Systematic Review

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Practice patterns of nurse practitioners related to weight management in primary care

Suzanne Hyer, MSN, RN

ABSTRACT

Background and objectives: Obesity prevalence rates for adults are at an all-time high. This systematic review of the literature aimed to examine the practice patterns of nurse practitioners (NPs) related to weight management in primary care and recommend future areas of research as it relates to the diagnosis and management of patients with obesity by NPs.

Data sources: The databases CINAHL PLUS with Full Text, Cochrane Central Register of Controlled Trials, ERIC, MEDLINE, PsycINFO, and SPORTDiscuss were searched.

Conclusions: The initial search resulted in 169 articles. Fifteen peer-reviewed articles from 13 studies were included in the analysis. Four themes emerged from the analysis: approach to practice; the practitioner's role within the interdisciplinary team; communication; and resources and tools.

Implications for practice: This review was conducted to better understand the challenges and facilitators to the management of patients with obesity in primary care. Future research between NPs and variables related to obesity are necessary to further identify areas for education, training, and policy development.

Keywords: Nurse practitioner; obesity; practices.

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Introduction

More American adults are now overweight or obese than have been at any time in the past. Obesity is defined as a body mass index (BMI, kg/m^2) of 30 or greater, and extreme obesity is defined as a BMI of 40 or greater (Centers for Disease Control & Prevention 2016). Data from the 2013–2014 National Health and Nutrition Examination Survey indicated obesity prevalence rates around 38%, with 1 in 13 adults presenting with extreme obesity (Flegal, Kruszon-Moran, Carroll, Fryar, & Ogden, 2016). Multiple health risks are associated with obesity, such as hypertension, diabetes, and cancer (National Heart, Lung, Blood Institute [NHLBI], 2012). Moreover, obesity is associated with increased cardiovascular disease mortality with an estimated 12 adults dying every hour within the United States (Flegal, Graubard, Williamson, & Gail, 2007). The economic impact of obesity is also profound. A systematic review found that direct medical spending on obesity in the US was between $86 and $147 billion each year, whereas indirect costs such as absenteeism, presenteeism, and disability amount to an additional $66 billion each year (Hammond & Levine, 2010).

Multiple professional organizations have developed and/or endorsed practice guidelines for the management of obesity. Two such guidelines published within the United States include the American Heart Association/American College of Cardiology/The Obesity Society guidelines (Jensen et al., 2013) and the Association of Clinical Endocrinologist/American College of Endocrinology guidelines (Garvey et al., 2016). These guidelines are in addition to evidence reviews provided by the NHLBI (2013) and the Agency for Healthcare Research and Quality (LeBlanc, O'Connor, Whitlock, Patnode, & Kapka, 2011). Furthermore, the American Association of Nurse Practitioners (2018) recently announced an accredited online certificate program in obesity management that is aimed at expanding care to patients with obesity. The availability of these clinical resources to providers does not necessarily ease the transition of guidelines into practice.

Despite the American Medical Association's (2013) declaration that obesity is a chronic disease, weight-related discussions between patient and physician are not uniformly conducted (Antognoli et al., 2014; Pool et al.,

University of Central Florida, College of Nursing, Orlando, Florida

Correspondence: *Suzanne Hyer, MSN, RN, University of Central Florida, College of Nursing, 12201 Research Parkway, Suite 300, Orlando, FL 32826. Tel: 407-823-2744; E-mail: shyer@knights.ucf.edu*

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2014). Barriers to weight management among providers include lack of time, inadequate reimbursement, and the stigma of obesity (Geense, van de Glind, Visscher, & van Achterberg, 2013; Mold & Forbes, 2013; Timmerman, Reifsnider, & Allan, 2000). Providers who do not take an active role in weight counseling must still provide a thorough assessment and treatment options for patients with obesity (Tsai & Wadden, 2009).

Primary care is positioned as accessible, first-contact medical care, and more importantly as continuous and comprehensive (Institute of Medicine, 1996). The primary care setting is ideal for the assessment and management of weight loss (Jay et al., 2015; Phillips, Wood, & Kinnersley, 2014). Nurse practitioners (NPs) have an integral role in primary care settings (Naylor & Kurtzman, 2010). With more than 80% of NPs educated in primary care, NPs can make a significant contribution to tackling the obesity crisis (Fruh, 2017). Data related to how NPs treat obesity are increasingly important. A comprehensive examination of the current practice patterns of NPs related to weight management is critical to understanding challenges and facilitators to counseling and treating patients with obesity. This article aims to examine the practice patterns of NPs related to weight management in primary care.

Methods

Design and sample

The databases CINAHL PLUS with Full Text, Cochrane Central Register of Controlled Trials, ERIC, MEDLINE, PsycINFO, and SPORTDiscuss were searched. Index and free-text terms included a variation of the terms obesity, NPs, and practices. See **Figure 1** for specific terms. Studies were included if they were published in a peer-reviewed journal from 2010 to April 2018, written in English, and addressed weight management practice patterns of NPs with primary care adult patients. Date limitations were based on the enactment of the Patient Protection Affordable Care Act (ACA, 2010) that initiated changes for the health care system, augmenting preventative care models including expanding benefits for obesity management, and programs focusing on care delivered by nurses. The questions used to guide this literature review included: Are NPs managing obesity? What interventions are being used? What are the outcomes? What are the experiences of NPs who deliver weight management practices? Citation searches were also undertaken. Articles were excluded if the study focused on children, adolescents, or pregnancy-related care, was conducted outside of primary care, or did not address obesity management.

obesity, obes*, overweight weight control, weight, weight reduction programs

nurse practitioners+, nurse practitioner*, ARNP, FNP

practic* pattern*, practices, patient relations, communicat*

Figure 1. Keyword search terms,

Findings

The initial search resulted in 169 articles. Citation searches revealed three additional articles. After the removal of duplicate articles, the titles and abstracts of 119 articles were screened for exclusion criteria. Twenty-nine articles were read in their entirety. A depiction of the methodology can be found in **Figure 2**. Fifteen articles from 13 studies were included in the analysis. Critical appraisal of the included studies was based on the Joanna Briggs Institute (2017) criteria. Eight articles had a quantitative design including: a randomized controlled trial (1), quasi-experimental (2), self-report survey (4), and retrospective data analysis (1). Seven articles had a qualitative design of which five studies conducted individual interviews, one study used focus groups, and one study conducted interviews along with virtual focus groups. A majority of the studies were conducted within North America, with one study conducted in the United Kingdom and another in the Netherlands.

Using a standardized data extraction table, the author abstracted the study design, setting, sample characteristics, description of measure, and outcome/findings from each article. A summary of the study characteristics is provided in Table 1. Four themes emerged from analysis of the data extracted from the published articles on the weight management practices of NPs: (1) approach to practice; (2) the practitioner's role within the interdisciplinary team; (3) communication; and (4) resources and tools.

Approach to practice

Seven studies reported NPs identify and assess weight status during an office visit (Courtney & Dickson, 2010; Granara & Laurent, 2017; Jarl, Tolentino, James, Clark, & Ryan, 2014; Magee, Everts, & Jamison, 2012; Petrin, Kahan, Turner, Gallagher, & Dietz, 2016; Petrin, Kahan, Turner, Gallagher, & Dietz, 2017; Schauer, Woodruff, Hotz, & Kegler, 2014). In addition, the research indicated providers intervene or counsel patients regarding obesity (Courtney & Dickson, 2010; Granara & Laurent, 2017; Jarl et al., 2014; Magee et al., 2012; Petrin et al., 2016).

Prescribing patterns of weight-loss medications among NPs varied from rarely prescribing to half of study participants reporting the practice of using weight-loss pharmaceuticals (Courtney & Dickson, 2010; Granara & Laurent, 2017; Petrin et al., 2016). When NPs do prescribe weight-loss pharmaceuticals, the reported thresholds that prompt the prescription were not aligned with national guidelines of pharmacotherapy (Granara & Laurent, 2017; Petrin et al., 2016). Similarly,

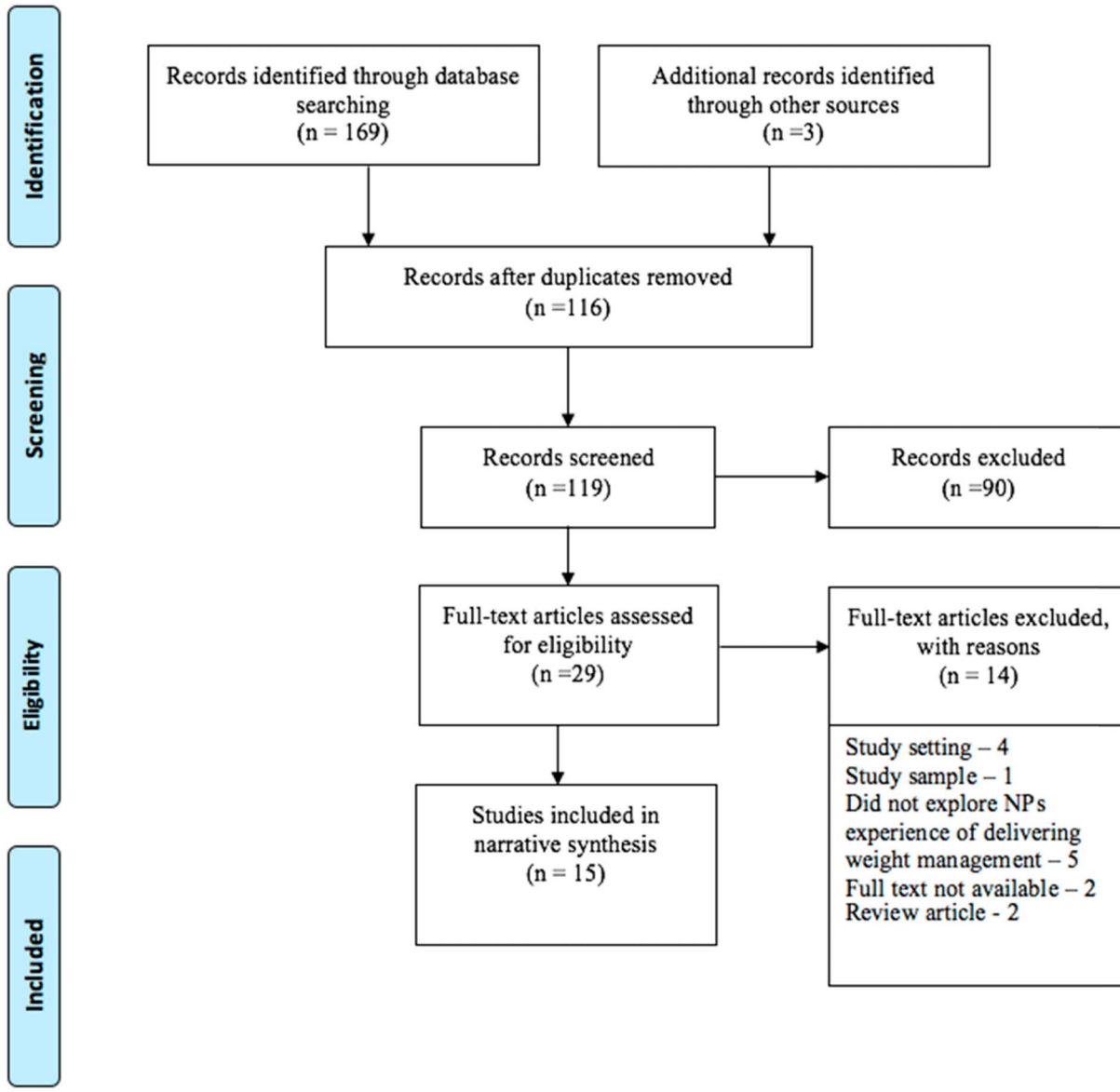

Figure 2. PRISMA flow diagram. NP = nurse practitioner.

referrals for bariatric surgery varied greatly from rarely making a referral to 70% of participants referring out for consultation (Courtney & Dickson, 2010; Petrin et al., 2016).

Scope of practice (SOP) restrictions, safety concerns regarding medications, and lack of insurance coverage for surgery were cited as reasons for these practice patterns (Granara & Laurent, 2017; Petrin et al., 2016). Counseling on weight loss or obesity was often times accompanied with discussions on obesity-related risk factors (Petrin et al., 2017). Notably, among clinical considerations (e.g. risk of heart disease or diabetes), NPs discussed quality of life considerations such as activities of daily living more often than other providers (Petrin et al., 2017).

The practitioner's role within the interdisciplinary team

The lens from which the health care provider views his or her role in managing obesity within an interdisciplinary team was described in five studies (Asselin et al., 2017; Asselin, Osunlana, Ogunleye, Sharma, & Campbell-Scherer, 2016; Hayes, Wolf, Labbé, Peterson, & Murray, 2017; Nolan, Deehan, Wylie, & Jones, 2012; Petrin et al., 2017). Studies showed the positive impact of the provider's perceived responsibility for managing obesity (Asselin et al., 2016; Nolan et al., 2012; Petrin et al., 2017). Sixty-five percent of primary care physicians, obstetricians, and NPs surveyed believe patient counseling on obesity is a shared responsibility between the patient and the provider (Petrin et al., 2017). In addition, providers perceived that a high functioning interdisciplinary team

Table 1. Data summary table

Source	Design	Sample Size	Study Aim	Findings
Asselin, Osumlana et al., 2016	Qualitative, interviews	29	Describe the role of interdisciplinary collaboration within the 5As' team trial	The ability of HCP to address weight with patients was largely guided by strong communication and clinic relationships within the interdisciplinary team
Asselin, Salami, et al., 2017	Qualitative, interviews and questionnaires	28	Discuss HCP perspective of the impact of the new practice approach to obesity	Internalization of new practice approaches is achieved through increased self-awareness and reflection, which led to positive changes in patient–provider and team relationships
Chung et al., 2015	Qualitative, interviews	21	Describe practices, goals, and barriers with the use of life-log data	Self-monitoring data can support diagnosis and treatment; build patient–provider relationships; and tailor treatment plans to patient priorities and routines. Barriers included time, knowledge, and compensation associated with its integration
Courtney & Dickson, 2010	Observational electronic self-report survey	599	Discover practice patterns, attitudes, and perceived barriers to managing obesity	Majority assess, calculate BMI, counsel, set joint weight-loss goals, and recommend PA. WL medication and bariatric surgery were rarely discussed
Driehuis et al., 2012	RCT	457	Evaluate the 3-year effect of lifestyle counseling by a NP on PA and diet compared with usual care by a GP	Activity increased along with diet improvements was made for both NP and GP groups. Three-year changes in PA and diet did not differ significantly between groups
Granara & Laurent, 2017	Observational electronic self-report survey	94	Determine attitudes and practice patterns of WL medications	Majority of PCPs do not prescribe medication for short-term nor long-term weight loss and report negative perceptions of weight-loss medication. Severe obesity and multicomorbidities increased likelihood of prescribing WL medication
Gudzune et al., 2012	Qualitative, focus groups	26	Explore provider communication related to weight management	Various methods are used to communicate WL strategies, many of which are patient-centered. When challenges were met, standardized messages or avoidance was used
Hayes et al., 2017	Qualitative, interviews and virtual focus groups	31	Identify challenges of PCPs related to managing obesity	Inconsistent primary care team integration with a lack of understanding role responsibilities in addition to reactively treating comorbidities instead of proactivity managing patients with obesity

(*continued*)

Table 1. Data summary table, *continued*

Source	Design	Sample Size	Study Aim	Findings
Jarl, et al., 2014	Quasi-experimental	45	NP-led intervention for diet and lifestyle counseling	Improvements in patient diet and lifestyle scores on both REAP and PIH questionnaires/ increased PA reported. Average WL was 3.6 pounds
Magee et al., 2012	Retrospective chart review	180	Review archived data for initiating WL interventions	NPs intervened 61% of the time with patients with increased BMI, whereas physicians intervened 7.8% of the time
Nolan et al., 2012	Qualitative, interviews	22	Factors related to managing obesity	Positive factors: PNs identified their role in obesity management, self-efficacy in communication skills, training, and time. Negative factors: low awareness of guidelines and referral process, limited knowledge on approaches, small impact on outcomes, and lack of clarity on their role within the practice
Petrin et al., 2016	Observational electronic self-report survey	1501	Identify beliefs, practices, and knowledge on drug therapy, bariatric surgery referrals, and coding	Physicians more likely to prescribe WL medication and recommend bariatric surgery than NPs. Many providers do not use obesity-specific CPT codes for WM or counseling
Petrin et al., 2017	Observational electronic self-report survey	1501	Identify beliefs, practices, and knowledge on obesity, practices on counseling, and treatment	More time, training, reimbursement, and risk tools needed to improve ability to counsel. Obesity-related counseling discussed risk of comorbidities and ADLs
Schauer et al., 2014	Qualitative, interviews	30	Explore approaches to counseling (who, how, what advice, and what treatment)	Clinicians tend to counsel established patients, address weight-related conditions, or change in weight. Advice generally not based on guidelines.
Steglitz et al., 2015	Quasi-experimental	12	Assess the impact of an obesity intake protocol and EHR on the management of adult obesity	New protocol and EHR form eased the identification of patients with obesity and increased provider confidence about managing obesity. Treatment group twice as likely to receive weight-loss counseling after the form and protocol were introduced

Note: ADLs = activities of daily living; BMI = body mass index; CPT = Current Procedural Terminology; EHR = electronic health record; GP = general practitioner; HCP = health care professional; NP = nurse practitioner; PA = physical activity; PCP = primary care provider; PIH = Partners in Health; PN = practice nurse; RCT = randomized controlled trial; REAP = Rapid Eating Assessment for Patients; WL = weight loss; WM = weight management.

approach positively affected the patient provider experience (Asselin et al., 2016; Asselin et al., 2017). Furthermore, the successful management of the patient with obesity was strongly linked to the interdisciplinary team's relationship among team members (Asselin et al., 2016; Asselin et al., 2017). For example, in one qualitative study, practice nurses in a UK general practice setting who had a positive view of their role in weight management had received training on obesity management and used the training in their practice or were able to refer patients to colleagues within the office (Nolan et al., 2012). Conversely, inconsistent team integration and a lack of role identity led to perceived challenges in managing obesity (Hayes et al., 2017; Nolan et al., 2012).

Communication

Communication patterns surrounding weight management were discussed consistently in the literature. This includes the quality of communication among team members (Asselin et al., 2016; Hayes et al., 2017) and the quality of communication with patients (Chung, Cook, Bales, Zia, & Munson, 2015; Driehuis, 2012; Gudzune, Clark, Appel, & Bennett, 2012; Petrin et al., 2017; Schauer et al., 2014). Indicators of quality were identified as open communication that supports the patient–provider relationship, which can lead to improved patient outcomes (Chung et al., 2015). This starts with a patient-centered approach (Gudzune et al., 2012) and using preferred terminology when talking with patients (Petrin et al., 2017). Between 76% and 84% of health care providers reported the use of terms such as exercise, physical activity, or eating habits as opposed to unhealthy weight (47%) or heavy (20%) when counseling on weight loss (Petrin et al., 2017). Communication and clinic relationships were cited as key to successful weight management practices in data from participant interviews from a mixed-methods randomized controlled trial for a health care team-based educational intervention (Asselin et al., 2016).

Resources and tools

Weight management requires a multidimensional approach by the practitioner. Five studies described the utilization, or lack thereof, of tools as a resource for educating, counseling, or documenting (Chung et al., 2015; Jarl et al., 2014; Petrin et al., 2017; Schauer et al., 2014; Steglitz, Sommers, Talen, Thornton, & Spring, 2015). Practitioners conveyed a need for efficient tools to effectively deliver weight-loss counseling (Chung et al., 2015; Jarl et al., 2014).

Examples of tools included brochures, electronic health record (EHR) forms, mobile phone applications (apps), or risk assessment tools. Chung et al. (2015) described the benefits of integrating personal life-log data into the practice environment. Life-log data such as diet or exercise routines are usually captured through electronic devices or mobile phone apps. Benefits of using life-log data outlined by providers support both the diagnosis and treatment, and build patient–provider relationships (Chung et al., 2015). The integration of an obesity protocol and customized EHR form increased the likelihood of receiving weight-loss counseling for an intervention group by twofold compared with a control group; however, no significant change in BMI was found (Steglitz et al., 2015). Introducing technology such as apps or EHR to the clinic environment is not without challenges. Providers cited difficulties interfacing with systems and the technology consuming more time than desired (Chung et al., 2015; Steglitz et al., 2015).

Discussion

This review of the literature revealed that weight management is inconsistent in primary care. Both physicians and NPs underutilize guidelines that support weight-loss interventions that include diet, physical activity, behavioral counseling, weight-loss pharmaceuticals, and referral for bariatric surgery. Some providers delay weight-related discussions with patients until the severity of obesity has increased or the patient develops one or more comorbidities associated with obesity. Proactive interventions for managing obesity are warranted.

A number of gaps emerged from the data. First, there are a limited number of studies that focus on the NPs' individual weight management practice patterns. Much of the data presented in this review was aggregated data from multiple disciplines, e.g. physicians, physician assistants, mental health professionals, dieticians, and NPs. A collaborative team approach to weight management is warranted to enhance patient care. However, given the depth of information specific to primary care physicians' practice patterns, it is worthwhile to explore the attributes of NPs' individual weight management practice patterns to identify knowledge, skills, and abilities that will ultimately enrich the team dynamic and improve the quality of patient care.

Second, findings from this review highlight the gap in the report of measurable variables that may influence weight management practices. Quantitative data on NPs' self-efficacy, attitudes toward patients with obesity, perceived skill, and weight management practices are clearly lacking in the current literature. Evaluating quantifiable data may identify best practices and inform further development.

Finally, the reliability and validity of the measurement tools was not uniformly described in the literature. Survey questionnaires from four studies included in this review were generated by the author and lacked psychometric data (Courtney & Dickson, 2010; Granara & Laurent, 2017; Petrin et al., 2016; Petrin et al., 2017).

Practice and policy implications

Health policies can play a role in changing population-wide behavior that leads to improvements in health outcomes among patients with obesity (Schwartz, Just, Chriqui, & Ammerman, 2017). Nurse practitioners should examine how current policies affect their practice and advocate for policies that place patient outcomes as a priority. An overwhelmingly consistent theme among providers is the need for policy change regarding the compensation or reimbursement for weight management in primary care. Lack of compensation or inadequate reimbursement has been reported as a barrier to managing weight loss in multiple publications (Chung et al., 2015; Courtney & Dickson, 2010; Nolan et al., 2012; Petrin et al., 2017). The ACA (2010) expanded obesity-related services for Medicaid enrollees, and the Centers for Medicare and Medicaid Services (CMS, 2012) established national coverage for intensive behavioral therapy for individuals entitled to benefits. However, three of four patients reported a lack of insurance coverage for obesity treatment by private insurance companies (Kyle & Nadglowski, 2015). In addition, overall obesity prevalence rates are highest among middle-aged adults (40–59 years old) who may not be recipients of federally funded insurance programs (Ogden, Carroll, Fryar, & Flegal, 2015). Patients may be reluctant to undergo treatment without sufficient insurance coverage (Kannan & Veazie, 2014).

A phenomenon that is detrimental to the identification and management of obesity is the lack of a formal diagnosis of obesity through *ICD-9* documentation within the patient's health record (Burguera, 2016). Current *ICD-10-CM* guidelines require the provider to document the associated diagnosis, such as overweight or obese, not just BMI alone (CMS, 2018). Patients are more likely to receive weight management counseling if they are diagnosed with obesity (Bleich, Pickett-Blakely, & Cooper, 2011). The literature suggests that providers may not see the benefit of coding the diagnosis if they will not be adequately reimbursed (Burguera, 2016). Weight-loss attempt and realistic perceptions of weight were positively correlated with provider weight discussions (Rose, Gokun, Talbert, & Conigliaro, 2013).

Building on the general reimbursement policy issue for managing obesity is the limited and inconsistent SOP for NPs. The discussion for independent SOP laws is beyond the scope of this article. The focus here is the connection between payer policies and the state's specified SOP laws (Yee, Boukus, Cross, & Samuel, 2013). In states with restricted SOP laws, NPs may not be designated as primary care providers that decrease their payment rate for services (Yee et al., 2013). There is a direct relationship between the payer's refusal to credential NPs as primary care providers and the state law governing prescriptive authority (Hansen-Turton et al., 2006) with some payers imposing additional restrictions on NPs (Yee et al., 2013). Reports describe the practice of billing "incident to" a physician's service, which increases the standard 85% reimbursement rate of NP services to 100% of the physician rate (Buerhaus et al., 2018; Yee et al., 2013). Also, incident to billing masks the services provided by NPs and consequently, hinders analysis of reporting data on claims and quality of care around obesity management and other conditions (Buerhaus et al., 2018; Yee et al., 2013).

Conclusion

The complexities of obesity and weight management demonstrate the need for individualized treatment plans that holistically support weight loss (Nelson, Ruffalo, Dyer, & Nelson, 2016). Challenges remain in managing patients with obesity within the primary care setting despite guidelines from professional organizations (Jensen et al., 2013; US Preventative Services Task Force, 2012). This review of the literature revealed that the inconsistent management of obesity among practitioners may lie within their perceived role identity, communication practices, and available resources. These factors may be compounded by dysfunctional team dynamics, lack of referral sources, or system-level support such as clinical protocols or EHR tracking.

Data related to how NPs treat obesity could be used as a needs analysis for educational interventions. There is a need for future research that explores variables such as NPs' perceived self-efficacy, attitudes toward weight management, and attitudes toward patients with obesity, as they relate to the diagnosis and management of obesity. Given the relatively limited number of studies, it is necessary to quantify these variables to further identify areas for education, training, policy development, and most importantly, appropriate patient care.

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