

Discussing Weight With Patients With Overweight: Supportive (Not Stigmatizing) Conversations Increase Compliance Intentions and Health Motivation

Lydia E. Hayward, Sammantha Neang, Samuel Ma, and Lenny R. Vartanian
University of New South Wales Sydney

Health care providers play an important role in the management of obesity; however, they often hold negative attitudes about people with overweight and obesity and this may affect the treatment that they provide. The current studies assessed how doctor communication style around discussions of weight (supportive vs. stigmatizing) impacted participants' health motivation and willingness to comply with the doctor's advice. We conducted 2 online studies in which we presented participants who self-identified as either overweight or obese with a written scenario describing a doctor-patient interaction. Study 1 ($N = 334$) revealed that participants who read a supportive interaction reported more positive affect and greater health motivation than did participants who read a nonweight control interaction. In contrast, participants who read a stigmatizing conversation about weight reported less positive affect and more negative affect and reported lower willingness to comply with the doctor's recommendations than did control participants. Study 2 ($N = 332$) revealed that a weight stigmatizing interaction had harmful consequences for compliance and health motivation regardless of how extreme the doctor's health behavior recommendations were. Together these findings suggest that a stigmatizing discussion about weight can negatively impact health motivation and compliance, but that conversations about weight can also be productive if they are conducted in a supportive and empathetic manner.

Keywords: obesity, weight stigma, health care, health motivation

Health care providers have an important role to play in the management of obesity. To do so, they need to be able to discuss the topic of weight with their patients with overweight and obesity. Unfortunately, people with a higher body mass index (BMI) may delay or avoid health care, often citing concerns about how the provider will treat them because of their weight (Alegria Drury & Louis, 2002). Indeed, many people with overweight and obesity report experiences of weight-based stigma in health care contexts (Puhl & Brownell, 2006). Moreover, considerable evidence suggests that experiencing weight stigma is associated with poorer well-being and reduced motivation to engage in healthy lifestyle behaviors (Puhl & Suh, 2015). Thus, even when people with overweight and obesity seek health care, they may not be receiving advice in a manner that motivates behavior change. Understanding how provider communication style affects motivations and perceptions among individuals with overweight and obesity is an important step in determining how to best enhance the mental and physical health of people with overweight and obesity.

People with overweight and obesity experience health care differently than do those with a lower BMI. Higher BMI is associated with greater reported avoidance of health care (Alegria Drury & Louis, 2002). Among women with overweight, those most likely to have avoided routine preventative procedures such as cancer screenings were those in the highest BMI categories (Adams, Smith, Wilbur, & Grady, 1993; Amy, Aalborg, Lyons, & Keranen, 2006). Patients with obesity cite both past experiences of disrespectful treatment from providers and concerns over how their weight will be discussed and managed in future as reasons for avoiding or delaying health care (Alegria Drury & Louis, 2002; Amy et al., 2006). These concerns appear valid—many people with overweight and obesity report experiencing weight stigma in health care settings (Ferrante et al., 2016; Mulherin, Miller, Barlow, Diedrichs, & Thompson, 2013; Puhl & Brownell, 2006; Puhl & Heuer, 2009; Richard, Ferguson, Lara, Leonard, & Younis, 2014). Health care providers build less emotional rapport with patients with overweight and obesity (Gudzune, Beach, Roter, & Cooper, 2013), spend less time providing them with health education (Bertakis & Azari, 2005), and report having less respect for them (Huizinga, Cooper, Bleich, Clark, & Beach, 2009). Providers also engage in less patient-centered care with patients who they perceive are unlikely to be adherent (Street, Gordon, & Haidet, 2007), a stereotype often attributed to patients with obesity (Foster et al., 2003).

Experiences with weight-based stigmatization can negatively impact patients' health and well-being. There is substantial evidence that experiencing weight stigma (in general) is associated

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Lydia E. Hayward, Sammantha Neang, Samuel Ma, and Lenny R. Vartanian, School of Psychology, University of New South Wales Sydney.

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Correspondence concerning this article should be addressed to Lydia E. Hayward, School of Psychology, University of New South Wales Sydney, NSW 2052, Australia. E-mail: lydia.hayward@unsw.edu.au

with poorer psychological well-being (Chen et al., 2007; Friedman et al., 2005; Himmelstein, Puhl, & Quinn, 2018; Juvonen, Lessard, Schacter, & Suchilt, 2017), as well as lower motivation to engage in health behaviors and lose weight, higher caloric intake, greater exercise avoidance, and more engagement in unhealthy weight-control behaviors (Major, Eliezer, & Rieck, 2012; Major, Hunger, Bunyan, & Miller, 2014; Puhl & Suh, 2015; Schvey, Puhl, & Brownell, 2011; Tomiyama, 2014; Vartanian, Pinkus, & Smyth, 2018; Vartanian & Porter, 2016; Vartanian & Shaprow, 2008). In the health care context specifically, there is evidence that patients with overweight and obesity who feel judged about their weight by their health care provider are less likely to trust their provider and are less likely to achieve weight loss (Gudzune, Bennett, Cooper, & Bleich, 2014a, 2014b). Moreover, poor provider-patient communication is associated with lower intentions to engage in health behaviors (Jay, Gillespie, Schlair, Sherman, & Kalet, 2010) and reduced compliance (Zolnieriek & Dimatteo, 2009). Thus, health care providers risk worsening the health of their patients with overweight and obesity if they discuss weight in a manner that is perceived as stigmatizing.

Of course, health care providers do not set out to worsen the health of their patients, so why might they be engaging in weight stigmatizing behavior? There is substantial evidence that health care providers hold negative attitudes toward people with overweight and obesity (Sabin, Marini, & Nosek, 2012) and hold negative stereotypes about them, viewing them as weak-willed, noncompliant, awkward, sloppy, and lazy (Foster et al., 2003). These negative attitudes and stereotypes can affect the care that doctors provide. Some providers also express concern about raising the topic of weight with their patients, citing as their primary worry a degree of uncertainty about how patients will react emotionally to the message (Michie, 2007). Only a small number of health care providers report receiving good training in obesity practices (Forman-Hoffman, Little, & Wahls, 2006). However, those who receive adequate training are more likely to report discussing diet and exercise with their patients with obesity, and patients who receive weight loss advice from their doctors are more likely to report engaging in attempts to lose weight (Galuska, Will, Serdula, & Ford, 1999; Rose, Poynter, Anderson, Noar, & Conigliaro, 2013). Physician communication about weight, therefore, appears to be an important factor in promoting health behaviors among individuals with obesity, but the nature of that communication is also an important consideration.

The Present Studies

Given the evidence that quality of communication around weight may be important, the present studies aimed to examine how different types of physician-patient discussions about weight might affect health motivation and compliance among people with overweight and obesity. Study 1 investigated whether doctors may be able to promote intentions to engage in health behaviors by discussing weight in a supportive manner, as well as whether stigmatizing doctor-patient interactions about weight might impair patient health motivation and compliance. Study 2 manipulated both the communication style and the extremity of the health behavior changes recommended by the doctor so that we could determine whether the communication style of the doctor impacts

compliance intentions and motivation irrespective of what advice the doctor gives.

Study 1

Participants who identified as overweight or obese were presented with one of three hypothetical scenarios that described an interaction between a patient and their doctor: a supportive discussion about the patient's weight, a weight stigmatizing interaction, or a control scenario in which weight was not discussed. Participants imagined themselves as the patient in the scenario and then completed a series of outcome measure. We hypothesized that people who read about being stigmatized by a doctor about their weight would report lower compliance intentions, motivation to engage in health behaviors, and willingness to visit the doctor again, as well as rate the doctor more negatively, than would those who read about a supportive discussion about weight or a non-weight discussion. We also hypothesized that reading a supportive discussion about weight would increase motivation, compliance, and willingness to visit the doctor again, as well as produce more positive perceptions of the doctor, compared with the nonweight discussion. Finally, we explored whether positive affect and negative affect would mediate these effects.

Method

Participants. Participants were U.S. residents recruited online via Amazon Mechanical Turk (MTurk), a website where people can complete online surveys for monetary reimbursement. In September 2017, participants were invited to complete a prescreening survey that assessed age, sex, relationship status, and weight status (underweight/normal weight/overweight/obese), and were reimbursed USD\$0.05 ($N = 706$). People who selected their weight status as "overweight" or "obese" were then invited to participate in the full 15-min study for an additional USD\$1.50 ($n = 350$). A final sample of 334 participants provided consent and completed the online study, and there were no exclusions. The majority of the sample identified as female (61.1%); all other participants identified as male. Participants had a mean age of 37.55 ($SD = 10.74$) and a mean BMI of 33.34 kg/m^2 (based on self-reported height and weight; $SD = 6.72$; range = 24.21–63.56). According to the World Health Organization, a BMI of between 25 and 30 is classified as overweight (34.1% of participants in the current study) and a BMI of 30 or above is classified as obese (62.9% of participants). Ten participants had a BMI <25 but excluding these participants did not substantially change the results so we have reported analyses below using the full sample. The majority of the sample had self-identified as overweight in the prescreening survey (68.6%), with less than one third identifying as obese (31.4%). Participants had an average self-reported socioeconomic status of 4.64 ($SD = 1.54$) out of 10 (with 10 being the highest status) and the majority of participants (71.6%) had completed at least some university or college. Demographics did not differ between conditions ($ps > .114$).

Procedure. After providing informed consent, participants were asked to read a transcript of a doctor-patient interaction and imagine themselves as the patient in the scenario. Participants were randomly allocated to read about either: a supportive interaction about weight with the doctor ($n = 111$), a stigmatizing interaction

about weight with the doctor ($n = 112$), or a control interaction in which the patient described a wrist injury and there was no mention of weight ($n = 111$). Excluding 11 participants who spent less than 20 s on the page where the scenario was presented did not change the pattern of the results; thus, the results are presented below for all participants. After reading through the transcript, participants completed the following measures in order: affect, perceptions of the doctor, motivation to engage in health behaviors, willingness to comply with the doctor's recommendations, and willingness to visit either the doctor described in the scenario again or any doctor. Participants then completed trait level individual difference measures (past experience with weight stigma in general, past experience of weight stigma in the context of health care, weight stigma concerns, internalized weight bias, and fat identification) that were included as potential moderators. No consistent evidence of moderation was found for any of these variables, and these results are, therefore, not reported in this article. Finally, participants provided demographic information and then read a debriefing statement. This research was approved by the university's ethics committee. The data have been made publicly available at <https://osf.io/3f4xh/>.

Stimuli and measures.

Manipulation stimuli. The supportive and stigmatizing interaction scenarios were derived from videos that are freely available at <http://whyweightguide.org/videos.php>. These videos have been developed as teaching tools for health care professionals, providing instruction on: (a) how to have a productive conversation with a patient about their weight, and (b) what not to do when discussing a patient's weight. We transcribed these videos and then used part of the transcription as our supportive and stigmatizing interactions, respectively. For the control condition, we attempted to keep as many details as possible consistent with the weight-based interactions but, instead of discussing weight, the scenario centered around the patient complaining of a sore wrist. All scenarios began toward the end of a visit to the doctor, making it clear that the issue being discussed in the scenario (weight/wrist pain) was not the primary purpose of the visit to the doctor. In all conditions, the doctor recommended some form of treatment for the issue raised. The doctor in the stigmatizing condition recommended calorie restriction and frequent intensive exercise, the doctor in the supportive condition recommended short bursts of gentle exercise (walking), and the doctor in the control condition recommended wearing a light brace on the wrist and rest. See Appendix A for the full transcripts.

Manipulation checks. One manipulation check question was asked immediately after participants read the interaction: "On a scale from negative to positive, how would you rate this interaction with the doctor?" (1 = *very negative*, 4 = *neutral*, 7 = *very positive*). Another manipulation check question was asked at the very end of the survey, before the demographic questions: "How critical or supportive do you feel that the doctor was toward the patient? (1 = *very critical*, 4 = *neither critical nor supportive/neutral*, 7 = *very supportive*).

Affect. Participants were reminded to imagine that the interaction they had read about had just happened to them, and were asked to indicate how they were feeling at that very moment with regards to a range of emotions: embarrassed/angry/sad/anxious/ashamed (negative affect; $\alpha = .95$), and happy/hopeful/confident/proud/grateful (positive affect; $\alpha = .93$). These measures were

adapted from those used by Vartanian et al. (2018) to assess positive and negative affect in response to weight stigma, but with some additional items included to assess a wider range of emotions. Participants responded to each item on a sliding scale ranging from 0 = *not at all* to 100 = *very much so*. The order of the items was randomized.

Health motivation. Three items assessed how motivated participants currently felt to: exercise or be physically active, diet or eat healthy, and try to lose weight (Vartanian et al., 2018), rated on a sliding scale ranging from 0 = *not at all* to 100 = *very much so* ($\alpha = .96$).

Positive perceptions of the doctor. Participants completed the 10-item Consultation and Relational Empathy (CARE) scale (Mercer, Maxwell, Heaney, & Watt, 2004), rating how well the doctor performed according to a range of criteria (e.g., "making you feel at ease," or "fully understanding your concerns"; 1 = *poor* to 5 = *excellent*; $\alpha = .98$).

Compliance. Three items adapted from Puhl, Wharton, and Heuer (2009) assessed participants' understanding of and compliance with the recommendations provided by the doctor in the scenario: "How well do you understand the recommendations?" (1 = *very little* to 5 = *very much*), "How likely are you to be compliant with the treatment recommended?", and "How likely do you think you are to be successful in making the suggested changes and maintaining them over time?" (1 = *very unlikely* to 5 = *very likely*; $\alpha = .80$).

Willingness to visit doctors. One item assessed the likelihood that participants would visit the doctor described in the scenario again if they required medical attention. Another item assessed the likelihood that participants would visit *any* doctor if required. Both items used a response scale of 1 = *very unlikely* to 5 = *very likely* and were analyzed separately.

Analytic plan. A one-way analysis of variance (ANOVA) was conducted on each outcome variable. We then ran a series of parallel mediation models using PROCESS (Hayes, 2013) Model 4 to examine whether positive and negative affect mediated the effects of condition on the outcomes. Indicator coding was used for the multicategorical predictor variable, with the control condition designated as the reference category. One contrast examined the stigmatizing condition relative to the control condition, and the other contrast examined the supportive condition relative to control condition. Both contrasts were included as predictor variables, positive affect and negative affect were included as simultaneous mediators, and each outcome was examined separately. Unstandardized indirect effects and 95% bias-corrected bootstrapped confidence intervals (CIs) with 5,000 samples are reported.

Results

Table 1 reports the descriptive statistics for each condition on all outcome variables, as well as the F statistics, p values, and η^2 values for all ANOVAs. None of the results were significantly moderated by weight category (overweight vs. obese), whether defined by BMI as calculated from self-reported height and weight ($ps > .189$) or by self-identified weight category ($ps > .056$). All effects described below are statistically significant unless stated otherwise.

Manipulation checks. Immediately after reading the transcript, participants in the supportive condition rated the interaction

Table 1
Descriptive and ANOVA Statistics for Manipulation Checks and Outcome Variables, Study 1

Outcome variable	Supportive <i>M</i> (<i>SD</i>) (<i>n</i> = 111)	Control <i>M</i> (<i>SD</i>) (<i>n</i> = 111)	Stigmatizing <i>M</i> (<i>SD</i>) (<i>n</i> = 112)	<i>F</i> (<i>df</i>)	η^2
Positivity of interaction	6.49 (.93) ^a	5.83 (1.03) ^b	2.33 (1.52) ^c	<i>F</i> (2, 331) = 395.59	.71
Supportiveness of doctor	6.60 (.96) ^a	5.97 (1.24) ^b	1.86 (1.60) ^c	<i>F</i> (2, 331) = 442.30	.73
Positive affect	55.70 (21.58) ^a	55.60 (19.85) ^a	17.23 (21.31) ^b	<i>F</i> (2, 331) = 125.40	.43
Negative affect	20.61 (18.66) ^a	9.50 (11.48) ^b	69.35 (24.07) ^c	<i>F</i> (2, 331) = 319.74	.66
Positive perceptions of doctor	4.34 (.75) ^a	3.78 (.80) ^b	1.69 (.88) ^c	<i>F</i> (2, 331) = 331.76	.67
Health motivation	73.12 (17.80) ^a	40.25 (29.28) ^b	40.42 (30.18) ^b	<i>F</i> (2, 331) = 57.24	.26
Compliance	4.31 (.55) ^a	4.39 (.69) ^a	3.01 (.96) ^b	<i>F</i> (2, 331) = 118.07	.42
Willingness to visit this doctor again	4.58 (.75) ^a	4.15 (.89) ^b	1.67 (1.12) ^c	<i>F</i> (2, 330) = 317.29	.66
Willingness to visit any doctor	3.74 (.96)	3.54 (1.02)	3.42 (1.10)	<i>F</i> (2, 331) = 2.73	.02

Note. All analysis of variances (ANOVAs) are significant at $p < .001$ except for on willingness to visit any doctor that was not significant ($p = .067$). Superscript letters denote significant comparisons between conditions at $p < .001$ (Bonferroni adjusted), except for the difference between supportive and control conditions on willingness to see this doctor again that was significant at $p = .003$.

as more positive than did participants in the control condition, with participants in the stigmatizing condition rating the interaction most negatively. At the end of the survey, participants in the supportive condition rated the doctor as being more supportive toward the patient than did participants in the control condition, with participants in the stigmatizing condition rating the doctor as being most critical toward the patient.

Main dependent variables. Participants in the stigmatizing condition reported more negative affect and less positive affect, rated the doctor less positively, were less willing to comply with the doctor's recommendations, and were less willing to visit the doctor again in future than were participants in the supportive or control conditions. Participants in the stigmatizing condition did not differ from participants in the control condition in health motivation. However, participants in the supportive condition reported greater health motivation, rated the doctor more positively, and reported being more likely to visit the doctor again in future than were participants in the stigmatizing and control conditions. Participants who read the supportive transcript also reported similar levels of positive affect and willingness to comply with the doctor's recommendations as did participants who read the control interaction. The main effect of condition did not extend to participants' willingness to visit any doctor in future.

Mediation through positive and negative affect. Positive affect mediated the effect of exposure to a stigmatizing interaction with the doctor (relative to control) on several outcomes: stigma (via lower positive affect) led to less positive perceptions of the doctor ($b = -0.84$, $SE_{boot} = 0.11$, 95% CI [-1.07, -0.65]), lower motivation to engage in health behaviors ($b = -23.06$, $SE_{boot} = 3.12$, 95% CI [-29.62, -17.44]), lower compliance ($b = -0.52$, $SE_{boot} = 0.08$, 95% CI [-0.69, -0.38]), and less willingness to visit the doctor again ($b = -0.85$, $SE_{boot} = 0.13$, 95% CI [-1.11, -0.61]). The effect of reading a stigmatizing interaction also reduced compliance through an increase in negative affect ($b = -0.53$, $SE_{boot} = 0.13$, 95% CI [-0.80, -0.28]). Surprisingly, because the supportive condition led to a small increase in negative affect relative to the control condition (likely because of the focus on weight), participants who read a supportive discussion about weight indirectly reported (via increased negative affect) lower compliance ($b = -0.10$, $SE_{boot} = 0.03$, 95% CI [-0.16, -0.05]) and less willingness to visit the doctor again

($b = -0.06$, $SE_{boot} = 0.03$, 95% CI [-0.14, -0.01]) than did participants in the control condition. No other indirect effects were significant.

Discussion

Study 1 revealed that participants who read about being weight stigmatized by a doctor experienced more negative affect and were less willing to comply with the lifestyle recommendations provided by the doctor than were those who read the supportive or control interactions. They also rated the doctor less positively and were less willing to visit the doctor again in future. These findings suggest that experiencing weight stigma from a doctor may lead to poor health and well-being outcomes for people with overweight and obesity. Note, however, that the stigmatizing and supportive interactions used in this study also differed with regards to the recommendations provided by the doctor. In the stigmatizing scenario, the doctor recommended that the patient undertake a strict exercise and dieting regime. In the supportive scenario, the doctor recommended that the patient simply start by engaging in mild exercise whenever possible. It is not clear, therefore, whether participants were more likely to comply with the recommendations of the supportive doctor simply because they were easier to comply with. Study 2 aimed to tease apart the supportiveness of the interaction from the extremity of the behavioral recommendations provided by the doctor.

Study 2

Method

Participants. Participants were 340 U.S. residents recruited via MTurk in October 2018 who had identified as overweight or obese in a prescreening survey. Participants were invited to complete a 15-min study for US\$1.50 reimbursement. A sample of 336 completed the study. Two participants were excluded for not providing their height and weight and two were excluded for having a BMI of less than 18.5 ("underweight"), resulting in a final sample of 332 participants. The majority were female (61.4%) and had completed at least some university/college (72.3%). Participants had a mean age of 39.73 ($SD = 12.35$), socioeconomic status

of 4.76 out of 10 ($SD = 1.65$), and BMI of 32.67 kg/m² ($SD = 7.01$; range = 22.14–70.85; 40.7% overweight and 55.7% obese). Most participants (72.6%) self-identified as overweight with the rest (27.4%) identifying as obese. Demographics did not differ between conditions ($ps > .165$). Excluding people who had a BMI of less than 25 or who spent less than 20 s on the scenario page did change some of the results (see Ancillary Analyses below).

Procedure and materials. The procedure was the same as Study 1 except that participants were randomly allocated to one of six conditions: a supportive or a stigmatizing interaction about weight where the doctor recommended either mild, moderate, or extreme lifestyle changes. The transcripts were the same as in Study 1 except that the endings were modified to reflect the different recommendations provided by the doctor. The mild recommendation condition involved the doctor suggesting that the patient walk whenever possible and be more mindful of how much they are eating. The moderate recommendation condition involved the doctor suggesting exercising for an hour 3 days a week and restricting caloric intake to 1,800 calories per day. The extreme recommendation condition involved the suggestion of an hour of exercise 6 days a week and restricting intake to 1,200 calories per day (see Appendix B for transcripts in all conditions). There was no control scenario in this study.

Participants completed the same outcome measures as Study 1 except that four items (instead of two) now assessed willingness to visit doctors in future. Two items assessed willingness to see a doctor in future if required: “If you were experiencing symptoms that warranted going to see a doctor, how likely would you be to make an appointment with [this/any] doctor?” and an additional two items assessed willingness to see a doctor for a routine screening: “For a routine screening procedure (e.g., cancer screening), how likely would you be to make an appointment with [this/any] doctor?”. At the end of the survey, participants also completed an additional manipulation check indicating how extreme they perceived the recommendations to be on a scale from 1 (*not extreme at all*) to 7 (*very extreme*). All scales showed good reliability ($\alpha \geq .80$).

Analytic plan. A series of 2 (supportive vs. stigmatizing) \times 3 (mild, moderate, or extreme recommendations) factorial ANOVAs were conducted on the outcome variables. Main effects and simple effects of the recommendation factor were followed up with Bonferroni-corrected pairwise comparisons. A series of moderated mediation analyses were then conducted using PROCESS (Hayes, 2013) Model 8 to examine whether positive and negative affect mediated the effects of stigma on the outcomes, and whether this differed as a function of the extremity of the recommendation. Indicator coding was used for the recommendation variable, with the mild condition designated as the reference category. Unstandardized indirect effects and 95% bias-corrected bootstrapped CIs with 5,000 samples are reported.

Results

Table 2 reports the descriptive statistics for all outcome variables separately for each condition and Table 3 reports all ANOVA statistics.

Manipulation checks. Participants in the supportive condition rated the interaction as more positive and rated the doctor as more supportive than did participants in the stigmatizing condition.

Table 2
Descriptive Statistics for Manipulation Checks and Outcome Variables, Study 2

Outcome variable	Mild recommendations $M (SD)$			Moderate recommendations $M (SD)$			Extreme recommendations $M (SD)$			Overall $M (SD)$		
	Supportive ($n = 56$)	Stigmatizing ($n = 57$)	Overall ($n = 113$)	Supportive ($n = 55$)	Stigmatizing ($n = 57$)	Overall ($n = 112$)	Supportive ($n = 54$)	Stigmatizing ($n = 53$)	Overall ($n = 107$)	Supportive ($n = 165$)	Stigmatizing ($n = 167$)	Overall
Positivity of interaction	6.45 (.78)	2.54 (1.60)	4.48 (2.33)	6.02 (.95)	2.44 (1.68)	4.20 (2.26)	5.80 (1.22)	2.66 (1.72)	4.24 (2.16)	6.09 (1.03)	2.54 (1.67)	4.31 (1.65)
Supportiveness of doctor	6.64 (.67)	1.93 (1.65)	4.27 (2.68)	6.16 (1.05)	2.04 (1.81)	4.06 (2.55)	5.85 (1.62)	2.43 (2.11)	4.16 (2.54)	6.22 (1.21)	2.13 (1.86)	4.17 (1.81)
Extremity of recommendations	1.79 (1.20)	3.58 (1.92)	2.69 (1.83)	2.40 (1.59)	4.54 (1.68)	3.49 (1.95)	2.83 (1.80)	4.98 (1.78)	3.90 (2.08)	2.33 (1.60)	4.35 (1.88)	3.34 (1.74)
Positive affect	61.59 (22.35)	20.77 (21.67)	41.00 (30.00)	47.20 (23.79)	21.51 (23.93)	34.13 (27.03)	45.01 (22.57)	22.95 (21.72)	34.08 (24.68)	51.37 (23.94)	21.72 (22.37)	36.54 (23.26)
Negative affect	22.12 (17.79)	65.97 (23.62)	44.24 (30.32)	32.02 (21.39)	64.17 (21.99)	48.38 (26.97)	36.43 (21.42)	67.51 (23.99)	51.82 (27.49)	30.10 (21.00)	65.85 (23.10)	48.97 (22.55)
Positive perceptions of doctor	4.40 (.70)	1.75 (.93)	3.06 (1.56)	3.97 (.88)	1.78 (.96)	2.86 (1.43)	4.06 (.86)	2.00 (1.06)	3.04 (1.41)	4.14 (.83)	1.84 (.98)	3.00 (1.41)
Health motivation	78.17 (19.34)	46.09 (29.12)	61.99 (29.45)	67.67 (22.68)	39.18 (29.93)	53.17 (30.12)	65.20 (22.89)	48.42 (31.64)	56.88 (28.71)	70.42 (22.28)	44.47 (30.29)	62.64 (25.54)
Compliance	4.27 (.63)	3.09 (1.09)	3.68 (1.07)	3.95 (.74)	2.98 (1.01)	3.46 (1.01)	3.87 (.68)	3.03 (1.00)	3.45 (.95)	4.03 (.70)	3.03 (1.03)	3.74 (0.94)
Visit this doctor if needed	6.38 (1.12)	2.51 (1.89)	4.42 (2.49)	5.64 (1.31)	2.39 (1.85)	3.98 (2.29)	5.79 (1.42)	2.77 (2.18)	4.28 (2.38)	5.94 (1.32)	2.55 (1.97)	4.24 (1.65)
Visit this doctor for routine screening	6.16 (1.47)	2.39 (1.99)	4.26 (2.58)	5.61 (1.32)	2.28 (1.92)	3.90 (2.35)	5.80 (1.50)	2.47 (1.93)	4.15 (2.39)	5.86 (1.44)	2.38 (1.94)	4.12 (1.67)
Visit any doctor if needed	4.63 (1.54)	4.53 (1.95)	4.58 (1.75)	5.00 (1.56)	4.72 (1.78)	4.86 (1.68)	5.44 (1.37)	5.00 (1.75)	5.22 (1.58)	5.02 (1.52)	4.74 (1.83)	4.98 (1.68)
Visit any doctor for routine screening	4.34 (1.53)	4.58 (2.01)	4.46 (1.78)	4.69 (1.68)	4.63 (2.02)	4.66 (1.85)	5.44 (1.40)	4.74 (1.80)	5.09 (1.64)	4.82 (1.60)	4.65 (1.94)	4.91 (1.72)

Table 3
ANOVA Statistics for Manipulation Checks and Outcome Variables, Study 2

Outcome variable	Stigma main effect (<i>dfs</i> = 1, 326)	Recommendation main effect (<i>dfs</i> = 2, 326)	Stigma × Recommendation interaction (<i>dfs</i> = 2, 326)
Positivity of interaction	$F = 548.39, p < .001, \eta_p^2 = .63^a$	$F = 1.40, p = .248, \eta_p^2 = .01$	$F = 2.14, p = .119, \eta_p^2 = .01$
Supportiveness of doctor	$F = 571.64, p < .001, \eta_p^2 = .64^a$	$F = .44, p = .642, \eta_p^2 = .003$	$F = 4.76, p = .009, \eta_p^2 = .03^a$
Extremity of recommendations	$F = 121.28, p < .001, \eta_p^2 = .27^a$	$F = 15.15, p < .001, \eta_p^2 = .09^a$	$F = .411, p = .663, \eta_p^2 = .003$
Positive affect	$F = 140.35, p < .001, \eta_p^2 = .30^a$	$F = 3.56, p = .030, \eta_p^2 = .02^a$	$F = 5.34, p = .005, \eta_p^2 = .03^a$
Negative affect	$F = 222.77, p < .001, \eta_p^2 = .41^a$	$F = 3.64, p = .027, \eta_p^2 = .02^a$	$F = 2.95, p = .054, \eta_p^2 = .02$
Positive perceptions of doctor	$F = 537.45, p < .001, \eta_p^2 = .62^a$	$F = 1.47, p = .231, \eta_p^2 = .01$	$F = 3.25, p = .040, \eta_p^2 = .02^a$
Health motivation	$F = 79.57, p < .001, \eta_p^2 = .20^a$	$F = 3.13, p = .045, \eta_p^2 = .02^a$	$F = 2.52, p = .082, \eta_p^2 = .02$
Compliance	$F = 107.11, p < .001, \eta_p^2 = .25^a$	$F = 2.43, p = .090, \eta_p^2 = .02$	$F = .99, p = .372, \eta_p^2 = .01$
Visit this doctor if needed	$F = 338.65, p < .001, \eta_p^2 = .51^a$	$F = 1.91, p = .149, \eta_p^2 = .01$	$F = 1.90, p = .151, \eta_p^2 = .01$
Visit this doctor for routine screening	$F = 341.39, p < .001, \eta_p^2 = .51^a$	$F = 1.03, p = .358, \eta_p^2 = .01$	$F = .64, p = .530, \eta_p^2 = .004$
Visit any doctor if needed	$F = 2.24, p = .136, \eta_p^2 = .01$	$F = 4.12, p = .017, \eta_p^2 = .03^a$	$F = .29, p = .745, \eta_p^2 = .002$
Visit any doctor for routine screening	$F = .83, p = .362, \eta_p^2 = .003$	$F = 3.68, p = .026, \eta_p^2 = .02^a$	$F = 2.08, p = .126, \eta_p^2 = .01$

Note. ANOVA = analysis of variance.

^a Indicates significance at $p < .05$.

There was also a significant interaction on supportiveness with simple effects revealing that, in the supportive interaction condition, the doctor was perceived to be less supportive when the recommendations were extreme than when the recommendations were mild ($p = .024$); there was no difference in the stigmatizing condition ($p = .272$). As expected, participants in the mild recommendation condition rated the recommendations as less extreme than did participants in the moderate or extreme conditions ($ps < .002$). However, participants in the moderate and extreme conditions did not significantly differ in how extreme they perceived the recommendations to be ($p = .167$). There was also a significant main effect of stigma condition such that the recommendations were perceived to be more extreme in the stigmatizing condition than in the supportive condition.

Main dependent variables. Significant main effects of stigma were found on all outcome variables except for willingness to see any doctor again (either if needed or for routine screening). Relative to participants who read the supportive scenario, those who read the stigmatizing scenario showed greater negative affect, lower positive affect, less positive perceptions of the doctor, lower health motivation, were less willing to comply with the recommendations provided, and were less willing to visit this doctor again in future.

Main effects of recommendation were found for negative affect, positive affect, health motivation, and willingness to see any doctor in future. The mild recommendation condition led to lower negative affect than did the extreme recommendation condition ($p = .022$) and lower health motivation than did the moderate recommendation condition ($p = .041$). No Bonferroni-adjusted pairwise comparisons were significant for positive affect ($ps > .057$). Of interest to the authors, participants in the extreme recommendation condition reported being *more* willing to visit any doctor in future than were participants in the mild condition, both if they required medical attention ($p = .013$) and if they were attending a routine screening ($p = .024$).

Significant interactions were also found on positive affect and perceptions of the doctor. In both cases, differences between recommendation conditions only emerged when the doctor was supportive and not when the doctor was stigmatizing. Mild recommendations led to more positive affect and greater health mo-

tivation than extreme recommendations when the doctor was supportive ($ps < .032$) but not when the doctor was stigmatizing ($ps > .999$). Mild recommendations produced greater positive affect relative to moderate recommendations in the supportive ($p = .003$) but not stigmatizing ($p > .999$) condition.

Mediation through positive and negative affect. Stigma reduced positive perceptions of the doctor, health motivation, compliance, and willingness to visit the doctor again in future through lower positive affect at all levels of recommendation, but the indirect effect was stronger when the recommendations were mild ($bs > -0.81, SE_{boot} > 0.11, 95\% CI [-34.24, -0.59]$) relative to moderate ($bs > -0.51, SE_{boot} > 0.10, 95\% CI [-24.33, -0.31]$); Index of moderated mediation $> 0.30, SE_{boot} > 0.12, 95\% CI [0.06, 18.27]$) or extreme ($bs > -0.38, SE_{boot} > 0.10, 95\% CI [-21.28, -0.25]$; Index $> 0.37, SE_{boot} > 0.12, 95\% CI [0.14, 20.38]$). Negative affect was only a significant mediator of the effect of stigma on willingness to visit the doctor in the scenario again if medical attention was required, when recommendations were mild ($b = -0.37, SE_{boot} = 0.19, 95\% CI [-0.77, -0.02]$), moderate ($b = -0.28, SE_{boot} = 0.14, 95\% CI [-0.59, -0.01]$), and extreme ($b = -0.26, SE_{boot} = 0.13, 95\% CI [-0.54, -0.01]$). There was no evidence of moderated mediation (index $< 0.12, SE_{boot} < 0.09, 95\% CI [-0.003, 0.21]$).

Ancillary analyses. Weight category (overweight vs. obese) did not moderate the effect of condition on any outcome variable, either as calculated from BMI ($ps > .207$) or assessed with self-identified weight category ($ps > .081$), except for willingness to see any doctor in future ($ps < .039$). Participants in the stigmatizing condition reported being less willing to see any doctor if medical attention was required than were participants in the supportive condition, but only among those who self-identified as obese ($p = .006$) and not among those who self-identified as overweight ($p = .768$). The same pattern was found for willingness to see any doctor for a routine screening ($p = .019$ and $.913$, respectively); however, this was further qualified by an interaction ($p = .024$) such that the effect of stigma among participants who identified as obese was only significant when the recommendations were moderate or extreme ($ps < .016$).

Excluding 12 participants who had a BMI of normal weight (18.5–25) or excluding 14 participants who spent less than 20 s on

the scenario page changed some of the results regarding the main effects of recommendation extremity and the interactions. However, all main effects of stigma remained significant.

Discussion

Study 2 found consistent main effects of doctor communication style, revealing that the stigmatizing interaction led to poorer mood, less positive perceptions of the doctor, and reduced compliance and health motivation than did the supportive interaction. The mild recommendation condition also tended to produce more positive outcomes than the moderate or extreme recommendation conditions; however, these effects were less consistent and reliable and were sometimes qualified by an interaction such that the extremity of the recommendations had an impact *only* when the doctor was supportive and not when the doctor was stigmatizing. These results confirm the findings of Study 1 and demonstrate that people with overweight and obesity respond poorly to a doctor who stigmatizes them for their weight, even when the doctor recommendations simple health behavior changes.

General Discussion

The present studies aimed to investigate how different types of doctor-patient discussions about weight impact health motivation, compliance intentions, and perceptions of the doctor among people with overweight and obesity. Study 1 assessed the effects of communication style (supportive vs. stigmatizing) on the outcomes. Study 2 assessed whether these effects of communication style remained regardless of the specific recommendations provided by the doctor.

In both studies, large main effects of stigma were found such that participants who read about being stigmatized by a doctor reported more negative and less positive affect, less positive perceptions of the doctor, lower health motivation, and reported being less likely to comply with the doctor's recommendations and less willing to visit the doctor again than participants who read about a supportive interaction with a doctor. Study 2 further revealed that stigma negatively impacted the outcomes irrespective of the extremity of the lifestyle changes recommended by the doctor. These findings are consistent with evidence that feeling judged by a doctor may impair one's ability to achieve weight loss (Gudzune, Bennett, Cooper, & Bleich, 2014b), and contribute to existing literature on the harmful health and wellbeing consequences of experiencing weight stigma (Chen et al., 2007; Friedman et al., 2005; Himmelstein et al., 2018; Major et al., 2012, 2014; Puhl & Heuer, 2009; Schvey et al., 2011; Vartanian & Porter, 2016; Vartanian & Shaprow, 2008). The effects of stigma in the current studies were largely explained by reduced positive affect following the stigmatizing interaction. Increased negative affect only mediated one pathway in each study. This is consistent with previous studies that have examined the impact of weight stigma on health motivation, finding that reduced positive affect (but not increased negative affect) mediated this relationship (Vartanian et al., 2018).

Participants who read a supportive discussion about weight with a doctor reported greater motivation to engage in health behaviors, rated the doctor more positively, and expressed more willingness to visit the doctor again in future, relative to the stigmatizing condition in both studies, and relative to participants in the control

condition in Study 1. More important, willingness to comply with the health behavior recommendations was quite high for participants in the supportive condition in both studies, and in fact did not differ from willingness to comply for participants in the control condition in Study 1 who were given the recommendation to simply wear a wrist brace. Note that the control condition in Study 1 also described a reasonably supportive discussion, suggesting that any differences between the control and supportive conditions is because of the fact that the doctor is discussing *weight* in a supportive manner. These findings suggest that people with overweight or obesity are likely to respond well to doctors that discuss weight and health behaviors with them, provided that these discussions are supportive and empathic.

The only variable for which we did not find any difference between stigma conditions was willingness to visit *any* doctor in future. This is encouraging because it suggests that experiencing stigma from a doctor may not lead people to avoid other doctors. However, people may not always have access to a different doctor. For example, they may be limited by language barriers (i.e., immigrants) or live in rural areas where physician choice is limited. Given that obesity is disproportionately common in rural areas (Befort, Nazir, & Perri, 2012) and low socioeconomic communities (Drewnowski, Rehm, & Solet, 2007), this is problematic. Efforts to improve physician-patient communication may be especially needed in these areas.

Study 2 provided some evidence that mild lifestyle recommendations are perceived more positively than are moderate or extreme recommendations, but this was often only the case when the doctor was supportive. When the doctor was stigmatizing, the specific recommendations he provided were irrelevant. Interestingly, across all outcomes there were minimal differences between the moderate and extreme conditions and this seemed to be a consequence of the fact that participants in the extreme condition did not perceive the recommendation to be significantly more extreme than did participants in the moderate condition. Participants did, however, rate all recommendations as more extreme when the doctor was stigmatizing. This suggests that patients may interpret health care recommendations differently when they are communicated in a stigmatizing versus supportive manner. It is important to note that the effects of recommendation were often unstable and many were no longer significant when exclusions were made. The consistently larger effect was driven by whether the doctor was stigmatizing or supportive.

The primary limitation of this research is that we used hypothetical scenarios describing a doctor-patient interaction and asked participants via self-report measures how they intended to behave following such an interaction. Although these hypothetical scenarios allow us to control the nature of the interaction, self-report responses to hypothetical scenarios may not mimic how people would respond to real-world interactions. However, a recent study assessing weight loss outcomes found that people with overweight and obesity were significantly more likely to have achieved clinically significant weight loss if their primary care provider had discussed weight with them, but only if they did not feel judged by the provider (Gudzune et al., 2014a). Together with our results, this suggests that supportive doctor-patient discussions about weight may not only lead to greater health *intentions*, but may also extend to health behaviors and subsequent weight loss. Further research is needed to examine how the supportive conversation

presented here would play out in real-world contexts, particularly as part of ongoing discussions about health.

The current studies also only examined the effects of one rather extreme episode of weight stigma. In reality, weight stigma is often more subtle and insidious. We chose to make the episode extreme to increase the salience of the hypothetical scenario and because we could not readily manipulate subtlety without the aid of nonverbal cues. It will be important for future research to use different methodology to examine the effects of different stigmatizing interactions. Furthermore, although we have provided evidence that doctor communication style may affect compliance and health motivation among people with overweight and obesity, there are many health and well-being outcomes that we have not investigated. Further research is needed to examine how the supportiveness (or lack thereof) of doctors impacts patients' psychological well-being (i.e., psychological distress, suicidal ideation) and health behaviors around food and exercise (i.e., disordered eating). It will also be important for future research using different methodology to distinguish how much of the effects observed in the current studies are being driven by the *content* of the conversation with the doctor (i.e., the language used) relative to the *style* of the communication (i.e., the way in which the language was used).

Conclusions

The present studies examined how different types of doctor-patient conversations about weight can impact compliance and health motivation among patients with overweight and obesity. We have provided evidence that being stigmatized by a doctor about one's weight impairs the provider-patient relationship and reduces willingness to comply with lifestyle change recommendations. On the other hand, having one's weight discussed in a supportive and empathic way can increase compliance and health motivation. These effects appear to be because of the communication style of the doctor and not the difficulty of the lifestyle changes that were recommended. These findings suggest that health care providers can have productive conversations about weight with their patients, but that the issue needs to be broached in a positive and nonstigmatizing way. Health care providers report a desire to receive more training in how to treat patients with obesity (van Gerwen, Franc, Rosman, Le Vaillant, & Pelletier-Fleury, 2009), and our findings suggest that investing in such training is likely to be a worthy cause.

References

- Adams, C. H., Smith, N. J., Wilbur, D. C., & Grady, K. E. (1993). The relationship of obesity to the frequency of pelvic examinations: Do physician and patient attitudes make a difference? *Women & Health, 20*, 45–57. http://dx.doi.org/10.1300/J013v20n02_04
- Alegria Drury, C. A., & Louis, M. (2002). Exploring the association between body weight, stigma of obesity, and health care avoidance. *Journal of the American Academy of Nurse Practitioners, 14*, 554–561. <http://dx.doi.org/10.1111/j.1745-7599.2002.tb00089.x>
- Amy, N. K., Aalborg, A., Lyons, P., & Keranen, L. (2006). Barriers to routine gynecological cancer screening for White and African-American obese women. *International Journal of Obesity, 30*, 147–155. <http://dx.doi.org/10.1038/sj.ijo.0803105>
- Befort, C. A., Nazir, N., & Perri, M. G. (2012). Prevalence of obesity among adults from rural and urban areas of the United States: Findings from NHANES (2005–2008). *The Journal of Rural Health, 28*, 392–397. <http://dx.doi.org/10.1111/j.1748-0361.2012.00411.x>
- Bertakis, K. D., & Azari, R. (2005). The impact of obesity on primary care visits. *Obesity Research, 13*, 1615–1623. <http://dx.doi.org/10.1038/oby.2005.198>
- Chen, E. Y., Bocchieri-Ricciardi, L. E., Munoz, D., Fischer, S., Katterman, S., Roehrig, M., . . . Le Grange, D. (2007). Depressed mood in class III obesity predicted by weight-related stigma. *Obesity Surgery, 17*, 669–671. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/17658028>
- Drewnowski, A., Rehm, C. D., & Solet, D. (2007). Disparities in obesity rates: Analysis by ZIP code area. *Social Science & Medicine, 65*, 2458–2463. <http://dx.doi.org/10.1016/j.socscimed.2007.07.001>
- Ferrante, J. M., Seaman, K., Bator, A., Ohman-Strickland, P., Gundersen, D., Clemow, L., & Puhl, R. (2016). Impact of perceived weight stigma among underserved women on doctor-patient relationships. *Obesity Science & Practice, 2*, 128–135. <http://dx.doi.org/10.1002/osp4.40>
- Forman-Hoffman, V., Little, A., & Wahls, T. (2006). Barriers to obesity management: A pilot study of primary care clinicians. *BMC Family Practice, 7*, 35. <http://dx.doi.org/10.1186/1471-2296-7-35>
- Foster, G. D., Wadden, T. A., Makris, A. P., Davidson, D., Sanderson, R. S., Allison, D. B., & Kessler, A. (2003). Primary care physicians' attitudes about obesity and its treatment. *Obesity Research, 11*, 1168–1177. <http://dx.doi.org/10.1038/oby.2003.161>
- Friedman, K. E., Reichmann, S. K., Costanzo, P. R., Zelli, A., Ashmore, J. A., & Musante, G. J. (2005). Weight stigmatization and ideological beliefs: Relation to psychological functioning in obese adults. *Obesity Research, 13*, 907–916. <http://dx.doi.org/10.1038/oby.2005.105>
- Galuska, D. A., Will, J. C., Serdula, M. K., & Ford, E. S. (1999). Are health care professionals advising obese patients to lose weight? *Journal of the American Medical Association, 282*, 1576–1578. <http://dx.doi.org/10.1001/jama.282.16.1576>
- Gudzune, K. A., Beach, M. C., Roter, D. L., & Cooper, L. A. (2013). Physicians build less rapport with obese patients. *Obesity, 21*, 2146–2152. <http://dx.doi.org/10.1002/oby.20384>
- Gudzune, K. A., Bennett, W. L., Cooper, L. A., & Bleich, S. N. (2014a). Patients who feel judged about their weight have lower trust in their primary care providers. *Patient Education and Counseling, 97*, 128–131. <http://dx.doi.org/10.1016/j.pec.2014.06.019>
- Gudzune, K. A., Bennett, W. L., Cooper, L. A., & Bleich, S. N. (2014b). Perceived judgment about weight can negatively influence weight loss: A cross-sectional study of overweight and obese patients. *Preventive Medicine, 62*, 103–107. <http://dx.doi.org/10.1016/j.ypmed.2014.02.001>
- Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. New York, NY: Guilford Press.
- Himmelstein, M. S., Puhl, R. M., & Quinn, D. M. (2018). Weight stigma and health: The mediating role of coping responses. *Health Psychology, 37*, 139–147. <http://dx.doi.org/10.1037/hea0000575>
- Huizinga, M. M., Cooper, L. A., Bleich, S. N., Clark, J. M., & Beach, M. C. (2009). Physician respect for patients with obesity. *Journal of General Internal Medicine, 24*, 1236–1239. <http://dx.doi.org/10.1007/s11606-009-1104-8>
- Jay, M., Gillespie, C., Schlair, S., Sherman, S., & Kalet, A. (2010). Physicians' use of the 5As in counseling obese patients: Is the quality of counseling associated with patients' motivation and intention to lose weight? *BMC Health Services Research, 10*, 159. <http://dx.doi.org/10.1186/1472-6963-10-159>
- Juvonen, J., Lessard, L. M., Schacter, H. L., & Suchilt, L. (2017). Emotional implications of weight stigma across middle school: The role of weight-based peer discrimination. *Journal of Clinical Child & Adolescent Psychology, 46*, 150–158. <http://dx.doi.org/10.1080/15374416.2016.1188703>

- Major, B., Eliezer, D., & Rieck, H. (2012). The psychological weight of weight stigma. *Social Psychological and Personality Science*, 3, 651–658. <http://dx.doi.org/10.1177/1948550611434400>
- Major, B., Hunger, J. M., Bunyan, D. P., & Miller, C. T. (2014). The ironic effects of weight stigma. *Journal of Experimental Social Psychology*, 51, 74–80. Retrieved from <http://www.sciencedirect.com/science/article/pii/S0022103113002047>; <http://dx.doi.org/10.1016/j.jesp.2013.11.009>
- Mercer, S. W., Maxwell, M., Heaney, D., & Watt, G. C. (2004). The consultation and relational empathy (CARE) measure: Development and preliminary validation and reliability of an empathy-based consultation process measure. *Family Practice*, 21, 699–705. <http://dx.doi.org/10.1093/fampra/cmh621>
- Michie, S. (2007). Talking to primary care patients about weight: A study of GPs and practice nurses in the U. K. *Psychology, Health, & Medicine*, 12, 521–525. <http://dx.doi.org/10.1080/13548500701203441>
- Mulherin, K., Miller, Y. D., Barlow, F. K., Diedrichs, P. C., & Thompson, R. (2013). Weight stigma in maternity care: Women's experiences and care providers' attitudes. *BMC Pregnancy and Childbirth*, 13, 19. <http://dx.doi.org/10.1186/1471-2393-13-19>
- Puhl, R. M., & Brownell, K. D. (2006). Confronting and coping with weight stigma: An investigation of overweight and obese adults. *Obesity*, 14, 1802–1815. <http://dx.doi.org/10.1038/oby.2006.208>
- Puhl, R. M., & Heuer, C. A. (2009). The stigma of obesity: A review and update. *Obesity*, 17, 941–964. <http://dx.doi.org/10.1038/oby.2008.636>
- Puhl, R., & Suh, Y. (2015). Health consequences of weight stigma: Implications for obesity prevention and treatment. *Current Obesity Reports*, 4, 182–190. <http://dx.doi.org/10.1007/s13679-015-0153-z>
- Puhl, R., Wharton, C., & Heuer, C. (2009). Weight bias among dietetics students: Implications for treatment practices. *Journal of the American Dietetic Association*, 109, 438–444. <http://dx.doi.org/10.1016/j.jada.2008.11.034>
- Richard, P., Ferguson, C., Lara, A. S., Leonard, J., & Younis, M. (2014). Disparities in physician-patient communication by obesity status. *Inquiry: A Journal of Medical Care Organization, Provision and Financing*, 51, 004695801455701. <http://dx.doi.org/10.1177/0046958014557012>
- Rose, S. A., Poynter, P. S., Anderson, J. W., Noar, S. M., & Conigliaro, J. (2013). Physician weight loss advice and patient weight loss behavior change: A literature review and meta-analysis of survey data. *International Journal of Obesity*, 37, 118–128. <http://dx.doi.org/10.1038/ijo.2012.24>
- Sabin, J. A., Marini, M., & Nosek, B. A. (2012). Implicit and explicit anti-fat bias among a large sample of medical doctors by BMI, race/ethnicity and gender. *PLoS ONE*, 7, e48448. <http://dx.doi.org/10.1371/journal.pone.0048448>
- Schvey, N. A., Puhl, R. M., & Brownell, K. D. (2011). The impact of weight stigma on caloric consumption. *Obesity*, 19, 1957–1962. <http://dx.doi.org/10.1038/oby.2011.204>
- Street, R. L., Jr., Gordon, H., & Haidet, P. (2007). Physicians' communication and perceptions of patients: Is it how they look, how they talk, or is it just the doctor? *Social Science & Medicine*, 65, 586–598. Retrieved from <https://www.sciencedirect.com/science/article/pii/S0277953607001645>; <http://dx.doi.org/10.1016/j.socscimed.2007.03.036>
- Tomiya, A. J. (2014). Weight stigma is stressful. A review of evidence for the Cyclic Obesity/Weight-Based Stigma model. *Appetite*, 82, 8–15. <http://dx.doi.org/10.1016/j.appet.2014.06.108>
- van Gerwen, M., Franc, C., Rosman, S., Le Vaillant, M., & Pelletier-Fleury, N. (2009). Primary care physicians' knowledge, attitudes, beliefs and practices regarding childhood obesity: A systematic review. *Obesity Reviews*, 10, 227–236. <http://dx.doi.org/10.1111/j.1467-789X.2008.00532.x>
- Vartanian, L. R., Pinkus, R. T., & Smyth, J. M. (2018). Experiences of weight stigma in everyday life: Implications for health motivation. *Stigma and Health*, 3, 85–92. <http://dx.doi.org/10.1037/sah0000077>
- Vartanian, L. R., & Porter, A. M. (2016). Weight stigma and eating behavior: A review of the literature. *Appetite*, 102, 3–14. <http://dx.doi.org/10.1016/j.appet.2016.01.034>
- Vartanian, L. R., & Shaprow, J. G. (2008). Effects of weight stigma on exercise motivation and behavior: A preliminary investigation among college-aged females. *Journal of Health Psychology*, 13, 131–138. <http://dx.doi.org/10.1177/1359105307084318>
- Zolnierok, K. B. H., & Dimatteo, M. R. (2009). Physician communication and patient adherence to treatment: A meta-analysis. *Medical Care*, 47, 826–834. <http://dx.doi.org/10.1097/MLR.0b013e31819a5acc>

(Appendices follow)

Appendix A

Study 1 Experimental Manipulation: Doctor-Patient Interaction Transcripts

Supportive Condition

Doctor: Well, I'm glad we figured that out and I think you'll feel better over the next few days.

Patient (you): Oh, thanks so much Doctor. I'll just take it easy for a couple of days.

Doctor: Well, since I have you here and we still have a few minutes left, I'd like to bring up another topic. I've noticed that your blood pressure and your weight have been climbing a bit over the past few years. We haven't really had time to talk about this much before and I may be able to offer some useful strategies. Would it be okay if we discussed weight and health for a few minutes?

Patient (you): Yeah, I suppose. I know my weight is a problem, but every time I try to take it off, I end up gaining it back. I don't know what to do.

Doctor: I know how you feel. Managing weight can be frustrating. Maybe we can just start trying to figure it out together and I'll be here to help you through the challenges.

Patient (you): Okay, thank you Doctor. But I'm just concerned about how I can possibly lose weight now since work is so busy and the kids take up so much of my time.

Doctor: Yeah, that's certainly understandable. We both know that there's a lot that plays into weight management - but there's no need to figure it all out today, especially since things are so busy for you right now. Maybe we could put our heads together and think about something small that fits reasonably into your life, and then we can take further steps when you're ready.

Patient (you): Okay, that sounds great. So, what should I do?

Doctor: Well, let's see. One of the things that's involved in managing weight and health is

being active. Physical activity benefits the whole body. It's healthy for our joints, our stress levels, and especially for weight management. Perhaps we could talk about some ways of adding activity that fits into your life.

Patient (you): I knew you were going to say that, but I don't have time in my schedule. I can't afford to take an hour to go to the gym every day.

Doctor: I understand that. I don't have an hour to go to the gym every day either, but one of the great things about physical activity is that any amount of any type of activity can be very helpful. For example, let's think about some activities that you enjoy doing.

Patient (you): I like to walk.

Doctor: Me too.

Patient (you): Wait a minute. Isn't walking too mild to help you lose weight though?

Doctor: Actually, even just a few minutes of walking is really healthy and worthwhile and then when you have time to do even more, that's great. Walking is also great because you can do it anywhere. It doesn't need to be at the gym.

Patient (you): Oh wow, that sounds good. You know what? Come to think of it - I have some time before I have to go back to work and I saw a nice park on the way over here. Maybe I could take a short walk after this appointment.

Doctor: That sounds great.

Stigmatizing Condition

Doctor: Well, I'm glad we figured that out and I think you'll feel better over the next few days.

Patient (you): Oh, thanks so much Doctor. I'll just take it easy for a couple of days.

(Appendices continue)

Doctor: Well, since I have you here and we still have a few minutes left, I'd like to bring up another topic. You know, when I saw you at the last appointment, I told you that you needed to lose weight. It doesn't seem like you've been working at it. You can't even fit into the chair.

Patient (you): I know, but I was thinking about—

Doctor: I've told you the same thing over and over. You're obese. Being obese can kill you. Don't you understand that? Obesity causes diabetes and heart disease. Don't you want to do something about it?

Patient (you): Honestly, Doctor, I really do want to try and I really want to lose weight. Part of the issue is that I have a very busy job and I have three kids. There's not much time left in the day to go to the gym or cook meals or—

Doctor: That's what everybody says and it sounds like an excuse to me. I don't think you're doing all that you can. You just have to work harder. Everyone has time. You just have to make it a priority in your life.

Patient (you): I don't know. I just—

Doctor: If you just do what I tell you, you'll lose weight and you can get off all these medications.

Patient (you): OK, fine. What do you want me to do?

Doctor: Take this - I put together a sheet for you. Take that home. Follow it; 1,200 calories a day, exercise for an hour a day, 6 days a week and really focus hard on this because your life depends on it, OK? I don't want to see you back here until you get this weight off.

Control Condition

Doctor: Well, I'm glad we figured that out and I think you'll feel better over the next few days.

Patient (you): Oh, thanks so much Doctor. I'll just take it easy for a couple of days. Before I go, I was wondering if you could take a look at my wrist? It's been quite sore for a couple of days now.

Doctor: Hmm . . . can you think of anything you've done that might have caused you to sprain or injure your wrist?

Patient (you): I'm not sure. I might have accidentally hit it against the edge of a table the other day.

Doctor: Are you having trouble using your wrist?

Patient (you): It's a bit uncomfortable and there's a little pain, but it's nothing too serious, is it?

Doctor: A slight sprain on the wrist isn't too serious. I'll provide you with a light brace to help with the healing process, but you might want to take it easy for a couple of days.

Patient (you): But I need to use my wrist for work and I still need to care for the kids.

Doctor: You can still use your wrist, but try not to put too much pressure on it. Take regular breaks and, with time, you should feel better soon.

Patient (you): Okay, I'll try that. Thank you Doctor.

Doctor: If there's any further pain or discomfort, let us know and I'll see you soon for the next appointment.

(Appendices continue)

Appendix B

Study 2 Experimental Manipulation: Doctor-Patient Interaction Transcripts

Supportive + Mild Recommendation Condition

Doctor: Well, I'm glad we figured that out and I think you'll feel better over the next few days.

Patient (you): Oh, thanks so much Doctor. I'll just take it easy for a couple of days.

Doctor: Well, since I have you here and we still have a few minutes left, I'd like to bring up another topic. I've noticed that your blood pressure and your weight have been climbing a bit over the past few years. We haven't really had time to talk about this much before and I may be able to offer some useful strategies. Would it be okay if we discussed weight and health for a few minutes?

Patient (you): Yeah, I suppose. I know my weight is a problem, but every time I try to take it off, I end up gaining it back. I don't know what to do.

Doctor: I know how you feel. Managing weight can be frustrating. Maybe we can just start trying to figure it out together and I'll be here to help you through the challenges.

Patient (you): Okay, thank you Doctor. But I'm just concerned about how I can possibly lose weight now since work is so busy and the kids take up so much of my time.

Doctor: Yeah, that's certainly understandable. We both know that there's a lot that plays into weight management - but there's no need to figure it all out today, especially since things are so busy for you right now. Maybe we could put our heads together and think about something small that fits reasonably into your life, and then we can take further steps when you're ready.

Patient (you): Okay, that sounds great. So, what should I do?

Doctor: Well, let's see. One of the things that's involved in managing weight and health is

being active. Physical activity benefits the whole body. It's healthy for our joints, our stress levels, and especially for weight management. Perhaps we could talk about some ways of adding activity that fits into your life.

Patient (you): I knew you were going to say that, but I don't have time in my schedule. I can't afford to take an hour to go to the gym every day.

Doctor: I understand that. I don't have an hour to go to the gym every day either, but one of the great things about physical activity is that any amount of any type of activity can be very helpful. For example, let's think about some activities that you enjoy doing.

Patient (you): I like to walk.

Doctor: Me too.

Patient (you): Wait a minute. Isn't walking too mild to help you lose weight though?

Doctor: Actually, even just a few minutes of walking is really healthy and worthwhile and then when you have time to do even more, that's great. Walking is also great because you can do it anywhere. It doesn't need to be at the gym.

Patient (you): Oh wow, that sounds good. You know what? Come to think of it - I have some time before I have to go back to work and I saw a nice park on the way over here. Maybe I could take a short walk after this appointment.

Doctor: That sounds great. And would you mind if we briefly talked about eating habits as well?

Patient (you): Yeah, sure, I mean I do my best to eat healthy and I'm pretty good at eating fruit and vegetables. Sometimes I just find it hard not to eat more than I need.

(Appendices continue)

Doctor: I can understand that, and it will take time to change these habits. Often we engage in these behaviors out of habit, leading us to eat even when we're not hungry. Perhaps for the next little while you can start by simply trying to be more mindful of how much you're eating and how full you feel when you are eating. What do you think?

Patient (you): That sounds good Doctor, I will do my best to be more mindful of it.

Doctor: Great, I'm glad we got this opportunity to talk.

Patient (you): Okay, I understand. So, what should I do?

Doctor: Well, let's see. One of the things that's involved in managing weight and health is being active. Physical activity benefits the whole body. It's healthy for our joints, our stress levels, and especially for weight management. Perhaps we could talk about some ways of adding activity that fits into your life.

Patient (you): I knew you were going to say that, but I don't have time in my schedule. I can't afford to take an hour to go to the gym every day.

Supportive + Moderate Recommendation Condition

Doctor: Well, I'm glad we figured that out and I think you'll feel better over the next few days.

Patient (you): Oh, thanks so much Doctor. I'll just take it easy for a couple of days.

Doctor: Well, since I have you here and we still have a few minutes left, I'd like to bring up another topic. I've noticed that your blood pressure and your weight have been climbing a bit over the past few years. We haven't really had time to talk about this much before and I may be able to offer some useful strategies. Would it be okay if we discussed weight and health for a few minutes?

Patient (you): Yeah, I suppose. I know my weight is a problem, but every time I try to take it off, I end up gaining it back. I don't know what to do.

Doctor: I know how you feel. Managing weight can be frustrating. Maybe we can just start trying to figure it out together and I'll be here to help you through the challenges.

Patient (you): Okay, thank you Doctor. But I'm just concerned about how I can possibly lose weight now since work is so busy and the kids take up so much of my time.

Doctor: Yeah, that's certainly understandable. We both know that there's a lot that plays into weight management - but there's no need to figure it all out today, especially since things are so busy for you right now. Maybe we could put our heads together and think of a course of action that will work for you.

Doctor: I understand that. I don't have an hour to go to the gym every day either, but perhaps you can find some time just a few days a week? Exercising for an hour just 3 days a week is really good for your health. It doesn't even have to be in a single block of time, which can be hard to do; you can do 10-15 min a few times a day if that works better for you.

Patient (you): OK Doctor, I'll try that, thanks for your advice.

Doctor: That sounds great. And would you mind if we briefly talked about eating habits as well?

Patient (you): Yeah, sure, I mean I do my best to eat healthy and I'm pretty good at eating fruit and vegetables. Sometimes I just find it hard not to eat more than I need.

Doctor: I can understand that, and it will take time to change these habits. Often we engage in these behaviors out of habit, leading us to eat even when we're not hungry. Perhaps for the next little while you can try to be more mindful of how much you're eating and try make a few small changes here and there. Those small changes can add up. What I'd like you to be thinking about is trying to consume less than 1,800 calories each day. What do you think?

Patient (you): That sounds good Doctor, I will do my best.

Doctor: Great, I'm glad we got this opportunity to talk.

(Appendices continue)

Supportive + Extreme Recommendation Condition

- Doctor: Well, I'm glad we figured that out and I think you'll feel better over the next few days.
- Patient (you): Oh, thanks so much Doctor. I'll just take it easy for a couple of days.
- Doctor: Well, since I have you here and we still have a few minutes left, I'd like to bring up another topic. I've noticed that your blood pressure and your weight have been climbing a bit over the past few years. We haven't really had time to talk about this much before and I may be able to offer some useful strategies. Would it be okay if we discussed weight and health for a few minutes?
- Patient (you): Yeah, I suppose. I know my weight is a problem, but every time I try to take it off, I end up gaining it back. I don't know what to do.
- Doctor: I know how you feel. Managing weight can be frustrating. Maybe we can just start trying to figure it out together and I'll be here to help you through the challenges.
- Patient (you): Okay, thank you Doctor. But I'm just concerned about how I can possibly lose weight now since work is so busy and the kids take up so much of my time.
- Doctor: Yeah, that's certainly understandable. We both know that there's a lot that plays into weight management - but there's no need to figure it all out today, especially since things are so busy for you right now. Maybe we could put our heads together and think of a course of action that will work for you.
- Patient (you): Okay, I understand. So, what should I do?
- Doctor: Well, let's see. One of the things that's involved in managing weight and health is being active. Physical activity benefits the whole body. It's healthy for our joints, our stress levels, and especially for weight management. Perhaps we could talk about some ways of adding activity that fits into your life.
- Patient (you): I knew you were going to say that, but I don't have time in my schedule. I can't

afford to take an hour to go to the gym every day.

- Doctor: I understand that, our lives are so busy these days, I know it can be difficult to find time to exercise. Perhaps we can think about how you could better prioritize it in your life. To get the most benefit for your health, it is important that you try to exercise for an hour a day 6 days a week. But it doesn't have to be in a single block of time, which can be hard to do; you can do 10-15 min a few times a day if that works better for you.
- Patient (you): OK Doctor, I'll try that, thanks for your advice.
- Doctor: That sounds great. And would you mind if we briefly talked about eating habits as well?
- Patient (you): Yeah, sure, I mean I do my best to eat healthy and I'm pretty good at eating fruit and vegetables. Sometimes I just find it hard not to eat more than I need.
- Doctor: I can understand that, and it will take time to change these habits. Often we engage in these behaviors out of habit, leading us to eat even when we're not hungry. Perhaps for the next little while you can try to be more mindful of how much you're eating and making a few small changes here and there. Those small changes can add up. You'll need to work toward consuming less than 1,200 calories each day. I know that sounds hard but, once you start making changes, you'll see that it becomes easier. What do you think?
- Patient (you): That sounds good Doctor, I will do my best.
- Doctor: Great, I'm glad we got this opportunity to talk.

Stigmatizing + Mild Recommendation Condition

- Doctor: Well, I'm glad we figured that out and I think you'll feel better over the next few days.
- Patient (you): Oh, thanks so much Doctor. I'll just take it easy for a couple of days.

(Appendices continue)

Doctor: Well, since I have you here and we still have a few minutes left, I'd like to bring up another topic. You know, when I saw you at the last appointment, I told you that you needed to lose weight. It doesn't seem like you've been working at it. You cannot even fit into the chair.

Patient (you): I know, but I was thinking about—

Doctor: I've told you the same thing over and over. You're obese. Being obese can kill you. Don't you understand that? Obesity causes diabetes and heart disease. Don't you want to do something about it?

Patient (you): Honestly, Doctor, I really do want to try and I really want to lose weight. Part of the issue is that I have a very busy job and I have three kids. There's not much time left in the day to go to the gym or cook meals or—

Doctor: That's what everybody says and it sounds like an excuse to me. I don't think you're doing all that you can. You just have to work harder. Everyone has time. You just have to make it a priority in your life.

Patient (you): I don't know. I just—

Doctor: If you just do what I tell you, you'll lose weight and you can get off all these medications.

Patient (you): OK, fine. What do you want me to do?

Doctor: Well, you're going to need to start by walking whenever you can. You're also going to need to start focusing on being more mindful of how much you're eating. Start small and build up from there. And really focus hard on this because your life depends on it, OK? I don't want to see you back here until you've got this weight off.

Stigmatizing + Moderate Recommendation Condition

Doctor: Well, I'm glad we figured that out and I think you'll feel better over the next few days.

Patient (you): Oh, thanks so much Doctor. I'll just take it easy for a couple of days.

Doctor: Well, since I have you here and we still have a few minutes left, I'd like to bring up another topic. You know, when I saw you at the last appointment, I told you that you needed to lose weight. It doesn't seem like you've been working at it. You cannot even fit into the chair.

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Patient (you): I don't know. I just—

Doctor: If you just do what I tell you, you'll lose weight and you can get off all these medications.

Patient (you): OK, fine. What do you want me to do?

Doctor: Take this - I put together a sheet for you. Take that home. Follow it. Be mindful of how much you're eating and eat less than 1,800 calories a day. Exercise for an hour a day, 3 days a week. And really focus hard on this because your life depends on it, OK? I don't want to see you back here until you get this weight off.

(Appendices continue)

Stigmatizing + Extreme Recommendation Condition

Doctor: Well, I'm glad we figured that out and I think you'll feel better over the next few days.

Patient (you): Oh, thanks so much Doctor. I'll just take it easy for a couple of days.

Doctor: Well, since I have you here and we still have a few minutes left, I'd like to bring up another topic. You know, when I saw you at the last appointment, I told you that you needed to lose weight. It doesn't seem like you've been working at it. You cannot even fit into the chair.

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Doctor: Take this - I put together a sheet for you. Take that home. Follow it. Be mindful of how much you're eating and eat less than 1,200 calories a day. Exercise for an hour a day, 6 days a week. And really focus hard on this because your life depends on it, OK? I don't want to see you back here until you get this weight off.

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