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Abstract

Obesity is a growing epidemic that continues to garner attention throughout healthcare. The goal of this study was to review the literature on physician bias and stigmas surrounding obesity to assess the current state of research on connections between obesity-related stigma and the health outcomes and care of patients with obesity. A specific search string was used to obtain articles via PubMed and psychINFO, yielding 14 studies found that investigate these connections. The studies were categorized into three distinct pathways leading from physician stigma and biases to differing health outcomes of patients with obesity. These three pathways- perceptions, patient interaction, and clinical practice- are a novel way to look at the ways provider bias affects patients with obesity. This system allowed us to highlight significant health disparities among patients experiencing obesity. We propose several areas for future research to reduce physician bias, further characterize the impacts of provider bias on outcomes, and identify interventions for change.

Keywords

Obesity; Physician Held Stigma; Disparities of Healthcare

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ABSTRACT

Obesity is a growing epidemic that continues to garner attention throughout healthcare. The goal of this study was to review the literature on physician bias and stigmas surrounding obesity to assess the current state of research on connections between obesity-related stigma and the health outcomes and care of patients with obesity. A specific search string was used to obtain articles via PubMed and psychINFO, yielding 14 studies found that investigate these connections. The studies were categorized into three distinct pathways leading from physician stigma and biases to differing health outcomes of patients with obesity. These three pathways- perceptions, patient interaction, and clinical practice- are a novel way to look at the ways provider bias affects patients with obesity. This system allowed us to highlight significant health disparities among patients experiencing obesity. We propose several areas for future research to reduce physician bias, further characterize the impacts of provider bias on outcomes, and identify interventions for change.

Keywords: Obesity; Physician Held Stigma; Disparities of Healthcare

INTRODUCTION

Obesity is a growing international health problem with ramifications throughout healthcare. People with obesity have elevated risk for a host of other health problems such as diabetes, heart disease and some gynecologic cancer (Apovian, 2016). Obesity poses multiple challenges for physicians across specialties.

However, the obesity epidemic creates more than just direct challenges for patients' health. A growing body of research has shed light on the systemic bias and stigma held against people who suffer from obesity (Phelan et al., 2015). Obesity stigmas and bias are pervasive in our mainstream culture. The biases associated with obesity include "laziness", "sloppiness", and "unpleasant". Biases can be implicit (not readily known by the individual who holds them) or explicit in nature. Both implicit and explicit bias have shown to impact behavior towards individuals who are on the receiving end of bias (Flint, Hudson, & Lavallee, 2015).

Unfortunately, physicians are not immune to these biases. Research has shown that physicians also harbor implicit and explicit biases against individuals with obesity (Bacon, Scheltema, & Robinson, 2001; Schwartz, Chambliss, Brownell, Blair, & Billington, 2003; Vartanian & Fardouly, 2013). New research has begun to focus on problems provider bias can cause throughout the healthcare system. For one, research has shown that fear of bias can cause patients reluctance to seek out necessary healthcare (Thomas, Hyde, Karunaratne, Kausman, & Komesaroff, 2008).

The aim of this literature review was to assess the current research on physician bias/stigmas against obesity and the effects of bias upon the health outcomes and care of patients with obesity. To our knowledge, no other reviews have investigated the impact of provider bias upon the health outcomes of patients experiencing obesity. This review offered a fresh look at how physician bias relates to the health of patients with obesity, and provided several avenues for future study.

METHODS

The methods of collecting data and formatting of this review were modeled after a literature review on a similar topic by (Mold & Forbes, 2013). This review was accomplished in three steps: search and identification of studies; content extraction and appraisal of suitability for review; and synthesis of compiled content.

Step 1: Search and Identification of Studies

Electronic searches were done using key words/synonyms in PubMed and PsycINFO. *Figure 1* shows the search terms and the ultimate search string that was used for both Pubmed and PsycINFO. No limits in the date range were used and no limits on language or paper type were set. All the papers in the search were considered for inclusion in the review except for ones that met the exclusion criteria. Exclusion criteria were papers that had some mention of childhood, adolescence, or pregnancy, as well as studies investigating non-physician healthcare provider.

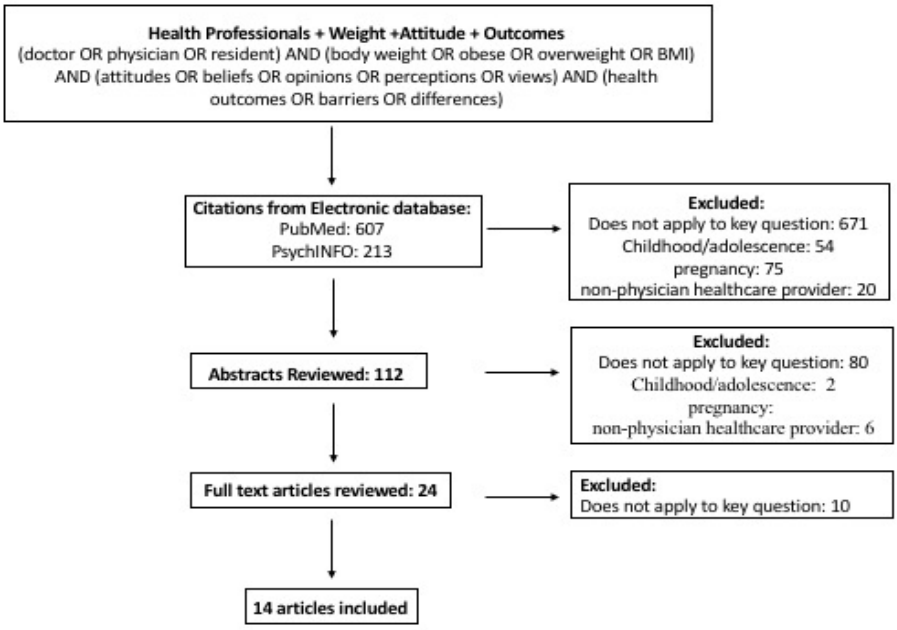
Step 2: Content Extraction and Appraisal of Suitability for Review

After removal of the papers in the exclusion criteria, the rest of the articles' abstracts were read. Each abstract was assessed for meaningful discussion of an association between bias and health outcomes. To be selected for further consideration for study inclusion, the papers' abstracts must have included mention of assessment of physician bias/ stigma, patients with obesity, and differences in outcomes involving the healthcare of patients with obesity. In this study "changes in health outcomes" was broadly defined as "any aspect of a person's health that changed due to stigma or bias". Some studies populated from this search string were not related to this subject in any way. Additionally, many studies that populated from this search string did not contain one or more of the inclusion criteria.

Step 3: Synthesis of Compiled Content

The studies that met the criteria were read and verified for relevance. Some papers were discarded for lack of congruence with the search criteria. The remaining papers were synthesized for common themes. Finally, all the themes were taken together to look at the overall contribution to obesity bias research at large.

Figure 1: Search criteria for literature review and final search string.



RESULTS

There were 607 search results populated in PubMed and 213 in PsycINFO. From the cumulative 820 abstracts, 112 abstracts were read after removing papers with exclusion criteria in the title. Many of the 213 PsycINFO results overlapped, as most of the resulting papers were also in the PubMed search. Of all the studies, 24 were found to have met the criteria to be read and verified for relevance. Ten papers were discarded for lack of congruence with the search criteria. The 14 remaining papers were used in this literature review. From the papers, three main categories, or "groups", emerged to describe the ways biases and stigma affect health outcomes. These include: differences in perceptions of the physician for the patient, differences in the quality of the patient interaction, and differences in clinical practice.

Group One: Differences in mindset/perceptions of the physician for the patient

Five of the studies showed that physician biases led to differences in perceptions that subsequently affected care of patients with obesity. One study found 122 physicians viewed patients who suffer from obesity significantly more negatively on 12 of 13 indices. Of these 12 indices, some of the more noteworthy were a significant increase in "extent to which this patient would annoy me" ($p=0.020$), a significant decrease in "personal desire I have to help this patient" ($p=0.030$), and a significant decrease in belief that "the patient would follow my advice" ($p=0.000$). Additionally, they found physicians indicated they would spend significantly less time with patients who suffer from overweight and obesity ($p<0.001$) (Hebl & Xu, 2001). Likewise, another study demonstrated that over a one-month period, of all patients with obesity admitted to one hospital only 19% had "obesity" documented in their admission notes (Howe, Wright, Landis, & Kisuule, 2010). When providers were surveyed on why they had not documented obesity, 37% of providers indicated that they thought "efforts to help [their] patients lose weight [would] be

unsuccessful". Furthermore, another paper found that of the 1,196 family doctors answering their survey, 58.6% believed less than one fourth of the patients they counseled on dietary habits would change their eating behaviors (Mackey et al., 2018).

Additionally, some of the papers showed physicians held misconceptions about how their patients with obesity fare in certain situations. In one, researchers found that spinal surgeons significantly overestimated the risks of adverse events in patients who were obese following posterior lumbar fusions (overestimation of 1.35 relative risk, $p<0.001$) (Ondeck et al., 2018). Similarly, another group of researchers sent surveys to critical care doctors with clinical vignettes assessing how these physicians would proceed with various cases of sepsis. Despite the clinical vignettes having identical severities, physicians ranked "estimated hospital mortality" and "problems with self-care" significantly higher when the patient in question suffered from obesity ($p<0.000$ and $p<0.001$, respectively). Furthermore, the physicians were more likely to recommend limiting "care with curative intent" in patients with obesity (odds ratio 2.54, $p<0.000$) (O'Brien, Aberegg, Ali, Diette, & Lemeshow, 2009).

Group Two: Differences in the Quality of the Patient Interaction

Four of the studies were found to show how physician biases lead to differences in the quality of the patient interaction. In one study, the Roter Interaction Analysis System (RAIS) was used to assess the relationship between Body Mass Index (BMI) and "physician communication behaviors". They found that primary care providers (PCP) demonstrated less emotional rapport with patients experiencing obesity than those with normal BMI during scheduled doctor's visits (Incident rate ratio, IRR 0.69, 95%CI 0.58-0.82, $p<0.010$). However, no differences were found in PCP's biomedical or psychosocial/lifestyle communication between patients with obesity and those who were not obese. Additionally, there were no differences in length of visit, even though patients with obesity had more co-morbid conditions ($p=0.050$) (Gudzune, Beach, Roter, & Cooper, 2013).

Similarly, another group showed differences in the interactions between patients with obesity and patients with normal BMIs when it came to first visits with PCP resident physicians. In this study, doctors spent significantly less time educating patients with obesity about their health compared to patients without obesity ($p=0.006$). They also spent more time discussing exercise with their patients suffering from obesity ($p=0.008$). Again, there was no difference in length of visit between patients with obesity and patients without obesity. In addition, upon review of charts they found that 63.4% of the patients with obesity had never been diagnosed as having obesity (Bertakis & Azari, 2005).

Further, one group of researchers surveyed 240 gynecologic oncology physicians and found that 24.4% of the physicians reported "difficulty empathizing with obese survivors". In addition, 67.0% of practitioners did not believe a 10% weight reduction would be enough to improve health in survivors (Jernigan, Tergas, & Fader, 2012). This is in direct contrast to evidence given in NIH guidelines on weight reduction (Clinical Guidelines on the Identification, Overweight, & Summary, 1998). Furthermore, oncology providers were more likely to utilize the American Cancer Society (ACS) guidelines to counsel patients about tobacco cessation (84.2% of physicians), than on obesity related ACS guidelines such as fruit and vegetable intake (23.0% of physicians) and exercise (38.2% of physicians) (Jernigan et al., 2012). Lastly, another study found that providers who reported that they less often counseled their patients on dietary habits were

significantly more likely to believe patients would not change their habits ($p<0.001$) (Mackey et al., 2018).

Group Three: Differences in clinical practice and follow-up

Six studies depicted how physician biases and stigmas led to differences in clinical practices and follow-up of patients with obesity. In one study, researchers found that although 91.0% of PCP's reported scheduling weight-related follow-up appointments after discussing weight, among patients with obesity who reported discussing weight with their PCP's, only 24.0% reported that a weight related appointment was scheduled (Kaplan et al., 2018). In another study a statistically significant amount of patients suffering from obesity who were smokers were less likely to receive smoking cessation medications than those smokers who had normal BMI ($p=0.016$) (Yu, Rajan, Essien, Yang, & Abughosh, 2014).

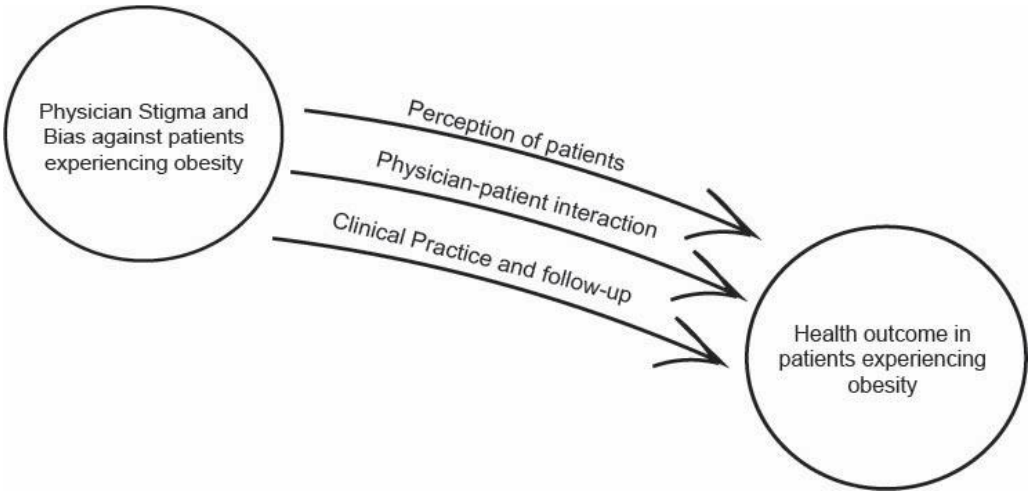
Additionally, a group of studies showed a decrease in cancer screening among patients with obesity. In one such article, a meta-analysis of 11 studies, indicated statistically significant decreasing odds ratios of receiving a pap smear as class of obesity increased. All patients within obesity classes were significantly less likely to receive pap smears than their normal BMI counterparts (N. M. Maruthur, S. D. Bolen, F. L. Brancati, & J. M. Clark, 2009). Likewise, another meta-analysis showed that women with class III obesity ($>40 kg/m^2$) reported receiving less mammograms compared to women within normal BMI ranges. In this analysis, the other classes of obesity showed similar trends with approaching statistical significance (N. M. Maruthur, S. Bolen, F. L. Brancati, & J. M. Clark, 2009). Additionally, one study showed that female patients with obesity were less likely to have received a sigmoidoscopy for colon cancer screening than their normal BMI counterparts. However, there was not a statistically significant difference between men with obesity and men within normal BMI ranges with regards to receiving sigmoidoscopy (Heo, Allison, & Fontaine, 2004).

Furthermore, another study done showed obesity impacts access to kidney transplantation. This was true even after adjustment for all other factors that may influence transplantation decisions (none of the groups differed significantly in terms of blood type or panel reactive antibody). Among all patients waiting for kidney transplants, the likelihood of receiving a transplant decreased as BMI increased. In addition, median time to transplantation increased as BMI category increased ($p<0.001$). Furthermore, as level of obesity increased, patients were more likely to be bypassed for an organ by their provider. Patients with morbid obesity had a 23.0% higher likelihood of being bypassed for an organ (Segev et al., 2008).

DISCUSSION

The data collected in this literature review show how bias around obesity is influencing physicians in the way they treat certain patients, affecting health outcomes. There are three ways in which stigma may lead to changes in health outcomes: differences in physician perceptions of patients, differences in the quality of patient interactions, and differences in clinical practice/follow up. *Figure 2* depicts this idea in a flow chart.

Figure 2: Flow chart depicting how stigmas and biases lead to change in health outcomes.



Group one shows the pathway from physician stigmas to changes in patient outcomes through differences in perceptions of patient pathology and its association with obesity. Specifically, these studies show how negative perceptions can lead to overestimation of risks causing differences in life altering decisions and ultimately leading to potential harm (O'Brien et al., 2009). Additionally, the lack of obesity documentation in another one of these studies demonstrates how physician perceptions of patients with obesity can lead to apathy and lack of acknowledgement of these issues in a hospital setting (Howe et al., 2010). Research shows that when patients are hospitalized they may be scared into action to prevent re-hospitalization (Kisuule, Minter-Jordan, Zenilman, & Wright, 2007). Thus, misconceptions on the physician's part may lead to a missed opportunity to change health outcomes in the long term (Kisuule et al., 2007). Future research could examine how hospitalists could play a unique role in motivating patients with obesity.

Group two illustrates the second path by which physician stigmas and biases lead to change in health outcomes: the patient-physician interaction. One disparity seen in multiple studies concerns allocation of appointment times. Despite generally increased comorbidities among patients with obesity (Hu, 2008), our data review showed that patients with obesity received less education about their health (Bertakis & Azari, 2005). Instead, one study showed that time was spent talking about exercise. While counseling about exercise is important, patients who do not receive adequate education about their health may have worse health literacy and thus potential worse health outcomes (Vernon, Trujillo, Rosenbaum, & DeBuono, 2007). Another "timing" issue comes in the form of overall time spent with patients experiencing obesity. Two studies suggested physicians were not allocating extra time to patients with obesity even though these patients have more comorbid conditions (Bertakis & Azari, 2005; Gudzune et al., 2013). A third study even showed physicians said they would spend less time with patients suffering from obesity (Hebl & Xu, 2001). Other studies have shown doctors will spend more time with patients with particularly complex conditions. One such study found that PCP's have increased the amount time they spend

with patients who have gastrointestinal complaints (Ananthakrishnan, McGinley, & Saeian, 2010). Taken together, this suggests that the lack of increase in patient appointment times with patients experiencing obesity is partially due to other physician factors instead of just insurance mediated time constraints. More research could be done in this area to examine the influence of stigma on appointment times.

Another commonality illustrated in group two was physicians' lack of connection with patients experiencing obesity. Some studies showed a decrease in emotional connection and empathy with these patients (Gudzune et al., 2013; Jernigan et al., 2012). A benefit of the patient-physician interaction, especially in a primary care setting, is the establishment of a therapeutic alliance, which depends on empathy. Without empathy and emotional connection, the therapeutic alliance is weakened and health outcomes may suffer (Street Jr, Makoul, Arora, & Epstein, 2009). Further research could examine the therapeutic alliance in this population.

Group two also showed providers hold beliefs that what they do will not make a difference in health outcomes. For instance, in one study 37% of providers indicated that they thought "efforts to help [their] patients lose weight [would] be unsuccessful" (Howe et al., 2010). Paradoxically, this inhibits patients from getting the counseling they need, whether that is nutrition counseling or exercise counseling (Jernigan et al., 2012; Kaplan et al., 2018). One of these studies showed that physicians were about four times more likely to counsel on smoking cessation than nutrition. Despite beliefs that obesity counseling will not change patient habits, some research has shown that patients were significantly more likely to make diet changes after receiving counseling to do so by their doctors (Nawaz, Adams, & Katz, 2000). Additionally, one study showed a significant lack of obesity diagnosis (Bertakis & Azari, 2005). This might suggest a large percentage of these patients have never been given any counseling or had any conversations about their weight whatsoever. More research could be done to evaluate if a diagnosis of obesity changes health outcomes in patients with obesity.

Group three shows that stigmas lead to documented health disparities in clinical practice and follow-up of patients with obesity. One of these studies indicates that follow-up rates differ due to obesity, for unclear reasons (Kaplan et al., 2018). One explanation for this is patients are just not receiving follow up appointments for weight loss even though physicians say they are having such follow ups. However, an alternative explanation is patients do not realize that the follow up appointments they have are for their weight. In either situation, there is a significant difference between patients' and providers' perceptions of their healthcare. Five of the six studies in group three also provide evidence that physicians manage patients with obesity differently. In these cases, stigmas and bias may lead to clinical practice that does not meet the standard of care (Lin et al., 2016; Melnikow et al., 2018; Nelson et al., 2016). Several of these studies pointed out significant, alarming healthcare disparities, in ubiquitous and necessary forms of care including age-appropriate cancer screening and kidney transplantation. Past research has cited other potential reasons for these alterations in care such as insufficient equipment to preform cancer screening and fear of complication with procedures (Amy, Aalborg, Lyons, & Keranen, 2006). In the future, more research could be done to elicit how much of the variation in clinical practice is due to biases and stigmas versus the logistical concerns cited above.

This literature review illuminates how stigmas and biases influence health outcomes for patients with obesity through a variety of distinct pathways; through misconceptions and perceptions, through differences in interactions, and through disparate clinical care. The

limitations of this study include the broad definition for health outcomes and the limited number of studies in this topic. Additionally, each study had different ways of measuring stigma, so extrapolation and replication of data may have introduced confounding factors.

We recommend several areas for future study. The implications of the studies in group one can be utilized to develop and assess innovative protocols on interacting with patients experiencing overweight/obesity in an effective and non-biased manner. In addition, research should be done to implement and evaluate curricula to help physicians become more aware of how their own biases effect health outcomes in patients experiencing obesity.

In the arena of the patient-provider interaction, we identify the following areas for further study: research on the impact of physician counseling on lifestyle modifications to affect obesity; research on the impact of provider counseling upon the health literacy of patients experiencing obesity; research to evaluate the relationship between stigma and appointment times/time spent in the patient interaction; and research to evaluate the impacts of a specified obesity diagnosis on patients' health outcomes.

In the arena of clinical practice and follow-up, we identify an alarming trend that consistently describes distinct health disparities experienced by patients with obesity. In the studies we examined, these health disparities cannot be entirely attributed to non-provider factors, suggesting that physician bias plays at least some role in the healthcare disparities experienced by patients with obesity. We therefore urgently call for further research to identify and further characterize health disparities affecting patients with obesity, as a first step toward targeting interventions to reduce these disparities.

CONCLUSION

Physician stigmas and biases against patients with obesity are related to a variety of differences in health outcomes by three distinct pathways. The current body of research indicates that patients experiencing obesity face significant health disparities, and that provider bias plays a role in creating or exacerbating these disparities. This is a worrisome trend in the setting of a growing obesity epidemic. Further work must be devoted to anti-bias training, the role of stigma in appointment duration, what role hospitalists can play in motivating patients to lose weight, the role of stigma in the disparities of the care of patients with obesity, what other health outcomes may be altered by stigma, and what interventions are likely to make a significant change in clinical practice and health outcomes.

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