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Role of the family doctor in the management of adults with obesity: a scoping review

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ABSTRACT

Objectives Obesity management is an important issue for the international primary care community. This scoping review examines the literature describing the role of the family doctor in managing adults with obesity. The methods were prospectively published and followed Joanna Briggs Institute methodology.

Setting Primary care. Adult patients.

Included papers Peer-reviewed and grey literature with the keywords obesity, primary care and family doctors. All literature published up to September 2015. 3294 non-duplicate papers were identified and 225 articles included after full-text review.

Primary and secondary outcome measures Data were extracted on the family doctors' involvement in different aspects of management, and whether whole person and person-centred care were explicitly mentioned.

Results 110 papers described interventions in primary care and family doctors were always involved in diagnosing obesity and often in recruitment of participants. A clear description of the provider involved in an intervention was often lacking. It was difficult to determine if interventions took account of whole person and person-centredness. Most opinion papers and clinical overviews described an extensive role for the family doctor in management; in contrast, research on current practices depicted obesity as undermanaged by family doctors. International guidelines varied in their description of the role of the family doctor with a more extensive role suggested by guidelines from family medicine organisations.

Conclusions There is a disconnect between how family doctors are involved in primary care interventions, the message in clinical overviews and opinion papers, and observed current practice of family doctors. The role of family doctors in international guidelines for obesity may reflect the strength of primary care in the originating health system. Reporting of primary care interventions could be improved by enhanced descriptions of the providers involved and explanation of how the pillars of primary care are used in intervention development.

Strengths and limitations of this study

- ► The protocol for this scoping review was prospectively published and was based onthe Joanna Briggs Institute (JBI) scoping review methodology.
- ► All types of articles have been included in this scoping review including international guidelines from relevant family medicine colleges.
- ► Feedback was obtained from three groups of interested clinical and academic colleagues in Australia and internationally as per the JBI methodology for a scoping review.
- ► Articles in languages other than English were excluded from the review and therefore the results are not representative of non-English-speaking countries.

INTRODUCTION

Obesity is recognised as a risk factor for the development of chronic disease and is often comorbid with diseases such as diabetes, osteoarthritis, cardiovascular disease and depression.[1] As such, obesity is a condition that is commonly associated with a larger set of health issues encountered by an individual. As in all cases of multimorbidity, a person's care will benefit from the coordinated and continuous care offered by an interdisciplinary team in primary care.[2 3] By exploring the role of the family doctor, we are not questioning the importance of team-based care. Instead, we aim to explore how family doctors are represented in the broad literature to further understand the profession's role. This understanding is important when interdisciplinary teams are not accessible (eg, rural location), affordable (eg, health insurance differentials) or part of the patient's preference for care.[4–6] Thus, the literature that focuses on the management of adults with obesity by the family doctor is important to understand.

With the rising numbers of adults living with obesity and related chronic diseases, there is an increasing demand from health systems for primary care, and family doctors in particular, to identify and manage this as a chronic condition.[6] With this changing landscape, it was anticipated that the academic literature would explore the effectiveness of primary

care, as well as the involvement of different practitioners in obesity management. However, our initial explorations into this literature found a lack of clarity in this area. A scoping review was chosen to explore emerging patterns, and gaps, in the literature based on the role of the family doctor in managing adults with obesity.

The term used to describe a family doctor varies internationally, and includes general practitioner and family physician. The term 'primary care physician', which stems from the USA, includes paediatricians, obstetricians and internists. In this review, we define 'family doctor' as a physician with specialist training in primary care who practises in the community, as an expert generalist.

Different practitioners will bring varying strengths and limitations to any intervention and it is important for family doctors to understand what skills they offer in the setting of obesity management. The importance of understanding provider role is demonstrated in the methodology of critical realism where realist evaluation acknowledges the importance of context of any intervention.[7] Translating rigorous scientific trials into policy and practice is challenging and realist evaluation is an increasingly used tool to inform effective translation of evidence.[8] Part of understanding context in the realist evaluation is knowing the type of provider, and their experience level, in delivering an intervention. This scoping review provides an overview of the role of the family doctor in interventions, clinical overviews and opinions, observed practice and clinical guidelines.

The pillars of primary care—being the first point of health system entry, delivering continuous, whole person (ie, concerned with every body system and the mind) and person-centred care (ie, elucidates comorbidities, social circumstances, and maintains the beliefs and values of the person at the heart of management for all health problems in all patients in all stages)—are well established.[9] Other tiers of the health system may provide some, but not all, of the four pillars. Each of these concepts needs to be present in the management of a patient to gain the full benefits of primary care.[10] Patient management that is not based around these four pillars is unlikely to reap the benefits of coordinated, comprehensive, expert generalist care.[11–13]

This scoping review aims to examine and map the current research base, and broader literature, for the role of the family doctor in managing adults with obesity.

The objectives, inclusion criteria and methods of analysis for this review were specified in advance and documented in a protocol.[14] The scoping review questions we aimed to answer were:

1. What supporting evidence (both primary and secondary) do we have for the role family doctors play in obesity management for adults in primary care?
2. What is the role of the family doctor in managing obesity as a primary risk as supported by the evidence base?
3. What do primary care guidelines say about the role of the family doctor? What do peak bodies (ie, advocacy group) say about the role of the family doctor? Are these both in line with what is conveyed by current research?

METHODS

The complete methods were prospectively published in a protocol.[14] Our search strategy included all literature published until September 2015. A preliminary search for existing scoping reviews did not find any with the same concept and topic (databases searched JBISRIR, Cochrane Database of Systematic Reviews, CINAHL, PubMed, EPPI). Manuscripts were included when they involved adults (18+ years) with a body mass index (BMI) of greater than 25 (overweight or obesity), any involvement of a primary care doctor/physician, a primary care setting and inclusion of obesity management (online supplementary file 1). Contrary to our outlined protocol, we excluded papers in languages other than English, including those with an English abstract, as we could not perform data extraction adequately on these papers. In addition to this search strategy, we specifically sought relevant clinical guidelines from countries with strong involvement in the World Organization of National Colleges, Academies and Academic Associations of General Practitioners/Family Physicians (Australia, UK, USA, New Zealand, the Netherlands, Denmark, Finland, Estonia, Slovenia, Belgium, Spain and Portugal). We explored the family medicine college web sites from these countries and contacted the colleges via email when guidelines were not accessible.

This scoping review was purposefully restricted to obesity management of adults in primary care. As suggested in the Joanna Briggs Institute methodology, the scope has to take account of feasibility while maintaining a broad and comprehensive approach. By restricting the scoping review to obesity, we were able to extract more detail about the family doctor's role than if we had included articles with a main focus on a specific non-communicable disease (eg, diabetes, heart disease). For this same reason, we did not include articles that were only describing nutrition care or physical activity advice unless they were specifically in relation to care of a patient with obesity. Due to the differences in the management of obesity in children and adolescents these population groups were not included in this review.

Two reviewers (EAS, NE) independently reviewed the abstracts, followed by the full papers, as described in the flow chart (figure 1). Our data extraction tool captured the author, country of intervention, year of publication, aim, term used to describe the primary care practitioner, methodology, type of involvement of the primary care doctor, skills needed by the doctor and whether the pillars of primary care were identified. Whole person care was judged as included if the paper described obesity management provided in the context of other health needs. Person-centredness was considered as incorporated when

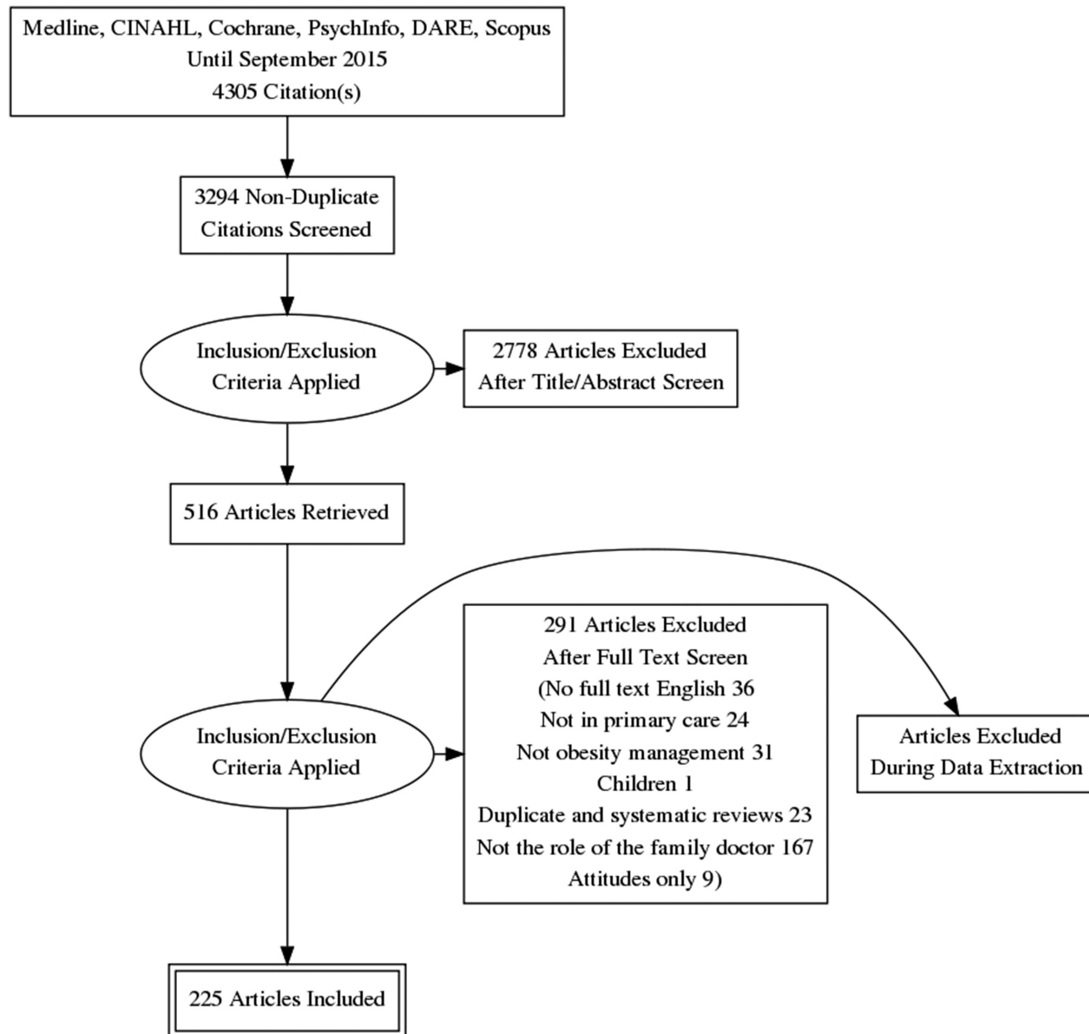

Figure 1 Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flow diagram for scoping review of the role of family doctors in obesity management.

the patient's values, beliefs, cultural needs or context of their community were discussed. First point of contact with the health system was part of all the interventions as 'primary care' was part of the search term. Elements of continuity of care were captured with data extracted about communication between any other types of providers and the family doctor. We did not complete a thematic analysis of the included papers.

We iteratively developed the data extraction tool based on the information we found in a first pass of all of the intervention papers. The role of the family doctor was extracted in line with clinical management processes in a primary care setting starting with anthropometric measurements, diagnosis, referrals, nutrition care, physical activity advice, as well as more intensive treatments such as medications and bariatric surgery. For the intervention articles, data specific to clinical trials were extracted such as recruitment and control or intervention involvement. A third reviewer (EH) reviewed the extraction data sheets and recommended additional details to be added and reviewed the guideline extraction in full.

Our scoping review of interventions involving family doctors in the management of obesity drew on the Template for Intervention Description and Replication (TIDieR) guidelines for the description of interventions.[15] These guidelines outline the parts of interventions that need to be described in order for other practitioners to replicate the intervention, either for research or clinical practice. TIDieR was developed to standardise intervention description and support their implementation, which has been an undervalued aspect of health research.[15]

Results were presented to stakeholders including patients, clinicians, primary health network representatives, chronic disease organisations and academics at three sessions (April 2015 preliminary results presented during a seminar in Canberra; March 2016 results presented to international academic audience in the Netherlands; June 2017 results presented at an academic meeting of clinicians and academics). The input from

Table 1 Number of different interventions identified in scoping review that describe a role for the family doctor in primary care obesity management—by country where the intervention was undertaken, and study design

Country of intervention		Study design	
Australia	2	RCT	40
Canada	5	Single-arm trial	21
Denmark	1	Cohort	7
Germany	3	Non-randomised two-arm trial	2
Israel	2	Cost-effectiveness	2
Italy	1	Action research (protocol)	1
Japan	1	Case–control	1
Netherlands	3	Clinical audit	1
New Zealand	2	Cross sectional	1
Scotland	1	Educational intervention	1
Spain	1		
Switzerland	4		
UK	5		
UK/Australia/Germany	1		
UK/Scotland	1		
USA	44		
Total	77	*Total*	77

RCT, randomised controlled trial.

these meetings was used to debate the justification for the review, the interpretation of the data extraction and the synthesis of the findings.

RESULTS

This scoping review uncovered 3294 non-duplicate citations, and after title and abstract screening 516 articles were reviewed in full. Up to 291 articles were excluded on full review for the reasons shown in the Preferred Reporting Items for Systematic Reviews and Meta-Analyses diagram (figure 1). A total of 225 articles were included in the final review. The inter-rater agreement for the data extraction points exceeded 95% (62 points of disagreement out of 4992 data extraction points).

Using the focus of the three scoping questions, the following is a description of the literature that was reviewed.

What supporting evidence (both primary and secondary) do we have for role family doctors play in obesity management for adults in primary care?

Of the 225 articles that were included in the review, 110 were about interventions in primary care. There were 77 different interventions described in these papers as some intervention were portrayed in multiple papers (tables 1 and 2). Fifty-seven per cent (44/77) of the interventions were carried out in the USA, with the remainder taking place in a variety of countries (table 1). Forty-eight per cent (37/77) of the interventions described were randomised controlled trials (RCT) (table 1). A majority of interventions on the management of adults with obesity stem from the USA, and RCTs are a common study design.

There were a total of 74 articles that were clinical overviews and opinion papers on the primary care management of obesity that included discussion of the role of the family doctor (table 3), and 25 papers that described current practice of family doctors in obesity management, usually through surveys or clinical audits (table 4). There were 16 international guidelines relevant to family doctors focused on the management of obesity (table 5).

What is the role of the family doctor in managing obesity as a primary risk as supported by the evidence base?

The family doctor was involved in varying ways in obesity management depending on the type of article. The most common role for the family doctor across all types of articles was the diagnosis of obesity. The diagnosis was based on the BMI of the patient and waist circumference measurements were rarely taken. Family doctors were not often involved in intervention studies beyond diagnosis and referral into the trial. Papers about current practice, including audits and surveys, mentioned a lack of recognition and treatment of obesity by family doctors. Current overview and opinion papers often suggested a wide role including diagnosis, nutrition and physical activity counselling, and options for appropriate referrals. And there was great variation in the international guidelines with the family doctor not mentioned by some, to a broad role in others. Unsurprisingly, this varied depending on whether a primary care organisation had developed the guideline.

In all types of articles, the family doctor was frequently involved in the diagnosis of obesity (73/110 intervention papers, 69/74 overview papers, 22/24 current practice papers). They were involved in height and weight measurements in 111 out of 225 total papers, and overall waist circumference was infrequently mentioned in all articles (50/209 papers, not including guidelines).

We included all interventions relevant to the review, whether they were reported the family doctor's role as part of an experimental intervention or in a control arm (table 2). In 45 of the 77 interventions, the family doctor was involved in recruiting patients to the trial. The family doctor only had a role in care delivery in 27 interventions (35%) in either the intervention or the control arm of a trial. Across all interventions, 'standard care' was used in 27 trials; however, it was only well described in 12 of these. In one case, the 'primary care provider' was used in the standard care arm but was 'instructed not to provide specific behavioral strategies for changing eating and activity habits'.[16]

We attempted to describe whether the pillars of primary care could be identified in the interventions as they were described. In 17 of the 77 interventions, the comprehensive, holistic care of the patient was described. In only

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Table 2 Interventions in primary care in the management of adult obesity involving the general practitioner (over seven pages)

Author	Multiple[21,22]	Multiple[23–29]	Bolognesi *et al*[30]	Bodenlos[31]	Kerr *et al*[32]	Multiple[33–35]	Multiple[36–39]	Multiple[16,40–46]	Tsai *et al*[47]	Banerjee *et al*[48]	Blonstein *et al*[49]	Barnes *et al*[50]
Name of intervention	Meal replacements in weight	Counterweight	PACE	NA	NA	Be Fit Be Well	POWER	POWER-UP	NA	NA	NA	NA
Number of papers	2	7	1	1	1	3	4	8	1	1	1	1
Country	USA	UK/Scotland	Italy	USA	USA	USA	USA	USA	USA	USA	USA	USA
Year	2001	2004–2012	2006	2007	2008	2009–2013	2009–2015	2009–2015	2010	2013	2013	2015
Design	RCT	Cohort/single arm	RCT	RCT	RCT	RCT	RCT/cohort	RCT	RCT	RCT	Single-arm trial	Single-arm trial
Diagnosis		X	X				X	X	X		X	X
Recruitment into the trial	X	X					X	X	X		X	
Coordination						X	X	X			X	
Weight and height		X	X						X			
Waist circumference			X									
System level/implementation												
Doctor–patient relationship			X	X			X					
Public health role												
Prevention												
Nutrition education	X			X				X	X			
Physical activity education	X		X	X				X	X			
Behaviour modification	X		X	X								
Counselling/psychology			X									
Role modelling												
Group-based interventions				90								
Medications								X				
Bariatric surgery referral												
Bariatric surgery work-up												
Bariatric surgery after care												
Commercial weight loss programme referral												
Bariatric equipment in consultation room												
Standard care undefined												
Standard care was used			X		X	X	X	X		X		
Exact role uncertain										X		
Person-centredness			X	X								
Whole person care			X	X			X	X				

Author	Booth *et al*[51]	Bordowitz *et al*[52]	Bowerman *et al*[53]	Clark *et al*[54,55]	Coupar *et al*[56]	Cutler *et al*[57]	Doering *et al*[58]	Dutton *et al*[59]	Eichler *et al*[60]
Name of intervention	NA	NA	NA	Primary care weight management program	NA	NA	NA	NA	NA
Number of papers	1	1	1	2	1	1	1	1	1

Continued

Table 2 Continued

Author	Booth et al[51]	Bordowitz et al[52]	Bowerman et al[53]	Clark et al[54 55]	Coupar et al[56]	Cutler et al[57]	Doering et al[58]	Dutton et al[59]	Eichler et al[60]
Country	Australia	USA	USA	USA	Scotland	New Zealand	USA	USA	Switzerland
Year	2006	2007	2001	2008–2010	1980	2010	2013	2015	2007
Design	Single-arm trial	Cross sectional	Single-arm trial	Single-arm trial	Single-arm trial	Single-arm trial	Single-arm trial	Single-arm trial	Single-arm trial
Diagnosis	X	X	X	X	X			X	X
Recruitment into the trial		X	X	X	X	X		X	X
Coordination		X	X		X				
Weight and height	X		X		X				X
Waist circumference	X								
System level/implementation									
Doctor–patient relationship									X
Public health role									
Prevention	X								
Nutrition education	X	X			X				X
Physical activity education	X	X							
Behaviour modification	X	X							X
Counselling/psychology		X							X
Role modelling					X				
Group-based interventions					X				X
Medications			X						
Bariatric surgery referral									
Bariatric surgery work-up									
Bariatric surgery after care									
Commercial weight loss programme referral									
Bariatric equipment in consultation room									
Standard care undefined									
Standard care was used									
Exact role uncertain									
Person-centredness	X								
Whole person care	X	X							

Author	Ely et al[61]	Feigenbaum et al[62]	Kanke et al[63]	Multiple[64–66]	Huerta et al[67]	Garies et al[68]	Gusi et al[69]	Haas et al[70]	Multiple[71–73]	Hauner et al[74]	Hoke and Franks[75]
Name of intervention	NA	NA	NA	Commercial weight loss referral	NA	NA	NA	NA	Lighten-Up	NA	NA
Number of papers	1	1	1	3	1	1	1	1	3	1	1
Country	USA	Israel	Japan	UK/Australia/Germany	USA	Canada	Spain	USA	UK	Germany	USA
Year	2008	2005	2015	2011–2014	2004	2015	2008	2012	2010–2012	2004	2002
Design	RCT	Two-arm trial, non-randomised	RCT	RCT	Cohort	Cohort	RCT	Cohort	RCT	RCT	Single-arm trial

Continued

Table 2 Continued

Author	Ely *et al*[61]	Feigenbaum *et al*[62]	Kanke *et al*[63]	Multiple[64–66]	Huerta *et al*[67]	Garies *et al*[68]	Gusi *et al*[69]	Haas *et al*[70]	Multiple[71–73]	Hauner *et al*[74]	Hoke and Franks[75]
Diagnosis	X			X	X	X	X	X	X	X	X
Recruitment into the trial	X	X		X	X	X	X	X	X	X	X
Coordination	X	X			X						
Weight and height	X	X		X	X	X	X	X		X	
Waist circumference				X						X	
System level/implementation											
Doctor–patient relationship	X		X			X					
Public health role											
Prevention											
Nutrition education		X	X	X		X		X			
Physical activity education			X	X		X		X			
Behaviour modification		X						X			
Counselling/psychology								X			
Role modelling											
Group-based interventions											
Medications		X								X	
Bariatric surgery referral											
Bariatric surgery work-up											
Bariatric surgery after care											
Commercial weight loss programme referral				X							
Bariatric equipment in consultation room											
Standard care undefined											
Standard care was used	X		X	X			X				
Exact role uncertain											
Person-centredness											
Whole person care			X								

Author	Kumanyika *et al*[76 77]	Kuppersmith and Miles[78]	Laing *et al*[79]	Lewis *et al*[80]	Logue *et al*[81 82]	Logue *et al*[83]	Lowe *et al*[84]	Madigan *et al*[85]	Martin *et al*[86 87]	McDoniel *et al*[88 89]	Mehring *et al*[90]
Name of intervention	Think Health	NA	NA	NA	Transtheoretical Model-Chronic Disease Care for Obesity in Primary Care	NA	NA	NA	A Primary Care Weight Management Intervention for Low-Income African-American Women	The SMART motivational trial	NA
Number of papers	2	1	1	1	2	1	1	1	2	2	1
Country	USA	USA	USA	UK	USA	USA	USA	UK	USA	USA	Germany
Year	2011–2012	2006	2014	2013	2000–2005	2012	2014	2014	2006–2008	2009–2010	2013
Design	RCT	Single-arm trial	RCT	RCT	RCT	RCT	RCT	RCT	RCT	Single-arm trial	RCT
Diagnosis	X				X		X	X		X	X

Continued

Table 2 Continued

Author	Kumanyika *et al*[76,77]	Kuppersmith and Miles[78]	Laing *et al*[79]	Lewis *et al*[80]	Logue *et al*[81,82]	Logue *et al*[83]	Lowe *et al*[84]	Madigan *et al*[85]	Martin *et al*[86,87]	McDoniel *et al*[88,89]	Mehring *et al*[90]
Recruitment into the trial	X				X	X	X	X	X	X	X
Coordination		X			X					X	X
Weight and height									X	X	X
Waist circumference											X
System level/implementation											
Doctor–patient relationship									X	X	X
Public health role											
Prevention											
Nutrition education	X	X							X		
Physical activity education	X								X		
Behaviour modification	X								X		X
Counselling/psychology	X								X		X
Role modelling											
Group-based interventions											
Medications		X									
Bariatric surgery referral		X									
Bariatric surgery work-up											
Bariatric surgery after care											
Commercial weight loss programme referral				X							
Bariatric equipment in consultation room											
Standard care undefined		X	X						X		X
Standard care was used		X	X					X	X		X
Exact role uncertain											
Person-centredness					X				X		X
Whole person care		X			X				X		X

Author	Munsch *et al*[91]	O'Grady *et al*[92]	Olsen *et al*[93]	Pellegrini *et al*[94]	Richman *et al*[95]	Ross *et al*[96,97]	Rutten *et al*[98]	Saris *et al*[99]	Stephens *et al*[100]	Multiple[101–105]	Thomas *et al*[106]	Toth-Capelli *et al*[107]
Name of intervention	NA	NA	NA	NA	NA	PROACTIVE	NA	NA	NA	Groningen Overweight	NA	NA
Number of papers	1	1	1	1	1	2	1	1	1	5	1	1
Country	Switzerland	USA	Denmark	USA	Australia	Canada	Netherlands	Netherlands	USA	Netherlands	USA	USA
Year	2003	2013	2005	2014	1996	2009–2012	2014	1992	2008	2009–2012	2015	2013
Design	RCT	Clinical audit	Cost-effectiveness	RCT	Case–control	RCT	Cohort	Single-arm trial	Cohort	Single-arm trial, RCT	RCT	Single-arm trial
Diagnosis			X		X	X	X	X			X	X
Recruitment into the trial			X		X	X	X	X			X	X
Coordination	X				X			X			X	

Continued

Table 2 Continued

Author	Munsch et al[91]	O'Grady et al[92]	Olsen et al[93]	Pellegrini et al[94]	Richman et al[95]	Ross et al[96 97]	Rutten et al[98]	Saris et al[99]	Stephens et al[100]	Multiple[101–105]	Thomas et al[106]	Toth-Capelli et al[107]
Weight and height	X	X	X		X			X			X	
Waist circumference			X		X							
System level/implementation												
Doctor–patient relationship					X						X	
Public health role												
Prevention												
Nutrition education	X		X		X							
Physical activity education	X				X							
Behaviour modification	X				X							
Counselling/psychology	X											
Role modelling												
Group-based interventions	X											
Medications												
Bariatric surgery referral												
Bariatric surgery work-up												
Bariatric surgery after care												
Commercial weight loss programme referral												
Bariatric equipment in consultation room												
Standard care undefined	X	X				X			X	X		
Standard care used	X	X				X			X	X		
Exact role uncertain				X								
Person-centredness					X							
Whole person care		X			X						X	

Author	Tsai et al[108]	Wadden et al[109]	Wilson et al[110]	Wirth[111]	Yardley et al[112]	Tsai et al[113]	Ryan et al[114]	Baillargeon et al[115]	Baillargeon et al[116]	Katz et al[117]	Buclin-Thiébaud et al[118]	Feuerstein et al[119]
Name of intervention	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Number of papers	1	1	1	1	1	1	1	1	1	1	1	1
Country	USA	USA	USA	Germany	UK	USA	USA	Canada	Canada	Israel	Switzerland	USA
Year	2012	2005	2010	2005	2014	2015	2010	2007	2014	2005	2010	2015
Design	Cost-effectiveness	RCT	Non-randomised two-arm trial	Single-arm trial	RCT	RCT	RCT	Action research (protocol)	RCT (protocol)	Educational intervention	Single-arm trial	Single-arm trial
Diagnosis			X	X			X			X		X
Recruitment into the trial		X	X	X			X					
Coordination			X	X			X		X	X		
Weight and height			X	X			X		X			X
Waist circumference							X		X			
System level/implementation												

Continued

Table 2 Continued

Author	Tsai *et al*[108]	Wadden *et al*[109]	Wilson *et al*[110]	Wirth[111]	Yardley *et al*[112]	Tsai *et al*[113]	Ryan *et al*[114]	Baillargeon *et al*[115]	Baillargeon *et al*[116]	Katz *et al*[117]	Buclin-Thiébaud *et al*[118]	Feuerstein *et al*[119]
Doctor–patient relationship												
Public health role												
Prevention												
Nutrition education				X			X		X	X		X
Physical activity education				X					X	X		
Behaviour modification				X					X	X		
Counselling/psychology												
Role modelling												
Group-based interventions				X								
Medications				X			X			X		
Bariatric surgery referral										X		
Bariatric surgery work-up												
Bariatric surgery after care												
Commercial weight loss programme referral												
Bariatric equipment in consultation room												
Standard care undefined			X		X							
Standard care was used			X		X		X					
Exact role uncertain								X			X	
Person-centredness												
Whole person care				X					X			X

Author	Hartman *et al*[120]	Lin *et al*[121]	Moore *et al*[122]	Rodondi *et al*[123]	Rueda-Clausen *et al*[124]	Schuster *et al*[125]	Yank *et al*[126]	Goodyear-Smith *et al*[127]	Jay *et al*[128]	Wadden *et al*[129]
Name of intervention	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Number of papers	1	1	1	1	1	1	1	1	1	1
Country	USA	USA	UK	Switzerland	Canada	USA	USA	New Zealand	USA	USA
Year	2014	2015	2003	2006	2014	2008	2013	2014	2013	1997
Design	RCT (protocol)	RCT	RCT	Cohort study	Single-arm trial	Single-arm trial	RCT	RCT	RCT	RCT
Diagnosis	X		X	X		X		X	X	X
Recruitment into the trial	X							X		X
Coordination	X				X	X			X	
Weight and height	X			X		X		X	X	
Waist circumference	X									
System level/implementation						X				
Doctor–patient relationship				X	X					
Public health role						X				
Prevention										

Continued

Table 2 Continued

Author	Hartman *et al*[120]	Lin *et al*[121]	Moore *et al*[122]	Rodondi *et al*[123]	Rueda-Clausen *et al*[124]	Schuster *et al*[125]	Yank *et al*[126]	Goodyear-Smith *et al*[127]	Jay *et al*[128]	Wadden *et al*[129]
Nutrition education			X	X		X			X	
Physical activity education			X	X		X			X	
Behaviour modification			X	X		X			X	
Counselling/psychology										
Role modelling										
Group-based interventions										
Medications										
Bariatric surgery referral										
Bariatric surgery work-up										
Bariatric surgery after care										
Commercial weight loss programme referral										
Bariatric equipment in consultation room										
Standard care undefined			X		X		X	X		
Standard care was used			X		X		X	X		
Exact role uncertain			X		X					
Person-centredness										
Whole person care										

NA, not applicable; RCT, randomised controlled trial.

Table 3 Clinical overviews and opinion articles on the role of the family doctor in the management of adult obesity in primary care (over seven pages)

Author	Anderson and Wadden[130]	Rao[131]	Simkin-Silverman *et al*[132]	Logue and Smucker[133]	Lyznicki *et al*[134]	Sherman *et al*[135]	Vallis *et al*[136]	Benotti[137]	Brown *et al*[138]	Choban *et al*[139]
Title	Treating the obese patient: suggestions for primary care practice	Office-based strategies for the management of obesity	Treatment of overweight and obesity in primary care practice: current evidence and future directions	Obesity management in primary care: changing the status quo	Obesity: assessment and management in primary care	Health coaching integration into primary care for the treatment of obesity	Modified 5 As: minimal intervention for obesity counseling in primary care	Patient preparation for bariatric surgery	Laparoscopic adjustable gastric banding	Bariatric surgery for morbid obesity: why, who, when, how, where, and then what?
Country	USA	USA	USA	USA	USA	USA	Canada	USA	Australia	USA
Year	1999	2010	2008	2001	2001	2013	2013	2014	2009	2002
Overview/opinion	Overview	Overview	Overview	Editorial	Overview	Opinion	Overview	Overview (bariatric)	Overview (bariatric)	Overview (bariatric)
Diagnosis	X	X	X	X	X	X	X	X	X	X
Coordination	X	X	X		X	X	X		X	X
Weight and height	X	X		X	X		X	X		
Waist circumference		X			X		X	X		
System level/ implementation										
Doctor–patient relationship										
Public health role										
Prevention										
Nutrition education	X	X	X	X			X			X
Physical activity education	X	X		X			X			
Behaviour modification	X	X		X			X			
Counselling/psychology							X			
Role modelling					X					
Group-based interventions										
Medications	X	X		X	X					
Bariatric surgery referral	X	X			X			X	X	X
Bariatric surgery work-up								X		
Bariatric surgery after care										X
Commercial weight loss programme referral	X	X								
Bariatric equipment in consultation room										
Standard care undefined										

Continued

Table 3 Continued

Author	Anderson and Wadden[130]	Rao[131]	Simkin-Silverman *et al*[132]	Logue and Smucker[133]	Lyznicki *et al*[134]	Sherman *et al*[135]	Vallis *et al*[136]	Benotti[137]	Brown *et al*[138]	Choban *et al*[139]
Exact role uncertain			X						X	
Person-centredness				X			X			
Whole person care				X	X		X	X		

Author	DeMaria[140]	Dixon[141]	Heber *et al*[142]	Karmali *et al*[143]	Pietras *et al*[144]	Richardson[145]	Shafipour *et al*[146]	Snow *et al*[147]	Van Sickle[148]	Virji and Murr[149]	Wilbert *et al*[150]
Title	Bariatric surgery for morbid obesity	Referral for a bariatric surgical consultation: it is time to set a standard of care	Endocrine and nutritional management of the post-bariatric surgery patient: an endocrine society clinical practice guideline	Bariatric surgery: a primer	Preoperative and postoperative management of the bariatric surgical patient	Bariatric society is here to help	What do I do with my morbidly obese patient? A detailed case study of bariatric surgery in Kaiser Permanente Southern California	Pharmacologic and surgical management of obesity in primary care: a clinical practice guideline from the American College of Physicians	Management of the challenging bariatric surgical patient	Caring for patients after bariatric surgery	Appetite suppressants as adjuncts for weight loss
Country	USA	Australia	USA	Canada	USA	USA	USA	USA	USA	USA	USA
Year	2007	2009	2010	2010	2007	2010	2009	2005	2007	2006	2011
Overview/opinion	Overview	Opinion	Expert opinion	Overview	Overview	Single opinion	Overview	Expert opinion	Overview	Overview	Overview
Diagnosis	X	X		X		X	X	X	X		X
Coordination	X	X		X		X	X	X	X		
Weight and height						X	X	X	X		X
Waist circumference											
System level/implementation											
Doctor–patient relationship											
Public health role											
Prevention											
Nutrition education							X	X			X
Physical activity education								X			X
Behaviour modification								X			
Counselling/psychology							X				
Role modelling											
Group-based interventions											
Medications								X			X
Bariatric surgery referral	X	X		X	X	X	X	X	X	X	
Bariatric surgery work-up	X			X							
Bariatric surgery after care	X		X	X	X		X		X	X	
Commercial weight loss programme referral											
Bariatric equipment in consultation room											
Standard care undefined											

Continued

Table 3 Continued

Author	DeMaria[140]	Dixon[141]	Heber *et al*[142]	Karmali *et al*[143]	Pietras *et al*[144]	Richardson[145]	Shafipour *et al*[146]	Snow *et al*[147]	Van Sickle[148]	Virji and Murr[149]	Wilbert *et al*[150]
Exact role uncertain	X									X	
Person-centredness									X		
Whole person care							X	X			

Author	Kolasa *et al*[151]	Mercer[152]	UK Health Development Agency[153]	Agrawal *et al*[154]	Brunton *et al*[155]	Bartlett[156]	Benjamin *et al*[157]	Birmingham *et al*[158]	Caulfield[159]	Cerveny[160]	Fitzpatrick *et al*[161]
Title	Weight loss strategies that really work	How useful are clinical guidelines for the management of obesity in general practice?	Care pathways for the prevention and management of obesity	Managing obesity like any other chronic condition. Long-term therapy may reduce comorbidity as well	Management of obesity in adults	Motivating patients toward weight loss: practical strategies for addressing overweight and obesity	Can primary care physician-driven community programs address the obesity epidemic among high-risk populations?	The management of adult obesity	Obesity, legal duties, and the family physician	Approaching the obese patients in primary health care in the Czech Republic	An evidence-based guide for obesity treatment in primary care
Country	USA	UK	UK	USA	USA	USA	USA	Canada	Canada	Czech Republic	USA
Year	2010	2009	2004	2000	2014	2003	2013	2003	2007	2007	2015
Overview/opinion	Overview	Guideline summary	Draft clinical pathway	Overview	Overview	Overview	Editorial overview	Overview	Legal overview	Overview	Overview
Diagnosis	X	X			X	X	X	X	X	X	X
Coordination	X	X	X		X	X	X	X	X	X	X
Weight and height	X	X			X	X		X		X	X
Waist circumference	X	X			X	X		X		X	X
System level/implementation		X					X				
Doctor–patient relationship		X		X	X	X			X	X	X
Public health role		X					X				
Prevention		X					X	X		X	
Nutrition education	X	X	X		X	X				X	X
Physical activity education	X	X			X	X				X	X
Behaviour modification	X	X	X		X	X				X	X
Counselling/psychology	X		X		X	X					
Role modelling											
Group-based interventions											
Medications	X	X		X	X	X		X		X	
Bariatric surgery referral	X	X			X	X		X			
Bariatric surgery work-up											
Bariatric surgery after care											
Commercial weight loss programme referral											
Bariatric equipment in consultation room											
Standard care undefined											
Exact role uncertain											

Continued

Table 3 Continued

Author	Kolasa *et al*[151]	Mercer[152]	UK Health Development Agency[153]	Agrawal *et al*[154]	Brunton *et al*[155]	Bartlett[156]	Benjamin *et al*[157]	Birmingham *et al*[158]	Caulfield[159]	Cerveny[160]	Fitzpatrick *et al*[161]
Person-centredness		X			X	X		X	X	X	X
Whole person care		X			X	X		X		X	X

Author	Frank[162]	Gandjour *et al*[163]	Grief[164]	Grima and Dixon[165]	Hagaman[166]	Hill[167]	Hill and Wyatt[168]	Iacobucci[169]	Kausman and Bruere[170]	Kolasa[171]
Title	A multidisciplinary approach to obesity management: the physician's role and team care alternatives	Development process of an evidence-based guideline for the treatment of obesity	Strategies to facilitate weight loss in patients who are obese	Obesity—recommendations for management in general practice and beyond	FP's patients are successful 'losers'	Dealing with obesity as a chronic disease	Outpatient management of obesity: a primary care perspective	Pay GPs to tackle obesity, doctors urge UK government	If not dieting, now what?	Summary of clinical guidelines on the identification, evaluation, and treatment of overweight and obesity
Country	USA	Germany	USA	Australia	USA	USA	USA	UK	Australia	USA
Year	1998	2001	2010	2013	2010	1998	2002	2014	2006	1999
Overview/opinion	Overview	Overview	Single opinion	Overview	Single opinion	Overview	Overview	Single opinion	Overview	Overview
Diagnosis	X	X	X	X	X	X	X	X	X	X
Coordination	X	X	X	X	X	X		X	X	X
Weight and height		X	X	X		X	X	X		X
Waist circumference			X	X		X	X	X		X
System level/implementation								X		
Doctor–patient relationship				X	X		X		X	X
Public health role								X		
Prevention										
Nutrition education				X			X		X	
Physical activity education				X			X			
Behaviour modification			X	X			X		X	
Counselling/psychology				X			X		X	
Role modelling					X					
Group-based interventions			X							
Medications	X	X		X			X			
Bariatric surgery referral	X	X		X			X	X		
Bariatric surgery work-up										
Bariatric surgery after care										
Commercial weight loss programme referral										
Bariatric equipment in consultation room							X			
Standard care undefined								X		
Exact role uncertain		X								X
Person-centredness			X		X		X		X	X
Whole person care				X	X		X			

Continued

Table 3 Continued

Author	Kushner[172]	Landau and Moulton[173]	Lenfant[174]	Maryon-Davis[175]	Mogul *et al*[176]	Newton *et al*[177]	Nichols and Bazemore[178]	Nonas[179]	Orzano and Scott[180]	Ossolinski *et al*[181]
Title	Tackling obesity: is primary care up to the challenge?	General principles in the primary care of obesity	Physicians need practical tools to treat the complex problems of overweight and obesity	Weight management in primary care: how can it be made more effective?	New perspectives on diagnosis and treatment of obesity Winnable Battles: family physicians play an essential role in addressing tobacco use and obesity	Supporting behavior change in overweight patients: a guide for the primary care physician Winnable Battles: family physicians play an essential role in addressing tobacco use and obesity for the primary care physician	Winnable Battles: family physicians play an essential role in addressing tobacco use and obesity	A model for chronic care of obesity through dietary treatment	Diagnosis and treatment of obesity in adults: an applied evidence-based review	Weight management practices and evidence for weight loss through primary care: a brief review
Country	USA	USA	USA	UK	USA	USA	USA	USA	USA	Australia
Year	2010	1992	2001	2005	1999	2008	2014	1998	2004	2015
Overview/opinion	Editorial	Overview	Editorial	Overview	Overview	Overview	Editorial	Overview	Overview	Overview
Diagnosis	X	X	X	X	X	X	X	X	X	X
Coordination	X			X		X	X	X	X	X
Weight and height	X		X		X				X	X
Waist circumference			X		X					X
System level/implementation	X						X			
Doctor–patient relationship		X	X			X			X	
Public health role	X						X			
Prevention	X									
Nutrition education	X	X	X	X	X	X			X	X
Physical activity education	X	X	X	X	X	X			X	X
Behaviour modification	X	X	X		X	X		X	X	
Counselling/psychology	X	X				X				
Role modelling										
Group-based interventions	X									
Medications	X	X	X	X	X	X		X	X	X
Bariatric surgery referral		X	X	X	X	X			X	X
Bariatric surgery work-up										
Bariatric surgery after care										
Commercial weight loss programme referral				X						X
Bariatric equipment in consultation room										
Standard care undefined	X									X
Exact role uncertain					X		X			
Person-centredness		X	X			X	X	X	X	
Whole person care		X	X				X	X	X	

Continued

Table 3 Continued

Author	Plourde and Prud'homme [182]	Rao *et al*[183]	Robinson *et al*[184]	Ruser *et al*[185]	Scherger[186]	Schlair *et al*[187]	Spira[188]	Thompson *et al*[189]	Tsai *et al*[190]
Title	Managing obesity in adults in primary care	New and emerging weight management strategies for busy ambulatory settings: a scientific statement from the American Heart Association: endorsed by the society of behavioral medicine	Obesity: a move from traditional to more patient-oriented management	Whittling away at obesity and overweight: small lifestyle changes can have the biggest impact	Primary care physicians: on the front line in the fight against obesity	How to deliver high-quality obesity counseling in primary care using the 5As framework	Managing obesity in general practice	Treatment of obesity	Obesity
Country	Canada	USA	USA	USA	USA	USA	UK	USA	USA
Year	2012	2011	1995	2005	1999	2012	1983	2007	2010
Overview/opinion	Overview	Overview	Overview	Overview	Overview	Overview	Single opinion	Overview	Overview
Diagnosis	X	X	X	X	X	X	X	X	X
Coordination	X	X		X	X				X
Weight and height	X			X	X	X		X	X
Waist circumference	X			X	X	X		X	X
System level/implementation									
Doctor–patient relationship			X				X		X
Public health role									X
Prevention				X					
Nutrition education	X		X	X	X	X	X	X	X
Physical activity education	X		X	X	X	X	X	X	X
Behaviour modification	X			X	X	X	X	X	X
Counselling/psychology	X		X			X			X
Role modelling									
Group-based interventions						X			
Medications	X	X		X	X	X	X	X	X
Bariatric surgery referral	X		X	X		X	X	X	
Bariatric surgery work-up									
Bariatric surgery after care									
Commercial weight loss programme referral							X		
Bariatric equipment in consultation room									
Standard care undefined									
Exact role uncertain		X							
Person-centredness			X			X			
Whole person care			X		X				X

Continued

Table 3 Continued

Author	Yanovski[191]	Australian Medical Association[192]	Zwar and Harris[193]	Hainer[194]	Seidell *et al*[195]	Anderson[196]	Jarvis[197]	Lowery[198]	van Avendonk *et al*[199]	Al-Quaiz[200]	Carvajal *et al*[201]	Kushner and Ryan[202]	Obesity Australia[203]
Title	A practical approach to treatment of the obese patient	Your family doctor—keeping you healthy AMA family doctor week, 20–26 July 2014	Are GPs doing enough to help patients lose weight?	How should the obese patient be managed? Possible approaches to a national obesity management network	An integrated health care standard for the management and prevention of obesity in The Netherlands	Reducing overweight and obesity: closing the gap between primary care and public health	Obesity and the overworked GP	Medical home concept: policy implications for an integrated approach in obesity management	Primary care and public health a natural alliance? The introduction of the guidelines for obesity and undernutrition of the Dutch College of General Practitioners	Current concepts in the management of obesity: an evidence based review	Managing obesity in primary care practice: a narrative review	Assessment and lifestyle management of patients with obesity: clinical recommendations from systematic reviews	The mission of Obesity Australia is to drive change in the public perceptions of obesity, its prevalence and its treatment.
Country	USA	Australia	Australia	Czech Republic	Netherlands	Spain	UK	USA	Netherlands	Saudi Arabia	USA	USA	Australia
Year	1993	2014	2013	1999	2012	2008	2006	2010	2012	2001	2013	2014	2013
Overview/opinion	Overview	Media release	Blog	Overview	Overview	Overview	Overview	Overview	Overview	Overview	Overview	Overview	Statement
Diagnosis	X	X	X	X	X	X	X	X	X	X	X	X	X
Coordination	X		X	X	X	X	X	X	X	X	X	X	X
Weight and height	X			X	X	X	X		X	X	X	X	X
Waist circumference	X				X		X		X	X		X	
System level/ implementation						X	X	X	X				
Doctor–patient relationship	X				X		X		X	X	X		
Public health role						X	X		X				
Prevention					X		X		X				
Nutrition education	X	X		X	X	X	X		X	X		X	
Physical activity education	X	X		X	X	X	X		X	X		X	
Behaviour modification	X				X	X	X		X	X		X	
Counselling/psychology	X												
Role modelling													
Group-based interventions	X												
Medications	X									X	X	X	
Bariatric surgery referral	X		X	X					X	X	X	X	X
Bariatric surgery work-up													
Bariatric surgery after care													
Commercial weight loss programme referral	X										X	X	X
Bariatric equipment in consultation room													
Standard care undefined													
Exact role uncertain		X	X		X	X	X	X		X	X	X	X
Person-centredness	X								X				
Whole person care						X	X		X		X		

FP, family physician; GP, general practitioner.

Table 4 Current practice articles on the role of the family doctor in the management of adult obesity in primary care (over three pages)

Author	Bourn[204]	Alexander et al[205]	Alexander et al[206]	Klumbiene et al[207]	Linné et al[208]	Patterson et al[209]	Hoyt[210]	Fransen et al[211]	Cohen et al[212]	Fobi et al[213]
Title	Tackling obesity in England	Do the five A's work when physicians counsel about weight loss?	Weight-loss talks: what works (and what doesn't)	Advising overweight persons about diet and physical activity in primary health care: Lithuanian health behaviour monitoring study	Success rate of Orlistat in primary-care practice is limited by failure to follow prescribing recommendations: the referral letter content vs clinical reality	Prescribing for weight loss in primary care: evidence from a population based study	Person, place, and prevention in primary care: a multilevel analysis of variation in the delivery of mental health, substance-use disorder, and obesity services	The development of a minimal intervention strategy to address overweight and obesity in adult primary care patients in The Netherlands	Laparoscopic Roux-en-Y gastric bypass for BMI<35 kg/m^2: a tailored approach	Gastric bypass in patients with BMI<40 but >32 without life-threatening comorbidities: preliminary report
Country	England	USA	USA	Lithuania	Sweden	Northern Ireland	USA	Netherlands	USA	Brazil
Year	2001	2011	2011	2006	2003	2013	2013	2008	2006	2002
Methodology	Government report	Qualitative	Qualitative	Survey	Survey	Audit	Survey	Qualitative	Audit	Audit
Diagnosis	X	X	X		X		X	X	X	X
Coordination	X	X			X		X	X	X	X
Weight and height		X			X		X	X		
Waist circumference								X		
System level/implementation	X						X	X		
Doctor–patient relationship								X		
Public health role							X			
Prevention							X			
Nutrition education	X	X	X		X		X	X		
Physical activity education	X	X	X				X	X		
Behaviour modification		X					X	X		
Counselling/psychology							X			
Role modelling										
Group-based interventions										
Medications	X				X	X				
Bariatric surgery referral	X								X	
Bariatric surgery work-up										
Bariatric surgery after care										
Commercial weight loss programme referral										
Bariatric equipment in consultation room										
Standard care undefined					X					
Exact role uncertain	X						X			
Person-centredness								X		
Whole person care								X	X	
Under-recognition/undertreatment mentioned	X			X	X			X		

Author	Kloek et al[214]	Antognoli et al[215]	Nursing Standard[216]	Binnie[217]	Bramlage et al[218]	Kraschnewski et al[219]	Morris et al[220]	Sammut et al[221]	Smith et al[222]	Sonntag et al[223]	Timmerman et al[224]
Title	Dutch general practitioners' weight management policy for overweight and obese patients	Direct observation of weight counselling in primary care: alignment with clinical guidelines	GPs failing to offer weight-loss advice to people who need it	Ten-year follow-up of obesity	Recognition and management of overweight and obesity in primary care in Germany	A silent response to the obesity epidemic: decline in US physician weight counseling	Who gets what treatment for obesity? A survey of GPs in Scotland	Audit of the diagnosis and management of adult obesity in a Maltese general practice	U.S. primary care physicians' diet-, physical activity-, and weight-related care of adult patients	Counseling overweight patients: analysis of preventive encounters in primary care	Weight management practices among primary care providers
Country	Netherlands	USA	UK	UK	Germany	USA	Scotland	Malta	USA	Germany	USA
Year	2014	2014	2015	1977	2004	2013	1999	2012	2011	2010	2000
Methodology	Cross-sectional survey	Direct observation	Editorial	Clinical audit	Cross-sectional survey	Clinical audit	Cross-sectional survey	Clinical audit	Clinical audit	Cross-sectional survey	Cross-sectional survey
Diagnosis	X	X	X	X	X	X	X	X	X	X	X
Coordination	X	X			X		X	X		X	X
Weight and height	X	X		X	X		X	X	X	X	

Continued

Table 4 Continued

Author	Kloek *et al*[214]	Antognoli *et al*[215]	Nursing Standard[216]	Binnie[217]	Bramlage *et al*[218]	Kraschnewski *et al*[219]	Morris *et al*[220]	Sammut *et al*[221]	Smith *et al*[222]	Sonntag *et al*[223]	Timmerman *et al*[224]
Waist circumference	X	X						X	X		
System level/implementation											
Doctor–patient relationship	X			X						X	
Public health role											
Prevention							X				
Nutrition education	X	X	X	X	X	X	X	X	X	X	X
Physical activity education	X	X	X		X	X	X	X	X	X	X
Behaviour modification		X	X				X	X	X	X	X
Counselling/psychology							X				
Role modelling											
Group-based interventions		X					X				X
Medications	X	X	X	X			X	X	X		X
Bariatric surgery referral		X					X	X	X		
Bariatric surgery work-up											
Bariatric surgery after care											
Commercial weight loss programme referral		X					X				X
Bariatric equipment in consultation room											
Standard care undefined											
Exact role uncertain						X					
Person-centredness											
Whole person care	X	X									
Under-recognition/undertreatment mentioned	X		X		X	X			X	X	X

Author	Gaglioti *et al*[225]	Morris and Gravelle[226]	Huber *et al*[227]	Asselin *et al*[228]
Title	Primary care's ecologic impact on obesity	GP supply and obesity	Obesity management and continuing medical education in primary care: results of a Swiss survey	Missing an opportunity: the embedded nature of weight management in primary care
Country	USA	UK	Switzerland	Canada
Year	2009	2008	2011	2015
Methodology	Epidemiology	Cross-sectional survey	Cross-sectional survey	Qualitative
Diagnosis	X	X	X	X
Coordination			X	X
Weight and height			X	X
Waist circumference			X	
System level/implementation	X			X
Doctor–patient relationship				
Public health role	X			
Prevention	X			
Nutrition education			X	X
Physical activity education			X	X
Behaviour modification			X	X
Counselling/psychology				
Role modelling				

Continued

Table 4 Continued

Author	Gaglioti *et al*[225]	Morris and Gravelle[226]	Huber *et al*[227]	Asselin *et al*[228]
Group-based interventions				
Medications				
Bariatric surgery referral				
Bariatric surgery work-up				
Bariatric surgery after care				
Commercial weight loss programme referral				
Bariatric equipment in consultation room				
Standard care undefined				
Exact role uncertain	x	x		x
Person-centredness				x
Whole person care				x
Under-recognition/undertreatment mentioned				x

GP, general practitioner.

seven of the interventions could person-centredness be seen in the description of the intervention.

Overview and opinion articles generally reported that the family doctor should be involved in all stages of management from diagnosis, nutrition and physical activity counselling, and ongoing follow-up. Not surprisingly, papers that were mainly about pharmacological interventions or bariatric surgery were only about that area of management. Bariatric surgery papers described the family doctor as required for referral, but not work-up, and some described the family doctor's role in ongoing management after surgery.

Overall, the family doctor was commonly involved in the diagnosis of obesity, and as a referral source into intervention trials. Frequently, the under-recognition and management of obesity was noted in observational studies of current practice. It was difficult to identify the pillars of primary care practice in the description on interventions for adult obesity management.

What do primary care guidelines say about the role of the family doctor? What do peak bodies (ie, advocacy groups) say about the role of the family doctor? Are these both in line with what is conveyed by current research?

In terms of the specific role of the family doctor, guidelines were variable and ranged from no mention of the family doctor, to the family doctor being involved in every stage of management from diagnosis and advice on nutrition and physical activity, to intensive treatments and long-term follow-up. Not surprisingly, guidelines written by family medicine organisations described a greater role for the family doctor. For guidelines that were written with a national healthcare focus, there was less detail on the type of professional that should be involved in each of the management areas.

Seven of the 16 guidelines specifically mentioned family doctors (or synonym), with one referring to 'primary care providers' (table 5). Seven (44%) suggested the family doctor should be involved in anthropometric measures of the patient, five (31%) recommended the family doctor should provide nutrition and physical activity advice, and seven discussed the referral to allied health providers by the family doctor.

DISCUSSION

This scoping review synthesises the current literature on the role of the family doctor in the management of obesity in primary care. This comprehensive set of articles provides the research community with a resource for further study, for example, systematic reviews and meta-analyses based on different aspects of primary care management of adult obesity.

The family doctor is mostly used as a recruitment source in primary care interventions, the majority of which have been carried out in the USA. This is in contrast to guidelines, clinical overviews and opinions that suggest a role for family doctors from diagnosis,

Table 5 International guidelines on the management of adult obesity in primary care, the role of the family doctor (FD) (over two pages)

Guideline	Country	Year	Intended for an FD audience?	FD mentioned	Primary healthcare mentioned	FD— measure the patient	FD— nutrition/ physical activity advice	FD— behavioural supports	FD— frequency of visits mentioned	FD—advice on use of intensive treatments	FD— referral to allied health	FD— referral to specialist obesity services	Does not mention specific role for FD
RACGP SNAP— Overweight and obesity, 2nd edition[229]	Australia	2015	X	X	X	X	X		X	X	X		
National Institute for Health and Care Excellence 'Managing adults who are overweight or obese'[230]	UK	2015	X										X
Recommendations for prevention of weight gain and use of behavioural and pharmacological interventions to manage overweight and obesity in adults in primary care Canadian Task Force on Preventive Health Care[231]	Canada	2015	X		X								X
Clinical practice guidelines for the management of overweight and obesity in adults, adolescents and children in Australia[1]	Australia	2013	X	X	X	X		X	X	X	X	X	
Institute for Clinical Systems Improvement Health Care Guideline Prevention and Management of Obesity for Adults[232]	USA	2013	X		X								X
Guideline for the Management of Overweight and Obesity in Adults A Report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines and The Obesity Society[233]	USA	2013	Primary care practitioner (PCP)	PCP	X								X
New Zealand Primary Care Handbook 2012—Weight Management[234]	New Zealand	2012	X	X	X	X	X	X	X	X	X		
US Preventive Services Task Force Screening for and Management of Obesity in Adults: Recommendation Statement[235]	USA	2012	X	X	X	X	X	X	X		X	X	
Screening for and management of obesity in adults: US Preventive Services Task Force recommendation statement[236]	USA	2012	X		X	X					X	X	
RACGP guidelines for preventive activities in general practice, 8th edition; 7.2 Overweight[237]	Australia	2012	X	X	X	X	X	X	X		X		

Continued

Table 5 Continued

Guideline	Country	Year	Intended for an FD audience?	FD mentioned	Primary healthcare mentioned	FD— measure the patient	FD— nutrition/ physical activity advice	FD— behavioural supports	FD— frequency of visits mentioned	FD—advice on use of intensive treatments	FD— referral to allied health	FD— referral to specialist obesity services	Does not mention specific role for FD
National guide to a preventive health assessment for Aboriginal and Torres Strait Islander people, 2nd edition, Overweight/Obesity[238]	Australia	2012	X	X	X								X
British Columbia Ministry of Health Services primary care providers have an important role in preventing and managing obesity through services offered to patients[239]	Canada	2011	X		X								X
World Gastroenterological Organisation: Obesity Guideline[240]	International	2011	X		X								X
Scottish Intercollegiate Guidelines Network—Management of Obesity[241]	Scotland	2010	X		X								X
Dutch College of General Practitioners: Obesity Guideline[242]	Netherlands	2010	X	X	X	X	X	X	X		X		
WHO—Interventions on Diet and Physical Activity: What works[243]	WHO	2009	X		X								X

RACGP SNAP, Royal Australian College of General Practitioners "Smoking, Nutrition, Alcohol, Physical Activity".

offering lifestyle advice and behavioural support, and ongoing follow-up. Half of the articles that described current practice, mostly through clinical audits or surveys, reported that obesity was under-recognised by family doctors. There appears to be a misalignment between what commentators suggest as a role for the family doctor, and the current role they play in many primary care interventions.

The great majority of primary care interventions for adult obesity are being developed and tested in the USA healthcare setting. This has implications for the interpretation of the findings for translation into other contexts.[17] For example, the USA does not have a 'gatekeeper' function for family doctors and patients are able to self-refer to tertiary services.[18] Patients with health insurance also have different access to care compared with those who do not have.[18] This may have ramification when translating an intervention to a context with universal healthcare access, such as the UK and Australia, and warrants further investigation.

We were also able to identify areas of concern for the publication of primary care research in obesity management. Twenty-seven of the interventions used standard care in the control arm, but standard care was poorly defined in 15 of these interventions. It is difficult to determine the relative effectiveness of new interventions in the management of obesity in primary care when they are compared with poorly defined standard care. More worryingly was the use of substandard care where family doctors were advised not to give lifestyle advice to patients.[16] This suggests that usual care was artificially reduced in order to improve the apparent effectiveness of an intervention. This is a dubious practice from an ethical and scientific perspective and undermines the role of family doctors in obesity management.

Implications for practice

Guidelines are documents that are developed to assist practitioners in deciding on a course of action in a specific clinical circumstance[19] and they often determine a standard of care. The obesity guidelines that were identified in this review had varying recommendations for the role of the family doctor. In some jurisdictions, including Australia, national guidelines do not often recommend that a specific profession must be responsible for a task, unless the task is limited to the scope of one profession alone. In contrast, in the Netherlands where the central role of family doctors is prescribed within the health system, family doctors are likely to have a foundational role in all guidelines that are produced. The role of guidelines and their development varies between nations and health systems and the centrality of the role of the family doctor in a guideline may reflect the strength of primary care in the specific healthcare system. Therefore, guidelines may not always be the definitive source for determining the clinical scope and responsibilities of specific professional groups such as family doctors in obesity care.

Implications for research

Poor descriptions of interventions could have been aided by adherence to the TIDieR guidelines.[15] Specifically, the TIDieR guidelines suggest the health professionals involved in an intervention should be described in terms of their professional background, their expertise and any specific training given. The terms used to describe a family doctor were diverse in the intervention papers and ranged from primary care physician, primary care provider, family physician or general practitioner. The range of terms that are used in the primary care literature makes it impossible to understand the qualifications of professionals involved in the interventions. Trials from the USA often use 'primary care providers' or 'primary care practitioners', nebulous terms that could include a variety of professionals with vastly different training. This is particularly problematic when international primary care teams attempt to translate interventions to their local context. An international taxonomy for describing family doctors could assist in solving this issue.

The primary care literature has thoroughly described the fundamental factors that make primary care effective.[9] However, it was challenging for reviewers to determine if interventions were inclusive of the principles of person-centredness and whole person care. Knowing that first point of contact, whole person, coordinated, person-centred, continuous care, is important in primary care; it would be helpful for primary care interventions to explicitly consider these factors in their design. Additionally, the specific reporting of these factors in primary care trials would be helpful in publications to improve the understanding of how and why primary care interventions work. It is perhaps important that primary care determines a specific set of reporting requirements for primary care research that could be added to the TIDieR checklist.

Limitations

This scoping review is limited to the context of obesity management in primary care. Articles that reported on other important and related topics like nutrition, lifestyle change or cardiovascular health were not included. We chose to limit the review to obesity as we were interested in this specific literature and wanted to maintain the depth of our data extraction while maintaining feasibility. The review was also limited to publications in the English language and this may have missed work that included family doctors in non-English speaking healthcare settings. We may have missed international guidelines that were not picked up in our search strategy. As expected in a scoping review, articles were not assessed for quality or the specific outcomes of reported trials. Further work would have to be done from the identified literature and this could include a thematic analysis. The aim of the scoping review is to widely and broadly search the literature to identify gaps and inconsistencies, and provide a platform for further systematic work.[20]

CONCLUSION

There appears to be a disconnect between how family doctors are involved in primary care interventions, the message that is found in academic literature and the apparent role of the family doctor in current practice. Guidelines that are developed by national bodies are not necessarily the definitive source of information for the discrete role of specific health professionals. Improvement is required in the reporting of primary care interventions, particularly in the professional background of those involved in the trial and the acknowledgement of the pillars of primary care in intervention development. This foundation work provides a platform for further interpretation of existing literature on the role of the family doctor in obesity management.

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