



PAPER

Weighing the care: physicians' reactions to the size of a patient

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OBJECTIVE: To examine how the weight of a patient affects both the attitudes that physicians hold as well as the treatments that they intend to prescribe.

DESIGN: In a six-cell randomized design, physicians evaluated a medical chart of a male or female patient, depicted as either average weight, overweight or obese, who presented with a migraine headache.

SUBJECTS: A total of 122 physicians affiliated with one of three hospitals located in the Texas Medical Center of Houston completed the experiment.

MEASUREMENTS: Using a standard medical procedure form, physicians indicated how long they would spend with the patient and which of 41 medical tests and procedures they would conduct. They also indicated their affective and behavioral reactions to the patient.

RESULTS: The weight of a patient significantly affected how physicians viewed and treated them. Although physicians prescribed more tests for heavier patients, $F(2, 107) = 3.65$, $P < 0.03$, they simultaneously indicated that they would spend less time with them, $F(2, 107) = 8.38$, $P < 0.001$, and viewed them significantly more negatively on 12 of the 13 indices.

CONCLUSION: This study reveals that physicians continue to play an influential role in lowering the quality of healthcare that overweight and obese patients receive. As the girth of America continues to increase, continued research and improvements in the quality of such healthcare deserve attention.

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Introduction

Most current reports suggest that almost one in every two American adults is overweight (BMI $> 25.0 \text{ kg/m}^2$)¹ and one in every five adults is obese (BMI $> 30 \text{ kg/m}^2$).² The list of very serious medical conditions to which obesity has been linked is extensive and recent reports even link obesity with death.^{3–5} The social repercussions impose additional risks to the well being of those who are overweight.^{6–8} Deflections from thin societal standards trigger attributions of weak character, an undisciplined nature and laziness.^{9,10} As a whole, then, overweight individuals are viewed as having a

physical, emotional and moral impairment, and are discriminated against in diverse domains, including employment,^{11,12} education¹³ and personal relationships.¹⁴

The current research attempts to clarify further this solemn picture by specifically examining how physicians respond to overweight and obese patients. While the general public's views on obesity are important in understanding the lives and experiences of those who are overweight, we believe it is critical to examine how physicians view such patients and, more importantly, how they propose to treat such patients. On one hand, physicians should be immune to the stigma of obesity—they encounter it frequently in their patients, they have access to recent empirical studies that suggest genetic influences and some uncontrollable elements of obesity,^{15–17} and they are trained to treat patients warmly and professionally. On the other hand, physicians may be unaffected by or reactive against any suggestion or publication implying that they should accept obesity in their patients. The current research addresses physicians' reactions to patients of varying weights, and

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assesses whether the quality of healthcare delivery is uniform for patients of varying sizes.

Preliminary evidence collected more than 10 y ago suggests that health professionals hold negative attitudes toward those who are overweight.^{18–22} Such studies show that nurses, medical students and physicians all hold negative attitudes toward and stereotypes regarding obese patients. The current study extends past research in two ways. First, it remains unclear how these attitudes toward heavier patients translate into physicians' intended behaviors and medical care delivery. Therefore, the current study examines the perceptions of and recommended care for patients of varying weights. Second, past studies do not differentiate between the attitudes that physicians hold toward their overweight and obese patients, so this study addresses physician reactions to such variations in size. In particular, we manipulate the weight of ostensible patients to be of average weight (BMI = 23), overweight (BMI = 30), and obese (BMI = 36). Examining multiple levels of weight enables us to determine if weight acts in a predicted linear fashion such that, the heavier the patient is, the more physicians perceive and respond to them negatively.

Methods

Participants

Participants were 122 primary care physicians, who were affiliated with one of three large hospitals located in the Texas Medical Center of Houston. These participants ranged in age (29 to 76-y-old, $M = 45.86$, $s.d. = 9.98$), years of practice (0–46 y, $M = 14.64$, $s.d. = 10.34$), and gender (90 males, 30 females, two unidentified). Physicians' informed consents were obtained by having them return the experimental packet, and all procedures were approved by the institutional review board at the University of Texas-School of Medicine.

Procedure

Participants were randomly assigned to receive by mail an experimental packet containing one of six variations of medical forms. Seventeen physicians reviewed the file of an average-weight female patient (1.65 m, 61.3 kg), 17 reviewed an average weight male patient (1.78 m, 72.6 kg), 21 reviewed an overweight female patient (1.65 m, 79.5 kg), 19 reviewed an overweight male patient (1.78 m, 95.3 kg), 29 reviewed an obese female patient (1.65 m, 95.3 kg), and 19 reviewed an obese male patient (1.78 m, 113.5 kg). A chi-square conducted on these response rates did not reveal a significant difference across conditions in response rate, $\chi^2 = 1.01$, $P = 0.60$.

All physicians were told the study involved responses to the completion of a medical chart that physicians characteristically review prior to meeting with a patient. Hence, physicians were sent a standard medical chart form presenting a patient and describing his/her age, weight, height, gender, race, marital status, blood pressure, temperature,

pulse, medical history and family health background. The patient was depicted as healthy with two exceptions. First, two-thirds of the patients were depicted as overweight or obese, and second, the patients' presenting condition was disclosed, indicating a medical history of two migraine headaches spread over a time period of 2 y. This medical condition was chosen because it was not considered to be linked with body weight by the consulting physicians that we asked both prior to and during pretesting. Physicians were asked to recommend medical procedures for the patient and indicate their attitudes and plans regarding the patients, whom they believed was authentic.

Materials

Physicians completed two forms, the 'Medical procedures form' and the 'Patient follow-up questionnaire'. The Medical procedures form asked physicians to indicate, by checking boxes, all of the tests, procedures and referrals that they planned to conduct in caring for the patient. Forty-one tests and medical procedures were listed and ranged in the degree to which they were relevant to migraine headaches and weight-related conditions (see Table 1 for a complete list). The particular type and overall number of tests recommended by the physician were assessed.

The Patient follow-up questionnaire first asked physicians to indicate the amount of time they would spend with the patient. Then it assessed 13 affective and behavioral reactions that the physician had toward the patient. Physicians were asked: (a) to judge the health of the patient; (b) how well the patient took care of himself/herself; (c) how self-disciplined they perceived the patient to be; (d) the extent to which the physician would have to be strict; (e) the seriousness of the medical problem; (f) the extent to which they thought seeing this patient would be a waste of their time; (g) the extent to which seeing such patients would result in affinity for their job; (h) the level of patience that they would have for the patient; (i) the extent to which the patient would be annoying; (j) how much personal desire they had to help the patient; (k) the likelihood with which the patient would comply with medical advice; (l) whether the patient would benefit from psychological counseling; and (m) the overall level of positivity toward the patient. In answering all of these questions, physicians responded on nine-point scales that were anchored by (1) = 'Not at all', (5) = 'Some–Somewhat' and (9) = 'Extremely'.

Results

To examine responses on the Medical procedures form, we summed the overall number of procedures that each physician recommended and conducted a 2 (gender) × 3 (weight) ANOVA on the number of tests run. Across all of the analyses conducted, only one gender difference emerged, indicating that physicians recommended running more tests and procedures on women ($M = 11.76$) than on men ($M = 10.06$),

Table 1 Medical procedures physicians recommended for patient and chi-square results

	Average, BMI = 23, n = 34 n; (%)	Overweight, BMI = 30, n = 40 n; (%)	Obese, BMI = 36, n = 48 n; (%)	Pearson chi- square (with 2 d.f.), χ^2 ; P
1. Cholesterol level	3 (9)	14 (35)	16 (33)	7.96; P=0.02
2. Tryglycerides level	3 (9)	14 (35)	15 (31)	7.54; P=0.02
3. Body fat percentage	1 (3)	8 (25)	9 (19)	5.26; P=0.07
4. Glucose level	11 (32)	19 (48)	21 (44)	1.86; P=0.40
5. Dietary intake info	21 (62)	26 (65)	38 (79)	3.47; P=0.18
6. Stress assessment	21 (62)	28 (70)	36 (75)	1.65; P=0.44
7. Prescription of anti-depressants	2 (6)	7 (18)	10 (26)	3.55; P=0.17
8. Consult about weight loss	1 (3)	14 (35)	20 (42)	15.79; P < 0.01
9. Consult about exercise	2 (6)	9 (23)	13 (27)	5.96; P=0.05
10. Consult about nutrition	1 (3)	12 (30)	15 (31)	10.69; P < 0.01
11. Refer to psychologist	1 (3)	6 (15)	11 (23)	6.32; P=0.04
12. Mental health evaluation	1 (3)	6 (15)	6 (13)	3.09; P=0.21
13. Problem focused history	22 (65)	21 (53)	35 (73)	3.96; P=0.14
14. Comprehensive history	22 (65)	30 (75)	39 (81)	2.88; P=0.24
15. Problem focused exam	22 (65)	24 (60)	37 (77)	3.17; P=0.21
16. Comprehensive physical	21 (62)	26 (65)	30 (63)	3.17; P=0.21
17. Menstrual cycle info	14 (41)	21 (53)	30 (63)	4.11; P=0.13
18. Pelvic exam	2 (6)	8 (25)	9 (19)	3.39; P=0.18
19. Prescription of beta blockers	1 (3)	7 (18)	5 (10)	1.89; P=0.39
20. Prescription of pain pills	10 (29)	19 (48)	25 (52)	4.40; P=0.11
21. Reflex test	19 (56)	27 (68)	30 (63)	1.74; P=0.42
22. Prophylactic therapy	7 (21)	12 (30)	15 (31)	1.26; P=0.53
23. Hearing exam	8 (24)	12 (30)	18 (38)	1.85; P=0.40
24. Visual screen	21 (62)	26 (65)	31 (65)	0.10; P=0.95
25. Skin test	2 (6)	7 (18)	9 (19)	2.98; P=0.23
26. Eye test	29 (85)	28 (70)	33 (69)	3.25; P=0.20
27. MRI	11 (32)	11 (28)	11 (23)	0.90; P=0.64
28. Beta strip	1 (3)	7 (18)	5 (10)	4.10; P=0.13
29. Blood hormone levels	1 (3)	8 (25)	7 (15)	4.84; P=0.09
30. CBC with diff	15 (44)	21 (53)	18 (38)	1.99; P=0.37
31. Genetic counseling	1 (3)	4 (10)	4 (8)	1.45; P=0.49
32. Pregnancy test	6 (18)	14 (35)	14 (65)	2.82; P=0.24
33. Metabolic panel	14 (41)	21 (5)	25 (52)	1.21; P=0.55
34. Blood typing	1 (3)	8 (25)	4 (8)	6.07; P=0.05
35. X-ray	3 (9)	7 (18)	5 (10)	1.54; P=0.46
36. Urinalysis	9 (27)	13 (33)	13 (27)	0.43; P=0.81
37. Ultrasound	0	5 (13)	4 (8)	4.31; P=0.12
38. CT Scan	8 (24)	14 (35)	15 (31)	1.18; P=0.56
39. Refer to neurologist	11 (32)	11 (28)	18 (38)	0.99; P=0.61
40. Refer to cardiologist	1 (3)	4 (10)	4 (8)	1.45; P=0.49
41. Preventative medicine consultation	4 (12)	5 (13)	6 (13)	0.01; P=0.99

$F(1, 107) = 3.89, P = 0.05$; however, this difference was driven solely by the fact that three of the tests were relevant to women only (ie information about menstrual cycle, pregnancy test and pelvic exam) and the effect disappeared when these three items were removed [$F(1, 107) = 1.46, P = 0.23$]. Thus, gender of patient will not be discussed further.

A significant weight main effect on the Medical procedures form revealed that, in recommending procedures, physicians were influenced strongly by the weight of the patient, $F(1, 107) = 3.65, P < 0.03$. A linear trend analysis follow-up revealed that the most procedures were recommended for obese patients ($M = 12.18$), the second most for overweight patients ($M = 10.59$), and the least number for average weight patients ($M = 9.71, t(105) = 2.85, P < 0.01$).

Given that obese patients were presenting with two medical conditions, it is not necessarily surprising that more tests were recommended for obese than for average weight patients. In fact, it is a little surprising that a larger discrepancy was not found considering that many tests related medically or stereotypically to overweight and obesity. These included measures of cholesterol level, tryglycerides level, body fat percentages and glucose levels; dietary information and stress levels; prescribing anti-depressants; consulting about weight loss, an exercise program, and nutrition; and referring to a psychologist and obtaining a mental health evaluation. To specifically assess these items, a series of chi-square analyses with correction for multiple comparisons were conducted on these particular medical

procedures, as well as the non-weight-related medical procedures. As shown in Table 1, the results revealed significant differences on seven of the 12 weight-related procedures (see top half of Table 1), and only one of the 30 non-weight-related procedures (see bottom half of Table 1). All of the significant findings reveal the same pattern, namely that heavier patients were prescribed each of the tests more than were average-weight patients.

The results of the Patient follow-up questionnaire provided support for the notion that physicians viewed and responded to patients differently depending on their weight. The heavier the patients were, the more negative the attitudes and the distancing behaviors were. Such patterns can be observed from examining the means, the *F*s from ANOVAS, and the *t*s from the linear trend analyses, all of which are presented in Table 2. In particular, physicians reported that they would spend significantly less time with patients the heavier they were ($M=31.13$ min with average-weight patients, $M=25.00$ min with moderately overweight patients, and $M=22.14$ min with severely overweight patients). On the additional 13 affective and behavioral items, 12 of the items were significant on both the overall *F*s and the linear trend analyses showing that, the heavier the patients were, the more negativity they faced.

Gender of physician

While the ratio of participants reflected an accurate representation of practicing female/male physicians in the Texas Medical Center, the distribution of female physicians into each of the six conditions was insufficient for adequately examining physician gender effects (eg, smallest cell size, $n=1$). Further, the exploratory analyses that we attempted with these small *n*s revealed no significant gender effects.

Discussion

Responses to the two questionnaires reveal a great deal about physicians' perceptions of and intended courses of treatment for patients who are overweight and obese. The results from the medical procedures form reveal that physicians were just as likely to recommend non-weight-related tests and procedures to patients of varying weight, but were more likely to run weight-related tests on heavier patients. On one hand, physicians seem to provide appropriate levels of care to heavier patients by responding to both the headache and the weight. On the other hand, are physicians responding enough? If the patients are obese, more of a burden might be placed on the physician to speak about it, and to introduce and continue promoting discussions concerning weight loss,

Table 2 Effects of patient weight on physicians' attitudes and decisions of care

	Average, BMI = 23, n = 31 M; (s.d.)	Overweight, BMI = 30, n = 36 M; (s.d.)	Obese, BMI = 36, n = 43 M; (s.d.)	F(2,107)	P	t (2,107)	P
Time I would spend with patient (min)	31.1 ^a (9.4)	25.0 ^b (9.9)	22.4 ^c (8.3)	8.38	0.00	15.88	0.00
1. How healthy is the patient	7.3 ^a (1.1)	5.9 ^b (1.8)	5.4 ^b (1.8)	14.02	0.00	28.01	0.00
2. Patient takes care of himself/herself	6.8 ^a (1.2)	5.4 ^b (1.8)	4.5 (1.6)	20.97	0.00	41.94	0.00
3. Patient is self-disciplined	6.4 ^a (1.5)	4.8 ^b (1.8)	4.1 ^c (1.5)	18.58	0.00	36.92	0.00
4. Level of stickiness in the medical advice I'd give	5.0 ^a (2.0)	6.4 ^b (1.8)	6.0 ^c (1.5)	6.44	0.00	7.20	0.01
5. Seriousness of the patient's health problem	4.6 (1.8)	5.1 (1.5)	4.7 (1.6)	1.20	0.31	0.22	0.64
6. Seeing this patient would feel like a waste of my time	2.0 ^a (1.1)	2.3 ^a (1.5)	3.2 ^b (2.2)	4.58	0.01	8.13	0.01
7. This sort of patient would make me like my job	5.8 ^a (2.7)	4.8 (2.5)	4.0 ^b (2.0)	5.33	0.01	10.61	0.00
8. Amount of patience I would have	7.6 ^a (1.2)	7.0 (1.2)	6.5 ^b (1.5)	4.53	0.01	8.69	0.00
9. Extent to which this patient would annoy me	2.3 ^a (1.8)	2.6 ^a (1.9)	3.4 ^b (1.9)	3.94	0.02	7.54	0.01
10. Personal desire I have to help this patient	7.7 ^a (1.2)	7.2 (1.6)	6.7 ^b (1.6)	3.67	0.03	7.30	0.01
11. Likelihood that the patient would follow my advice	7.2 ^a (1.3)	6.3 ^b (1.6)	5.4 ^c (1.9)	11.06	0.00	22.03	0.00
12. I believe that patient would benefit from counseling	4.5 ^a (2.1)	5.3 (2.1)	5.9 ^b (2.2)	6.40	0.00	12.75	0.00
13. My overall positivity toward the patient	7.2 ^a (1.4)	6.7 (1.7)	6.4 ^b (1.6)	2.45	0.09	4.84	0.03

Note: all items were presented on nine-point scales that were anchored by (1) = 'Not at all', (5) = 'Somewhat', and (9) = 'Extremely'. Differences in superscripts across the rows reflect post-hoc comparisons of $P < 0.05$.

nutrition and exercise programs. In the current study, however, only 42% of physicians chose to discuss weight loss with obese patients (comparable to the 39% reported in a Risk Factor Surveillance System sample of 12 835 adults²³) and 35% chose to discuss it with overweight patients. Similarly, only 31% of physicians indicated referring obese patients to a nutrition counselor and 30% indicated similarly referring overweight patients. Finally, only 27% of the physicians seeing obese patients (comparable to the 34% reported in a 1995 National Health Interview Survey with 17 317 respondents²⁴) and 23% of those seeing overweight patients indicated that they would broach the topic of exercise. Past studies showing comparable percentages to those reported here suggest that physicians may need to take a greater role in aggressively addressing obesity (eg, increased physician counseling) in their patients.^{23–25} Past studies suggest that such behaviors on the part of physicians might be promoted if they received respective reimbursement, did not have limited times during office visits, had more training in counseling, had greater confidence in their own ability to counsel, and had confidence that their patients could lose weight.²⁴

While the results from the recommended medical procedures are not conclusive, the current results do suggest that physicians are responding to the stigma of obesity. For instance, the results show that physicians are more likely to recommend psychological counseling to heavier individuals, suggesting a belief that those who are overweight must also be unhappy and unstable. In line with this, 22 physicians included handwritten comments in the margins of the returned experimental packets suggesting such stigmatization. One physician wrote, in response to an obese patient, ‘this woman has a very unhappy life’. Another indicated that the obese patient was ‘most likely a drug addict’. A third indicated that the obese female patient was ‘suffering underlying depression’. Additionally, on more than a dozen occasions, physicians suggested giving the overweight patients anti-depression medication.

Results from the Patient follow-up questionnaire reveal a very different, somewhat clearer picture of stigmatization against obesity. First, the heavier the patient was, the less time the physician proposed that he or she would spend with the patient. Considering that 31 min is the mean duration of a visit proposed for caring for average weight patients with a migraine headache, the respectively projected times of 25 min and 22 min for overweight and obese patients would be insufficient to care for the same migraine headache condition as well as the second condition involving weight. Less time may very likely result in less attention, less patient–physician interaction, and less individualized consideration of treatments. Certainly if physicians give additional tests (whether weight-related or not) to heavier patients, they may be giving compromised care—they are doing more tests in a much shorter period of time.

Other evidence from the Patient follow-up questionnaire reveals that physicians perceived heavier patients in congru-

ence with the obesity stereotype.^{6,7,10,26} As the patient got heavier, physicians judged them to be increasingly less *healthy*, worse in *taking care* of themselves, and less *self-disciplined*. Physicians also reported that they would need to give *stricter* medical advice to overweight and obese patients than average weight patients. The sum of these findings support the possibility that heavier patients actually are a greater burden to physicians because of their increased serious health risks. But, contrary to this ideology, it is interesting to note that when asked to judge the *seriousness* of the medical condition, no significant differences emerged as a function of weight. While certainly excess weight has been linked with increased health risks, the pattern of responses seems to reflect that physicians feel more negativity toward heavier patients. Specifically, Table 2 shows that physicians reported that seeing patients was a greater *waste of their time* the heavier that they were, that physicians would *like their jobs less* as their patients increased in size, that heavier patients were viewed to be more *annoying*, and that physicians felt less *patience* the heavier the patient was. It is important to note, however, that while these means do reflect statistically significant differences, physicians did not wildly disparage the heavier patients in absolute terms. That is, physicians felt that even the obese patients would not clearly be a waste of their time ($M = 2.03$ on a nine-point scale). However, there were still differences as a function of patients’ weight. Perhaps the most disturbing pattern shown in Table 2 is that physicians indicated having significantly less *personal desire to help* patients the heavier they were.

In terms of outcomes, physicians predicted that heavier patients would be less likely to *follow their advice* and that heavier patients would *benefit from counseling*. While only marginally significant, they also reported feeling that the heavier the patient was, the less *positivity* overall they would feel toward the patient.

In sum, the quality of care that physicians reported that they would distribute to their patients was largely influenced by the weight of the patients. Importantly, the current results revealed a very strong and consistent linear trend in the way that physicians respond to the size of their patients. Namely, physicians perceived obese patients more negatively than they perceived overweight patients, and they perceived overweight patients more negatively than they perceived average-weight patients. Thus, this study provides the first known empirical demonstration indicating that physicians’ perceptions worsen as the weight of a patient steadily increases.

Limitations and implications

An important question concerning these results is whether the attitudes and planned behaviors would translate into actual differences as the patient on the form becomes a real live patient that the physician encounters in the office. The comparisons that we were able to draw with already existent data shows large congruency in the extent to which

physicians intend to and actually talk to their obese patients about exercise²³ and weight.²⁴ Such consistent findings suggest some generalizability from the current results to actual behaviors. Similarly, past research suggests that attitudes and planned intentions are a particularly good indicator of actual behavior.^{27,28} Thus, we believe our results are externally valid and that the climate and physician/patient connection might be lacking in warmth and positivity when patients are heavier. Physicians who are hostile or even mildly annoyed about overweight and obesity might be more likely to rush the medical appointment, be biased in the approach that they take and medical care that they give, or terminate the interaction before fully helping and serving the patient.

Physicians' negative attitudes also enact a self-fulfilling prophecy²⁹ whereby physicians treat overweight patients less favorably and overweight patients, as a result, take care of themselves less well. In addition, overweight patients may respond negatively to the physicians' negative attitudes, thereby reinforcing negative physician attitudes. If physicians' hopes for the patient are not favorable, if affectivity is not positive, and if the medical care is not up to par with what average weight individuals are receiving, overweight individuals might adopt lower standards for their personal care. Furthermore, it is possible that overweight people may delay or avoid altogether seeking the medical attention they need,^{9,30} and this avoidance behavior may be a major contributing factor in elevating the mortality rate of overweight individuals.³¹

In conclusion, the results revealed considerable support for the hypothesis that physicians hold different beliefs about and propose that they would provide different levels of care (eg amount of time spent) to obese, overweight and average-weight individuals. In particular, physicians' attitudes and behaviors were significantly influenced by a patient's weight status such that the heavier individuals were, the more negatively they were perceived and treated. From a public health perspective, overweight patients are a vulnerable population not only because they are at higher health risk, but also because they are the targets of stereotypes and discrimination. The implications of this study suggest that the burden of improved healthcare for the overweight and obese patient rests not only on the responsibility of the patient but also on improving the attitudes and behaviors of their physicians.

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