






# BMJ Open Identifying enablers and barriers to referral, uptake and completion of lifestyle modification programmes: a rapid literature review

Yvonne Zurynski <sup>1,2</sup>, Carolyn Smith,<sup>1</sup> Joyce Siette <sup>2</sup>,  
Bróna Nic Giolla Easpaig <sup>2</sup>, Mary Simons <sup>3</sup>, Gilbert Thomas Knaggs <sup>1</sup>

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<sup>1</sup>NHRMC Partnership Centre for Health System Sustainability, Macquarie University, Sydney, New South Wales, Australia

<sup>2</sup>Australian Institute of Health Innovation, Macquarie University, Sydney, New South Wales, Australia

<sup>3</sup>Library, Macquarie University, Sydney, New South Wales, Australia

## Correspondence to

Dr Yvonne Zurynski;  
yvonne.zurynski@mq.edu.au

## ABSTRACT

**Objective** To identify current, policy-relevant evidence about barriers and enablers associated with referral, uptake and completion of lifestyle modification programmes (LMPs) for secondary prevention of chronic disease in adults.

**Design** A rapid review, co-designed with policymakers, of peer-reviewed and grey literature using a modified Preferred Reporting Items for Systematic Reviews and Meta-Analyses framework.

**Data sources** Medline, Embase, Scopus, PsycINFO and CINAHL were searched for relevant studies and literature reviews. Grey literature was identified through Advanced Google searching and targeted searching of international health departments' and non-government organisations' websites.

**Eligibility criteria for selecting studies** Documents published 2010–2020, from high-income countries, reporting on programmes that included referral of adults with chronic disease to an LMP by a health professional (HP).

**Data extraction and synthesis** Data from grey and peer-reviewed literature were extracted by two different reviewers. Extracted data were inductively coded around emergent themes. Regular meetings of the review group ensured consistency of study selection and synthesis.

**Results** Twenty-nine documents were included: 14 grey literature, 11 empirical studies and four literature reviews. Key barriers to HPs referring patients included inadequate HP knowledge about LMPs, perceptions of poor effectiveness of LMPs and perceptions that referral to LMPs was not part of their role. Patient barriers to uptake and completion included poor accessibility and lack of support to engage with the LMPs. Enablers to HP referral included training/education, effective interdisciplinary communication and influential programme advocates. Support to engage with LMPs after HP referral, educational resources for family members and easy accessibility were key enablers to patient engagement with LMPs.

**Conclusions** Factors related to HPs' ability and willingness to make referrals are important for the implementation of LMPs, and need to be coupled with support for patients to engage with programmes after referral. These factors should be addressed when implementing LMPs to maximise their impact.

## Strengths and limitations of this study

- This study addresses a current gap in the literature about factors that help or hinder referral to lifestyle modification programmes (LMPs) by health professionals and the uptake and completion of such programmes by patients.
- This rapid review consolidates information about factors that should be considered when developing and implementing LMPs for secondary prevention.
- Peer-reviewed and grey literature reporting on LMPs for chronic disease management were concurrently searched for and relevant information was extracted using predefined inclusion/exclusion criteria.
- The quality and methodological rigour of the peer-reviewed and grey literature were rated using standardised assessment tools (ie, Hawker tool and Authority, Accuracy, Coverage, Objectivity, Date, Significance Checklist).
- Rapid reviews are narrower in scope and less in depth than systematic reviews and therefore not as comprehensive, which means that some relevant factors may have been omitted.

## BACKGROUND

Chronic conditions pose a significant challenge to health systems globally.<sup>1</sup> Currently, chronic disease is the leading cause of death and disability in Australia, and one in two Australians suffers from at least one common chronic disease,<sup>2</sup> which is projected to rise.<sup>3</sup> Other developed countries report similar and increasing rates of chronic disease.<sup>4–6</sup> For individuals, chronic disease leads to a reduced quality of life and increases the likelihood of premature death.<sup>3,7</sup>

There is strong evidence linking common chronic diseases with behaviour and lifestyle factors, such as diet, smoking status, exercise and alcohol consumption.<sup>8</sup> Addressing behavioural factors through secondary prevention lifestyle modification programmes (LMPs) has been shown to improve the health

of people already living with chronic conditions, such as diabetes, cancer, heart disease and respiratory disease.<sup>9</sup> Secondary prevention aims to minimise associated symptoms and prevent the further progression of disease.<sup>10</sup> LMPs are non-medical community programmes designed to complement or supplement clinical care.<sup>11</sup> Examples of common LMPs include exercise programmes and self-care education programmes for the management of physical health conditions.<sup>12</sup> LMPs may be considered a subset of social-prescribing initiatives and the terms are often used interchangeably. However, social-prescribing programmes include interventions targeting social, socio-economic and psychological factors related to health that LMPs usually do not.<sup>13</sup>

Although LMPs have been implemented in many healthcare systems, there are still significant challenges to health professional (HP) referral to, and patient uptake of LMPs.<sup>14 15</sup> Current evidence suggests HPs may not regard referral to secondary prevention programmes as a core part of their work and instead may focus on patients' medical issues which can be addressed by clinical treatments.<sup>16 17</sup> Patients may not be aware of LMPs and their purpose or may expect HPs to provide direct medical care in the form of a prescription or procedure.<sup>15 18 19</sup>

Contributing factors to the utilisation of social-prescribing programmes addressing patient psychological and social needs have recently been systematically reviewed.<sup>17</sup> In contrast, reviews examining referral and uptake factors for LMPs for secondary disease prevention report on evidence that is at least a decade old.<sup>20 21</sup> In the time since these reviews were published, LMP and social prescribing literature has increased dramatically.<sup>22</sup> This review sought to synthesise new knowledge from the last decade on factors affecting the referral to, engagement with and completion of LMPs for secondary prevention of chronic disease. LMPs for secondary prevention tend to have established referral pathways and to be firmly embedded in policy and guidelines.<sup>1 23</sup> Despite this, across developed countries, such as the USA, Australia and European countries, rates of referral by HPs and engagement and completion of LMPs among referred patients are low.<sup>20 24–27</sup>

Despite limited evidence to guide successful implementation in the last decade, LMP initiatives have become an increasingly popular means for managing chronic conditions.<sup>22</sup> To inform strategies to improve the use of existing and emerging LMPs for secondary disease prevention, we sought to identify factors that help or hinder HPs to refer patients, and factors that help or hinder patients in engaging with and completing LMPs.<sup>28</sup> Evidence incorporated in this paper was originally collated for a rapid review commissioned by policymakers in Australia to improve the reach and uptake of LMPs, including increasing referrals by HPs. Rapid reviews are conducted using similar methodology to systematic reviews, but omit or streamline certain steps to quickly synthesise actionable evidence to inform pressing policy and health objectives.<sup>28</sup> Rapid reviews are usually carried out within

6-month time frames, compared with the 12–24 months typically required for exhaustive systematic reviews, to provide a focused synthesis to answer a specific policy-relevant question(s).<sup>28</sup> In this review, referral factors specific to general practices were highlighted as general practitioners (GPs) may be well placed to connect large numbers of patients with LMPs but are frequently unfamiliar with LMPs<sup>24</sup> or reluctant to prescribe non-medical treatments.<sup>16</sup>

## METHODS

Adhering to recommended procedures for rapid reviews<sup>28</sup> and Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines (online supplemental figure 1),<sup>29</sup> we conducted a literature search for peer-reviewed research studies (empirical studies and literature reviews) on 30 March 2020 using a predefined search strategy in the following databases: Medline, Embase, Scopus, PsycINFO and CINAHL. Primary search terms were lifestyle modification programs, health care professionals, patient perceptions and chronic disease, and searchers were limited to Organisation for Economic Co-operation and Development (OECD) countries (table 1 provides an example search strategy). To identify relevant grey literature, we undertook keyword searches, adjusted for regional vernaculars of health departments, international health authorities, public policy institutes, non-government organisations and university websites using the Google Advanced Search engine.

To increase the comprehensiveness of the search, we scanned the reference lists and cited documents of included peer-reviewed articles and grey publications (snowballing) to identify any relevant articles missed by the searches.

## Inclusion and exclusion criteria

Literature reporting on qualitative and quantitative studies was included in our review. We included peer-reviewed and grey literature documents published in English between 2010 and 2020 reporting on LMPs designed for secondary and tertiary prevention in patients over 18 years of age and living with chronic conditions (table 2).

Search results for peer-reviewed literature and grey literature were imported into Excel spreadsheets and assessed against the inclusion and exclusion criteria. Peer-reviewed studies were assessed for eligibility by one reviewer (GTK), while a second grey reviewer (BNGE) assessed the eligibility of identified grey literature. The use of a single reviewer, as opposed to two or more reviewers, to identify eligible papers allows for a more timely identification of relevant documents and is typical of rapid reviews.<sup>28</sup> Eligibility was determined by examining source titles, abstracts or executive summaries, and full texts sequentially. The whole team skimmed the included and excluded documents and uncertainties were resolved by group consultation.

**Table 1** Example of a database (OVID Medline) search strategy

Constructs	Search terms used
Healthcare professional involvement	exp Health Personnel/ or allied health personnel/ or community health workers/ or licensed practical nurses/ or audiologists/ or exp medical staff/ or exp medical staff, hospital/ or exp nurses/ or exp nursing staff/ or nutritionists/ or occupational therapists/ or nursing staff, hospital/ or pharmacists/ or physical therapists/ or exp physicians/ or social workers/ or (family doctor* or gp or general practi* or family physician*).ti,ab.
AND	
Lifestyle modification programme	(health promotion/ or social prescribing/ or Community Health Services/ or *Exercise Therapy/ or Secondary care/ or Community Referral/ or Social Medicine/) and (“social prescri*” or “life* program*” or lifestyle or “community referral” or exercis* or diet* or weight or stress or alcohol or sport* or physical* or activ* or relax* or art* or cookery or volunteer* or garden* or health* or eating or leisure or recreation* or therap* or smoking or sedentary).ti,ab.
AND	
Patient perceptions	“treatment adherence and compliance”/ or “patient acceptance of health care”/ or patient compliance/ or no-show patients/ or patient dropouts/ or patient participation/ or patient satisfaction/ or patient preference/ or treatment refusal/ or “Attitude of Health Personnel”/ or health knowledge, attitudes, practice/ or (attitude* or belief* or opinion* or perspective* or value* or complian* or adhere* or motivat* or preference* or behavio?r or well-being).ti,ab.
AND	
Chronic disease	Chronic disease/ or chronic*.ti,ab.
AND	
OECD countries	north america/ or canada/ or exp united states/ or andorra/ or austria/ or balkan peninsula/ or belgium/ or exp france/ or exp germany/ or gibraltar/ or exp united kingdom/ or greece/ or ireland/ or exp italy/ or liechtenstein/ or luxembourg/ or exp mediterranean region/ or monaco/ or netherlands/ or portugal/ or san marino/ or exp “scandinavian and nordic countries”/ or spain/ or switzerland/ or transcaucasia/ or exp australia/ or new zealand/

The symbol “\*” represents truncation and the symbol “?” represents spelling variation.  
 OECD, Organisation for Economic Co-operation and Development.

### Data extraction

Full-text review and data extraction were undertaken by GTK (peer-reviewed literature) and BNGE (grey literature). We used standardised data extraction forms developed by the team. Data were extracted by both reviewers from five of the peer-reviewed articles initially retrieved

**Table 2** Inclusion and exclusion criteria

	Inclusion criteria	Exclusion criteria
Publication date	2010–2020	Before 2010
Language	English	Other than English
Document type	Peer reviewed, empirical research papers and literature reviews  Non peer-reviewed literature (grey literature) including reports, evaluations, policy briefs, position statements	Opinion pieces, conference abstracts, theses  Reports describing programmes without providing any evaluation of results
Setting	Developed OECD countries: Australia, New Zealand, Canada, USA, UK, Western Europe and Scandinavia	Developing countries, low-resource settings
Study methods	Qualitative, quantitative, or mixed methods, descriptive studies	N/A
Population studied	Adults aged 18 years or over  People living with one or more physical chronic conditions	Children aged <18 years  People with mental health conditions without physical chronic conditions
Relevance to research questions	Relevant to LMPs or social-prescribing programmes delivered in the community  LMPs designed for secondary or tertiary prevention with referral by a health professional  Sufficient details provided in the document to address research questions	Does not adequately discuss LMPs  Primary prevention programmes; secondary prevention programmes without referral by an HP  Insufficient details to address research questions

HP, health professional; LMPs, lifestyle modification programmes; N/A, not applicable; OECD, Organisation for Economic Co-operation and Development.

to ensure consistency. The two reviewers also regularly consulted with the whole team to ensure consistency of data extraction. We collected information on the characteristics of reported LMPs (such a referral pathways, method of intervention delivery, intervention frequency and duration, and chronic diseases targeted) and qualitative information on factors affecting HP referral, and patient enrolment and completion of LMPs (online supplemental table 1). Factors specific to GPs’ referral to LMPs were distinguished from factors affecting HPs generally.

### Quality assessment

We used the Hawker tool<sup>30</sup> to assess the methodological rigour of studies. Methodological quality of the studies

was determined by scoring the quality and robustness of nine different study components (ie, abstract and title; introduction and aims; method and data; sampling; data analysis; ethics and bias; findings/results; transferability/generalisability, and implications and usefulness). Each component was given a score on a 4-point scale from good to very poor. These scores were averaged to give a total score out of 40 (good=36–40, fair=25–35, poor=16–25 and very poor=10–15), and then averaged across papers for an overall rating of the included literature out of 40 points (online supplemental table 2).

The methodological quality of the grey literature was assessed using the AACODS Checklist (Authority, Accuracy, Coverage, Objectivity, Date, Significance).<sup>31</sup> The AACODS Checklist has been designed to appraise non-peer-reviewed literature against minimum methodological expectations (online supplemental table 3).

### Data analysis

Data from included documents were initially coded into core themes using a standardised data extraction workbook developed by researchers with experience in rapid review methodology and qualitative evidence synthesis (YZ, CS). Two authors (GTK, JS) carried out inductive coding and organised data around key emergent themes relevant to each research question. The key themes were subsequently organised into overarching domains for clarity and conciseness. Identified themes and domain groupings were confirmed with the team.

### Patient and public involvement

This research was done without patient or public involvement.

## RESULTS

After excluding duplicates, our search strategy identified 426 potentially relevant articles: 363 peer-reviewed references and 61 grey literature sources. After excluding documents which did not meet our inclusion criteria, a total of 29 sources, 15 peer-reviewed studies (including four systematic reviews) and 14 grey documents were included in our data synthesis (online supplemental figure 1). Articles were most frequently excluded because they did not report on referral to LMPs.

### Quality assessment

According to the Hawker tool criteria, the methodological quality of the included peer-reviewed literature was rated as good, with an average score of 35.8 out of a maximum of 40 (range of averaged scores across study components; range: 25.5–40 points (online supplemental table 2)). The grey literature was of adequate quality according to the AACODS Checklist; 12 of the 14 grey literature documents met all ACCODS Checklist criteria (online supplemental table 3).

### Types of LMPs and countries

Exercise-based LMPs were the most frequently reported programme type in the peer-reviewed papers and reviews

(6 of 15; 40%),<sup>32–37</sup> followed by self-management and/or disease educational programmes (2 of 15; 13%).<sup>38 39</sup> The four systematic reviews reported on one or more LMP programmes, most commonly secondary prevention of cardiovascular disease or a type of programme outreach (ie, phone consultations).<sup>15 18 21 40</sup> Three of the reviews included papers from 2011 or before, confirming the need for an updated review.<sup>15 21 40</sup> One review focused primarily on the patient's perspective of social-prescribing initiatives rather than specific secondary prevention programmes for chronic disease.<sup>18</sup> The empirical studies included in our review primarily described LMPs addressing cardiovascular diseases (7 of 11; 64%)<sup>21 33 35 37–39 41</sup> and diabetes (5 of 11; 45%).<sup>35–38 41</sup> These studies were conducted in Australia (6 of 11; 55%),<sup>32–35 39 42</sup> the UK (2 of 11; 18%),<sup>36 37</sup> the USA (1 of 11; 9%),<sup>38</sup> Canada (1 of 11; 9%)<sup>43</sup> and the Netherlands (1 of 11; 9%).<sup>41</sup>

Grey literature evidence was mostly contained in reports (8 of 14; 57%)<sup>44–51</sup> and guideline resources (3 of 14; 21%).<sup>52–54</sup> Other documents included a case study,<sup>55</sup> an evidence synthesis<sup>56</sup> and a shared learning resource.<sup>57</sup> Grey literature reported on LMPs from the UK (8 of 14; 57%),<sup>44 45 48–50 52 54 57</sup> Australia (4 of 14; 29%),<sup>46 47 49 53</sup> the USA (4 of 14; 29%)<sup>45 49 55 56</sup> and Germany (1 of 14; 7%).<sup>51</sup> Two sources reported on LMPs in multiple countries.<sup>45 49</sup> Eight sources described factors related to referrals to LMP by GPs specifically.<sup>32 36 37 39 41 42 48 57</sup>

### Factors associated with HPs referring patients to LMPs

#### Barriers to HP referral of patients to LMPs

HPs often regarded referral to LMPs as a non-essential part of their routine clinical work.<sup>38 41 42 52</sup> Normative beliefs among HPs that the provision of medical services is the central component of their role was associated with low referral rates to LMPs.<sup>15 36 39</sup> These barriers were further attributed to poor and fragmented interdisciplinary communication between community programmes and clinical health services.<sup>34 38 52 57</sup>

HPs lacked access to training resources needed to effectively engage and refer patients,<sup>36 41 43 56</sup> and some studies reported limited knowledge among HPs about LMPs available in their area.<sup>34 44</sup> Lack of culturally competent staff and/or interpreters for culturally and linguistically diverse (CALD) patients, and poor staffing ratios, were associated with poorer HP referral rates.<sup>52</sup> Limited incentives including difficulty accessing reimbursement payments also posed a barrier among GPs in particular,<sup>15 36 37 39 41</sup> although this also affected other HPs.<sup>15</sup> Some HPs also expressed scepticism about the effectiveness of LMPs, perceived patient disinterest, had concerns about care fragmentation and unclear lines of responsibility for care once patients are referred (table 3).

#### Enablers of HP referral of patients to LMPs

The most frequently identified factor associated with increased rates of referral was access to ongoing educational and training resources for HPs.<sup>36 42 48 50 53</sup> Effective educational programme features included high HP

**Table 3** Factors influencing HP referral of patients with chronic diseases to LMPs

Factors associated with HP referral	Barriers	Enablers
<b>Resources</b>		
Education and training	Lack of knowledge and training <sup>15 36 56</sup> Poorly designed programmes <sup>41</sup> Lack of expertise/guidelines on who to refer to LMPs <sup>36 43</sup>	Educational and training programmes on referral techniques and chronic disease management for GPs and other HPs <sup>15 36 37 41 43 53</sup>
Personnel	Staffing issues (time constraints among referring HPs) Limited access to culturally trained staff in HPs' practices (eg, interpreters, practice nurses) <sup>15 52</sup>	Interdisciplinary integration and teamwork <sup>36 37 41 57</sup> HPs as LMP advocates (eg, practice champions) <sup>37 52</sup>
Financial	Poor access to reimbursement among GPs and other HPs <sup>15 36 37 39 41</sup> Minimal programme funding <sup>41</sup>	Financial incentives (activity-based funding, link referral-attendance) <sup>49</sup> Improved digital assessment and referral systems <sup>49</sup> Creating and instituting secondary prevention key performance indicators <sup>51</sup>
Locality	Limited availability of appropriate programmes <sup>41</sup> Lack of local programmes due to participant rurality <sup>38</sup>	Flexibly delivered programmes available for referral, tailored to a range of patient groups, patient needs and levels of mobility <sup>46</sup> LMPs hosted within referring GP practice <sup>41</sup>
<b>Perceptions</b>		
Clinicians' role	Normative beliefs about non-medical treatments <sup>38</sup> Concern about care fragmentation/responsibility for care <sup>41 42 52 55</sup>	Programmes designed to address normative medical paradigm beliefs <sup>36</sup> Digital access to patient health data, automated referrals <sup>51</sup>
Perception about patients	Perceived patient disinterest <sup>15 36</sup> No perceived change in chronic condition post-referral <sup>44</sup>	Ongoing feedback from LMP directly to GPs <sup>36 41</sup> and other HPs <sup>43</sup>
Programme efficacy/acceptability	Sceptical about programme content, evidence base, effectiveness <sup>36 43</sup>	Co-design of programmes with HPs <sup>37</sup> Presence of clinical staff familiar with LMPs and secondary chronic disease management in general practices <sup>37</sup>

GPs, general practitioners; HP, health professional; LMPs, lifestyle modification programmes.

engagement in programme development, enthusiastic and digestible presentation style, and programmes that challenged normative clinical models of care,<sup>36 42 43</sup> particularly if it involved GPs who were familiar with or had worked with patients with the targeted chronic conditions.<sup>37</sup> HPs' awareness of different programmes was a strong enabler of referrals.<sup>15 41 47 52 53</sup>

Interdisciplinary integration between medical and social/community services and champions that spanned the sectors was an important enabler.<sup>36 37 41 57</sup> For GPs, the availability of primary care nurses to assist in the referral process, as well as practice 'champions' (ie, HPs specifically trained to advocate for the programme) was considered a valuable enabler.<sup>36 41</sup> The availability of a range of different LMPs that fitted with individual patient needs also enabled referrals by HPs.<sup>15 41 47 52 53</sup>

Additional enablers included improving the ease of referral through electronic automated referral systems, increasing online information for patients and providing feedback from the LMPs back to the referring HPs about the progress of their patients. The flexibility of LMP programme delivery, for example, online, telephone support, choice of times and sessions, was also identified as important<sup>15 41 47 52 53</sup> (table 3).

### Factors related to uptake of LMPs among referred patients

#### Barriers to patient uptake of LMPs

Barriers associated with poor patient engagement with LMPs were most commonly environmental and social. Environmental barriers included poor availability of LMPs or limited public or private transport to enable access to the LMPs.<sup>33 37 46 52</sup> Patient concerns about neighbourhood safety were also cited.<sup>18 37</sup> Social barriers included the absence of patient support from friends and family<sup>37 52</sup> and the local community.<sup>37 46</sup> Misalignment between the cultural beliefs of patients and programme requirements (ie, clothing requirements, mixed-gender classes) was also described as a barrier for patients.<sup>52</sup>

In addition to social and environmental barriers, individual context and psychological barriers were frequently attributed to patient non-enrolment. Lack of patient motivation and patients' lack of confidence in their ability to bring about positive change reduced the likelihood of engagement.<sup>36 37 46 51</sup> Patients also doubted the effectiveness of LMPs,<sup>18 21</sup> and one study reported that younger adults were less likely to attribute their chronic conditions to lifestyle factors, and for this reason were less likely to engage with LMPs.<sup>52</sup> The presence of depression,<sup>46 52</sup> anxiety<sup>46</sup> and other physical comorbidities not targeted

**Table 4** Factors associated with patient uptake of LMP

Factors related to patient uptake	Barriers	Enablers
HP		
Method of referral	Incomplete or inaccurate information about the LMP provided to the patient <sup>15 52</sup>	Active identification and referral of patients using multiple referral techniques <sup>37</sup> Use of motivational interviewing <sup>36 54</sup> Patients provided with comprehensive explanation of LMP during referral <sup>15</sup>
Behaviour	Perception of HP discrimination based on socioeconomic status <sup>52</sup> Discouraging or unwillingness to refer <sup>15</sup>	Tailored advice <sup>15 18 46 52</sup> Shared decision-making <sup>18 36</sup> Trusting relationship <sup>36</sup> Awareness of CALD, age-aligned programmes <sup>47 52 54</sup>
Patient		
Social	Lack of support by social network <sup>33 37 46 52</sup> Culturally inappropriate programme characteristics (linguistic/translation, do not accommodate cultural norms) <sup>18</sup>	Transitional support, such as link workers <sup>18 47 48 54 56</sup> Education programme includes friends and family <sup>21 37 47 56</sup> Aligns with linguistic or cultural needs (eg, appropriate for age, CALD, cultural norms) <sup>47 52 54</sup>
Environmental	Difficulty accessing LMP due to rural settings, or limited public or private transport to programme <sup>33 37 43 46 52</sup> Neighbourhood safety <sup>18 37</sup>	Flexible means of delivery (eg, distance-based such as online or via telephone) <sup>34 44 46</sup> Close proximity to patient <sup>18</sup>
Personal	Low motivation/doubts about ability to change and/or programme effectiveness <sup>36 37 46 51</sup> Mental health issues <sup>21 46 52</sup> Other comorbidities <sup>36</sup> Financial/time constraints <sup>41 46 52</sup>	Patient readiness to address chronic condition <sup>18 48</sup> Trusting relationship with, positive perception of GP <sup>36</sup>

CALD, culturally and linguistically diverse; GP, general practitioner; HP, health professional; LMP, lifestyle modification programme.

by the LMP<sup>21 36</sup> were all associated with poor enrolment. Additional barriers related to difficulty acquiring adequate information about LMPs,<sup>15 52</sup> HPs being unwilling or unable to provide information needed by patients,<sup>15</sup> or patient perceptions of LMPs being discriminatory<sup>52</sup> (table 4).

#### Enablers to patient uptake of LMPs

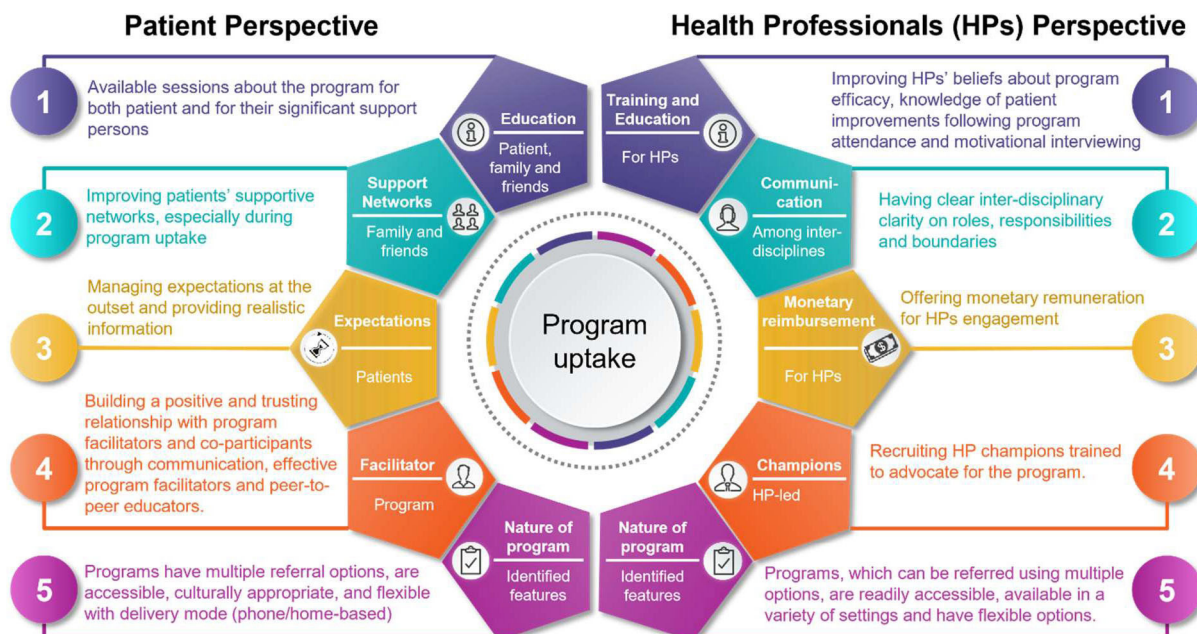
Identified enablers to patient utilisation were frequently related to strengthening patient support networks. Transitional support, such as communication between the patient and a link worker, or the referring HPs or programme facilitator prior to LMP commencement, was a widely cited enabler to patient use of LMPs.<sup>18 47 48 54 56</sup> Educational resources for a patient's friends and family and direct involvement of friends and family to form support networks were also cited as enablers.<sup>21 37 47 56</sup>

The availability of appropriate LMPs in different formats was also frequently listed as an enabler. For example, telephone-based programmes were found to be more accessible to rural-dwelling people and CALD groups who may find it inconvenient or unacceptable to access centre-based programmes.<sup>35 40 47 52</sup>

Referring HPs were perceived to play a pivotal role in encouraging patients to engage with LMPs. HP use of motivational interviewing<sup>36 34</sup> and HP awareness of population-specific programmes for CALD groups<sup>47 52 54</sup> and for older people<sup>54</sup> were positive influences for LMP uptake by patients. Proactive recruitment by HPs and

the concurrent use of multiple referral techniques, such as in-person referral and targeted mail-out referrals, were associated with increased rates of LMP uptake by patients.<sup>37</sup>

Patients were more likely to engage in LMPs if referring HPs provided tailored advice at the right time. As one study explained, "there was a sense of [patients] being ready to be 'told what to do'" by referring GPs.<sup>36</sup> Patients also needed to feel that the referral was relevant to their specific disease stage (acute, subacute, ongoing care),<sup>46</sup> socioeconomic circumstances<sup>52</sup> and cultural beliefs.<sup>52</sup> Some patients may harbour doubt about the relevance of an LMP to their condition or may experience feelings of trepidation or anxiety about the prospect of enrolment.<sup>37</sup> HPs' ability to discern and address patient reservations was cited as a potential way of overcoming psychological barriers to uptake.<sup>18</sup> Three papers stated that shared decision-making processes that involve patients and allow for open discussion of patient concerns may increase the likelihood of patient engagement with a referred LMP.<sup>18 36 56</sup> Additional enablers to patient enrolment included the provision of complete information about the LMP, HPs or GPs conveying confidence in the potential benefits of the LMP and HPs establishing a trusting relationship with the patient (table 4).



**Figure 1** Synthesis of enabling factors to patient uptake of lifestyle modification programmes. Credit: Reproduced with permission from The Sax Institute, from Zurynski Y, Smith K, Siette J, Nic Giolla Easpai B, Simons M et al. Lifestyle modification programs: an Evidence Check rapid review brokered by the Sax Institute ([www.saxinstitute.org.au](http://www.saxinstitute.org.au)) for the NSW Ministry of Health, 2020.

## Patient-associated factors related to completion of LMPs

### Barriers to patient completion of LMPs

The most frequently cited barriers to programme completion among enrolled patients were lack of time to continue LMPs<sup>35,39</sup> and patient diagnosis of depression or anxiety.<sup>21,46</sup> Patient disaffection with programme outcome or leader was also identified as a barrier.<sup>18</sup>

### Enablers to patient completion of LMPs

Enablers of completion were often linked to social elements of LMPs, including positive relationships with programme facilitators<sup>18,37,38,40</sup> and co-participants,<sup>33,38</sup> educational sessions for friends and family,<sup>38</sup> peer-to-peer education,<sup>47</sup> and ongoing robust communication between HPs, LMP facilitators and patients.<sup>36,37</sup> The use of motivational and cognitive-behavioural interviewing techniques by LMP facilitators,<sup>18,40</sup> and expertise in programme delivery and chronic disease management<sup>18,33,40</sup> were associated with programme completion.

To synthesise the above results, we constructed a model of inter-related factors from both the patients' and HPs' perspectives (figure 1). Fundamentally important for both patients and HPs was the availability of a variety of culturally appropriate LMPs that were easily accessible via a number of modalities and aligned with the needs of patients. From the patient perspective, factors including education about available programmes, supportive personal networks (family, friends and community), managing expectations about the programme and expected outcomes, building positive and trusting relationships with LMP facilitators and other participants enabled LMP uptake. HPs were more likely to refer patients if they believed that the LMPs were effective

and would improve patient outcomes. When HPs used multiple patient recruitment strategies and motivational interviewing techniques, patient enrolment was more likely. HP champions advocating for LMP programmes, working in interdisciplinary teams with clearly defined roles and remuneration for HPs, were important factors enabling HPs to refer patients to LMPs.

## DISCUSSION

This rapid review identified factors associated with HPs making referrals to LMPs, and the factors that help or hinder patient uptake and completion of LMPs once they are referred. A commonly reported barrier for GPs making referrals was the perception that referring to LMPs was not a core part of their role; their perception was that they needed to concentrate on dealing with the presenting medical problems. Furthermore, the lack of remuneration and incentives for referrals for doctors was recognised as a critical barrier. This is not surprising, especially among HPs working under fee-for-service models where the incentive is to undertake care that is remunerated. Remunerating and incentivising GPs and other HPs to make referrals to evidence-based LMPs should be considered by governments to reduce the burden of chronic disease<sup>58</sup> (figure 1).

Doctors' doubts about the effectiveness of LMPs to improve the health of their patients also posed a barrier.<sup>36,41</sup> Few LMPs undergo rigorous outcome or process evaluations, which may contribute to doctors' reservations about their effectiveness.<sup>22,59</sup> The evidence base around the benefits of LMPs to improve patients' health and well-being needs to continue to grow through

robust pragmatic trials and ongoing evaluation studies undertaken in conjunction with the implementation of LMPs.

It was widely acknowledged that poor interdisciplinary collaboration and communication among HPs and between HPs and LMP providers was associated with lower rates of referral.<sup>34 36 38 52 57</sup> GPs' confidence about the appropriateness of programmes for their patients was directly associated with their knowledge about programme availability, design and structure.<sup>52 55</sup> GPs were also keen to have feedback on their patient's progress once referred to an LMP, but this was rarely available,<sup>36 41</sup> creating concerns about continuity of care.<sup>49</sup> Involving GPs in the co-design of LMPs and ensuring ongoing two-way communication between the LMPs and GPs were found to improve referral rates and would address these issues.<sup>37 41</sup>

HPs and LMP providers need to work together to maximise the benefits of LMPs for patients. Engagement through interdisciplinary HP training, which (1) provides clear information about how the LMPs work and highlights the potential benefits for patients; (2) challenges the normative beliefs about strictly clinical roles of HPs; and (3) covers motivational interviewing and other effective referral techniques for HPs, is needed. Our results concur with other systematic reviews that linked frequent and more seamless channels of communication among care providers to increased rates of patient referral<sup>60</sup> and improved patient outcomes.<sup>61</sup> Therefore, in addition to training resources, the wider acceptance of LMPs may require embedding communications between HPs and LMP providers—such as initial GP referrals, patient handover, LMP feedback—within existing HP workflows, communication systems and clinical software.

This review found that social and environmental barriers were frequently associated with poorer patient use of LMP services,<sup>30 33 37 41 46 52</sup> while post-referral transitional supports were integral to ensuring patient engagement with LMPs.<sup>18 47 48 54 56</sup> Other systematic reviews of community programmes addressing social and psychological health of patients have reported similar findings, and have stressed the necessity of transitional support through 'link workers' to connect patients with suitable community programmes and to support patients to complete programmes.<sup>18</sup> However, we found link workers have been less frequently associated with programmes targeting chronic disease. At the very least, available evidence warrants the provision of post-referral patient contact from LMP facilitators in instances where link workers or further HP support is unavailable or impractical.

As the health burden of chronic conditions grows, there is increasing need for sustainable, cost-effective secondary prevention programmes targeting lifestyle factors to reduce this burden. Across OECD countries, health reform has increasingly reflected an appreciation of the role of lifestyle modification in chronic disease management.<sup>62</sup> In Denmark and France, the responsibilities of

nurses have been expanded to perform secondary prevention education and self-management capacity building for patients.<sup>63</sup> Similarly, since 2004, the UK National Health Service has employed 'matron nurses' to prioritise patient education in self-management and to curb rates of hospitalisation; although evaluations of the cost-effectiveness have been limited.<sup>63</sup> The Australian government has signalled the need to expand health services which target behavioural, social, psychological and economic determinants of common chronic conditions.<sup>64</sup> Some subsidised LMPs for chronic disease management, such as the Healthy Eating Activity and Lifestyle programme, have already been introduced nationally.<sup>65</sup> Nonetheless, this review and others indicate<sup>17 24</sup> current knowledge around the impact of LMPs on secondary prevention of chronic disease is limited.

### Strengths and limitations

A major strength of this study was the identification of factors that helps or hinders referral, uptake and completion of LMPs, which has so far been largely absent from the literature. Although other reviews identified similar determinants of LMP utilisation (eg, the availability of link workers and transitional supports, and HP scepticism about programme effectiveness), these reviews focused mainly on social and psychological health,<sup>17 18</sup> or specific physical conditions (eg, cardiovascular disease),<sup>66</sup> or were not based on recent evidence.<sup>66</sup> As was the case with our review, existing reviews were limited by a paucity of robust evidence.

Concurrent searching of grey and peer-reviewed literature, inclusion of existing reviews and use of snowballing enabled the identification of key factors within a short time frame. However, due to the nature of rapid reviews, it is unlikely that full identification and saturation of relevant factors occurred. Further, the available evidence was mainly based on descriptive studies and grey literature, supporting the need for further research to confirm the findings.

### Conclusion

This review identified barriers and enablers which should be considered during the development and implementation of LMPs for the secondary prevention of chronic disease. However, the identified factors were derived mostly from small descriptive studies, suggesting a persistent lack of robust research addressing factors to support utilisation and scaling up of LMPs. Future studies should consider adopting pragmatic trial designs that embed implementation science approaches using mixed methods to provide a deep understanding of barriers and enablers to referral, uptake, and completion of LMPs across different contexts.

**Twitter** Yvonne Zurynski @YvonneZurynski

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assistance and inter-rater reliability performed by JS. Peer-reviewed data extraction was carried out by GTK with guidance from YZ, CS and JS. BNGE identified and reviewed grey literature, and extracted relevant information from grey literature with assistance from GTK. Inclusion of grey literature was confirmed by consultation with YZ, JS and CS. Data analysis was performed by YZ, JS, CS and GTK. All team members contributed to the drafting and writing up of results. All authors approved the final manuscript before submission.

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#### ORCID iDs

Yvonne Zurynski <http://orcid.org/0000-0001-7744-8717>

Joyce Siette <http://orcid.org/0000-0001-9568-5847>

Bróna Nic Giolla Easpaig <http://orcid.org/0000-0001-6787-056X>

Mary Simons <http://orcid.org/0000-0001-9627-7861>

Gilbert Thomas Knaggs <http://orcid.org/0000-0003-4710-6104>

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