficial for clients and uncertainty about the content or existence of clinical guidelines on the matter, in addition to clear statements of uncertainty [30, 38]. In studies using the EMIQ, or a similar survey tool, the barrier “do not know how to prescribe exercise to persons with a mental illness” was consistently the first or second most commonly identified barrier [38, 42, 50]. On average, only 13% of respondents across five studies had received any formal education in exercise

prescription [38, 40, 42, 45, 51], and, when asked, almost all respondents stated that they were interested in further training [32, 44, 45, 51]. A similar knowledge barrier was identified in several qualitative studies [30, 31, 34, 36, 39]. Radovic et al. [44] found that while 41.2% of participants could identify current physical activity guidelines, only 13.3% could describe them. Studies in the context of serious mental illness were more likely to include HCPs who were unaware of any evidence base for the use of exercise in the treatment of those conditions [29, 30, 33, 34, 36, 37, 39, 41].

3.3. Role and Responsibility. Offering exercise as part of a mental health treatment plan was generally identified as a multidisciplinary responsibility, but uncertainty as to the parameters of each HCP's responsibility was commonly raised as a barrier in the qualitative studies [30, 33, 39] (Table 2). The first or second most significant barrier across all EMIQ (or comparable) studies was the assumption that the prescription of exercise to persons with a mental illness is best delivered by an exercise professional [32, 33, 38, 42, 44, 45] (Table 3). Role confusion was linked to a perceived fragmentation of the healthcare system and the ongoing separation of physical and mental healthcare [33, 36]. Nurses, nursing assistants, and healthcare assistants were more likely to focus on the need for a holistic treatment approach, and to view shared responsibility for exercise prescription and promotion as a corollary to that philosophy [32].

3.4. Healthcare Practitioners' Misconceptions of Client Barriers. Some HCPs perceived potential health risks associated with exercise for those with diagnosed mental illness. In the context of serious mental illness, some HCPs expressed concern that exercise could exacerbate acute mental health symptoms [30, 31, 33, 34, 36, 37, 39] and/or physical health symptoms [29, 31, 33, 34, 36, 39, 42] with seemingly little knowledge or confidence as to how this could be managed in practice. Negative perceptions of HCPs regarding attitudes of persons with a mental illness to exercise prescription (i.e., HCPs think clients will not like to be given exercise prescription, while evidence suggests otherwise) were common in most studies and was the third most significant barrier in studies using the EMIQ. Some HCPs expressed the view that clients were not interested in exercise and were unlikely to adhere to an exercise program, with the presumed implication that there was therefore little point in prescribing or promoting exercise [34, 39]. Some HCPs considered that exercise was not what the client was interested in or anticipating, in seeking help for their mental health and, in the context of serious mental illness, were concerned that promoting exercise could damage the therapeutic relationship [34, 38, 39]. Conversely, an exercise program in which nurses and clients could jointly participate was seen as an opportunity to strengthen therapeutic relationships [30].

3.5. Systemic Issues Impacting Exercise Prescription Practices. Systemic barriers identified by HCPs included excessive workloads [38, 44, 45], lack of time [30, 32, 35, 39, 43], fragmentation of the physical and mental healthcare system [33, 36], lack of leadership [30, 33, 34, 36, 39], lack of staff [30, 32–36] access to exercise equipment resources and exercise space [34, 35, 39], and lack of priority afforded to exercise relative to other components of treatment [33, 34, 39, 45]. Healthcare assistants were more likely to highlight systemic issues which could be undermining the perceived importance of exercise, for example, noting that exercise was the only noncompulsory component of a client's weekly schedule and was not incorporated into the client's personal care plan [32, 33].

4. Discussion

This review has highlighted that HCPs across a range of mental health settings in high-income countries identify similar barriers to the routine integration of exercise and physical activity in the treatment of persons experiencing mental illness. The consistent themes include a lack of knowledge, uncertainty as to their role or responsibility, HCP perceptions of client barriers, and systemic issues. These themes were broadly consistent with the findings in other reviews which have explored this issue using different parameters [23, 46], with our findings suggesting that similar barriers are highlighted regardless of HCP-type or the severity of mental illness treated. A general willingness expressed by HCPs to address their knowledge gap and embrace the promotion and prescription of exercise suggests that a focus on education and open discussion of multidisciplinary responsibility may be an effective way to increase the accessibility of exercise as a treatment for clients [39]. However, it should be noted that practitioner roles and scope of practice regarding the assessment and treatment of physical health vary across different countries [42]. Notwithstanding this, to date, it would seem the translation from evidence-based to practice is inadequate in each of the countries where the analysed studies were conducted.

Our review indicated some degree of knowledge accretion over the past decade. Earlier studies were more likely to include a high percentage of HCPs, unaware of any evidence that exercise is helpful in the treatment of people diagnosed with mental illness [40], whereas more recent studies indicated an increased awareness of the evidence but without the concomitant knowledge or confidence to translate that evidence into practice [38, 39]. Over 20 years ago, Faulkner and Biddle [52] established that most HCPs do not immediately move toward practice change in response to updates in clinical guidelines alone, highlighting the difficulties of translating evidence into practice.

Exercise-referral schemes using regular phone calls and face-to-face consultations with social support (e.g., by a family member) have been shown to be effective for clients' long-term physical activity levels [53]. In the United Kingdom, 80% of clients from general practitioners

experiencing depression are referred to as using such exercise-referral schemes [54]. While attempts to address implementation gaps seem beneficial to practitioners, further research is required to develop tools suitable for a broader range of HCPs and mental health disorders [55]. Fibbins et al. [56] identified that Australian psychiatrists acknowledge the importance of physical activity; however, low referral rates to accredited exercise physiologists suggest that they remain underutilised in mental healthcare. Structural financial barriers existing within government-funded schemes such as Australia's Medicare or the United Kingdom's National Health Service warrant further investigation in this regard.

The multidisciplinary knowledge barrier highlighted in this scoping review suggests the need for interdisciplinary education on current clinical guidelines in mental illness treatment across all disciplines engaged with clients, including psychiatry, psychology, general practice, nursing, occupational therapy, and social work. Currently, there is a lack of evidence-based education regarding lifestyle medicine, including exercise, in both undergraduate and postgraduate medical and nursing curricula [58–60]. This suggests it is critical that the evidence base for exercise as a treatment is taught in all undergraduate, postgraduate, and professional development curricula for HCPs. In this regard, health educators could benefit from the experience obtained in Belgium and Norway, where EPs are routinely involved in educating HCPs regarding exercise as a treatment for mental illness [61]. Further research is required to develop appropriate learning modules for integration into existing courses.

Shifting the underlying attitudes and beliefs of HCPs will be critical to exercise becoming integrated into routine mental healthcare [31]. Education will have a significant role to play in this regard as it appears that several barriers attributed by HCPs to persons with a mental illness may be misguided. This review showed that HCPs view lack of interest, lack of adherence to exercise programs, and potential damage to the therapeutic relationship as barriers (Tables 2 and 3). However, research has shown that the promotion of exercise is generally well received and highly valued by persons with a mental illness, that discussion of lifestyle issues is considered important and positive to the therapeutic relationship, and that where exercise is prescribed there is a statistically significant increase in engagement with exercise beyond the initial intervention [62]. Moreover, adherence to codesigned exercise programs by persons with a mental illness has been shown to be similar to adherence to exercise programs by the general population [63]. HCPs' perceptions about the physical risks of exercise also need recalibration, as studies consistently show that the long-term benefits of exercise far outweigh the acute risks [59]. However, evidence of adverse events may be underreported, suggesting studies may be focusing on efficacy outcomes at the expense of providing an evidence base to improve implementation [64].

This scoping review indicated that HCPs are frequently unclear regarding role responsibility around exercise prescription. In studies which proffered the idea of EPs (such as accredited exercise physiologists and physiotherapists) taking responsibility for exercise prescription, there was often

a preference expressed for this approach. This proposition mirrored a recent consensus statement issued in Australia, which found that both EPs and people diagnosed with mental illness are advocating for the integration of EP services within mental health settings [62]. However, with funding for mental health services already a vexed issue across the globe, including in high-income countries [65], access to EPs in inpatient settings is generally restricted, impacting the ability of practitioners to refer to EPs and adversely affecting the ability of persons with a mental illness to engage in EP services [21]. Systemic barriers impacting the integration of EPs in inpatient settings also include restricted referral pathways and poor financial incentives for EPs [56]. In sum, although there is a need for all HCPs to collectively improve prescription and health promotion practice, this highly depends on the healthcare system and funding models of each country.

This review has a number of limitations, including the lack of definitional clarity common to most studies. Selection bias included in studies may have resulted in participation skewed towards HCPs more favourably disposed to the promotion of exercise in mental health treatment. In addition, some studies were conducted in conjunction with specific exercise interventions, which may have impacted HCPs' views of barriers (e.g., Shrestha et al. [38]). Many studies had a small sample size or limited number of participants drawn from only one mental health unit and those results may not be readily generalisable. A strength of this review, which differentiates it from other similar reviews [23, 46], is the broad scope of HCPs included within the population, and the inclusion of HCPs treating a wide range of mental illnesses, regardless of the severity or chronicity of that illness.

5. Conclusion

The studies included in this review raised commonly identified barriers that HCPs face in integrating exercise as a part of routine treatment for persons with a mental illness. The themes generated from the studies were as follows: (1) lack of knowledge and confidence of healthcare practitioners in prescribing exercise, (2) roles and responsibility, (3) healthcare practitioners' misconceptions of client barriers, and (4) systemic issues impacting exercise prescription practices. There was a high level of consistency in the barriers rated most significant, regardless of the mental health setting, treatment condition, or the role of the practitioner. This review was conducted against the background of an increasingly extensive evidence base supporting the use of exercise as a transdiagnostic treatment for persons with a mental illness. The results indicate that there has been insufficient progress in HCPs translating the evidence base into practice, notwithstanding clinical guidelines giving increasing weight to the importance of exercise as part of any treatment plan, and multiple primary studies investigating practitioner barriers. The results of this review support the proposition that there is an urgent need to implement multidisciplinary teaching modules to better educate current and future HCPs about exercise as a treatment for persons with a mental illness, and to further develop and support the implementation of toolkits which facilitate the translation of

the evidence base into practice across all mental health settings. This review has also highlighted the need to educate HCPs about their possible misconceptions of barriers to exercise prescription from the point of view of persons with a mental illness, and to conduct further research regarding the safety of exercise prescription in the context of serious mental illness. HCPs must not wait for systemic change before ensuring that the treatment they offer to persons with a mental illness is consistent with the current evidence of best practice, which includes exercise prescription.

5.1. Recommendations. Based on this review, key areas for immediate action and further research are as follows:

- (i) Development of appropriate learning modules on exercise prescription led by EPs, which can be shared across different levels of each country's qualifications' framework, with appropriate adaptations to particular HCP roles.
- (ii) Systematic implementation of compulsory learning modules on exercise prescription for HCPs both prequalification and postqualification.
- (iii) Aligning evidence between actual lived-experience barriers and the perceived barriers of HCPs to improve collaborative engagement.
- (iv) Integration into learning modules of evidence to address common HCP misperceptions regarding the attitudes of persons with a mental illness, which are a contributing factor in barriers to exercise prescription.
- (v) Further development and implementation of toolkits to facilitate the promotion and prescription of exercise in a multidisciplinary framework across different mental health settings.
- (vi) Analysis of the impact and costs associated with the integration of EPs into mental health settings, to ensure optimal use of available resources; for example, assessing whether outcomes are maximised by the placement of EPs in primary care or in acute inpatient settings.
- (vii) Investigation of the possible risk of adverse effects where exercise is prescribed in the treatment of serious mental illness, and whether the type, duration, frequency, or intensity of exercise prescribed is significant in that context.

Data Availability

The data supporting this scoping review are from previously reported studies, which have been cited. The processed data are available in the supplementary material.

Additional Points

What Is Known about This Topic. Clinical guidelines recommend exercise as a treatment or adjunctive treatment for

a broad range of mental illnesses. Studies repeatedly show that many healthcare practitioners (HCPs) are not prescribing or promoting exercise when treating people diagnosed with a mental illness. Previous syntheses of research in this area were either limited to the treatment of severe mental illness, excluded the views of nursing and healthcare assistants commonly involved in mental health treatment teams, or included physiotherapists and exercise professionals rather than focusing solely on the views of HCPs without specialised qualifications in exercise and physical activity. *What This Paper Adds.* Maps the primary research conducted into the perceptions of a broad range of HCPs regarding barriers to prescribing or promoting exercise in the treatment of people diagnosed with mental illness across healthcare settings in developed countries. Highlights the commonalities of perceived barriers to exercise prescription across comparable countries, regardless of the severity of mental illness, the type of HCP, or the healthcare setting: a lack of knowledge, uncertainty as to HCP's role or responsibility, and HCP's perceptions of client barriers and systemic issues. HCPs are interested in increasing their knowledge and confidence regarding exercise prescription and many would prefer to have access to qualified exercise physiologists or other exercise professionals to support the prescription and delivery of exercise programmes.

Disclosure

This review was developed from a paper originally written and submitted by KK for the Master of Mental Health, Southern Cross University. The scoping review was conducted as a part of AM, GdJ, and RL's employment at Southern Cross University.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

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Supplementary Materials

Supplementary Table 1: included articles. Supplementary Table 2: articles assessed for eligibility. Supplementary Table 3: summary of reasons for exclusion. (*Supplementary Materials*)

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