

## ORIGINAL ARTICLE

# The impact of obesity on perceived patient-centred communication

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## Summary

### Objective

Patient–provider communication has been found to be less patient centred, on average, with patients who are members of stigmatized or minority groups. Obesity is a stigmatized condition, and thus, people with obesity may experience less patient-centred communication (PCC). The objective of this study was to assess the association between patient body mass index (BMI) and self-reported quality of PCC experienced over a 12-month period and whether that relationship differed for men and women.

### Methods

Data collected for the National Cancer Institute's Health Information National Trends Survey were analysed. Respondents who reported a BMI  $\geq 18.5$  kg/m<sup>2</sup> and indicated having seen a healthcare provider outside of an emergency room in the last 12 months were included. PCC was measured using a validated six-item scale. Multivariate logistic regression was used to model the odds of reporting PCC greater than the sample median.

### Results

Compared with people with normal weight BMIs, no associations were found between overweight (odds ratio [OR] = 0.84,  $p = 0.17$ ), class I & II obesity (OR = 0.94,  $p = 0.68$ ) or class III obesity (OR = 0.86,  $p = 0.47$ ) and PCC. There was a significant interaction ( $p = 0.015$ ) such that for men, but not women, higher BMI was associated with less PCC.

### Conclusion

Unlike evidence that women experience more weight stigma, in the healthcare domain, men may be at elevated risk of experiencing communication influenced by weight stigma.

**Keywords:** Disparities, health communication, obesity, patient-centred care.

## Introduction

Patient-centred communication (PCC) is characterized by a focus on the patient's unique perspective, background and needs, effort to build a sense of partnership with the patient and inclusion of the patient in decisions (1). PCC is associated with better health-related self-efficacy, satisfaction, adherence and outcomes, including weight loss outcomes (2–8). A small body of evidence has found that healthcare providers' communication with patients with obesity is less patient-centred than communication

with patients with a body mass index (BMI) below 30 kg/m<sup>2</sup> (9). Communication with patients with obesity or overweight has been shown to include less rapport (9), fewer attempts at relationship building (10), less time educating patients about their health (11) and may be less respectful (10,12). These findings are consistent with literature identifying disparities in quality of patient–provider communication by patient race, socioeconomic status and other stigmatized group membership (13–15). However, these studies involved evaluation of communication quality by observers, rather than perceived quality of

communication by the patients with obesity themselves. Patients may not perceive communication to be lower quality if it is consistent with the communication they have experienced throughout their lives. They may also feel like going to the doctor is a stigmatizing experience but not attribute that to the provider's behaviour.

Several factors may contribute to the lower quality PCC that patients with obesity/overweight receive. Provider communication has been found to be less patient centred with patients they expect to be non-adherent to treatment or self-care recommendations (16). A common stereotype of individuals with obesity is that they are undisciplined and will not be able to adhere to behaviour change recommendations (17–20). Additionally, many physicians and other healthcare providers hold negative implicit and explicit beliefs and attitudes about individuals with obesity (21–24), and these attitudes may influence the quality of communication in the medical encounter. For example, in a vignette study, primary care physicians who viewed a patient with obesity felt that providing care for the patient would be a greater waste of their time, the patient would annoy them more and they would have less patience, positivity or personal desire to help the patient, compared with physicians who viewed an otherwise identical normal weight person (19).

Patients with obesity who feel they are being stigmatized are less likely to lose weight (25), have less trust in their doctor (26) and may experience stress from identity threat (18,27). Identity threat occurs when a patient becomes aware that they are possibly being treated poorly or judged because of a stigmatized identity – in this case, obesity (28,29). Under identity threat, people experience anxiety and become more vigilant for evidence of discrimination, while expending cognitive resources trying to regulate their emotions. This impairs their ability to communicate effectively and remember information (30), potentially impacting patient ability to recall and adhere to prescribed treatment (21).

Because of gender differences in both cultural standards of acceptable body size (31) and concern over body weight (32), it is often assumed that women are more likely to experience and perceive discrimination and poor treatment because of body size, compared with men. Several studies have led to evidence in support of this assumption (33). However, men are not immune to the experience and effects of weight-based stigma and discrimination (34,35). Furthermore, contradictory evidence in the healthcare domain suggests that this setting may be unique in how it affects men and women. In one study of patients' perceptions of care, overweight and obese men reported lower quality care than normal weight men; but overweight and obese women reported higher quality care relative to normal weight women (36).

Understanding the relationship between patient BMI and provider behaviour may help to determine whether body size disparities in quality of care play a role in the relationship between BMI and chronic disease risk. Determining whether disparities, should they exist, vary by patient gender can provide clues as to the mechanisms underlying differences in communication quality and may help target future interventions to reduce those disparities. The present study expands on past work assessing the association between patient body size and provider patient-centred behaviour by exploring the relationship between BMI and PCC in men and women using data from a large nationally representative sample.

## Materials and methods

### Sample

Data were collected by the National Cancer Institute's Health Information National Trends Survey (HINTS), a nationally representative survey of health communication, health behaviour and healthcare utilization among adults in the USA (37). PCC and all covariates were measured in cycles 1 and 2 of the fourth iteration of HINTS. Both data collection efforts used a two-stage, stratified design wherein postal addresses were selected from a national residential database attained from the United States Postal Service, and individuals were randomly selected from sampled households. Cycle 1 data were collected from October 2011 to February 2012 and resulted in 3,959 responses (36.7%). Cycle 2 data were collected from October 2012 to January 2013 and resulted in 3,630 responses (40.0%). Additional details about HINTS sampling and survey design are available at [hints.cancer.gov](http://hints.cancer.gov) and have been published elsewhere (37,38). To compare people with obesity and overweight with those with normal weight, respondents with a BMI that is considered underweight ( $\text{BMI} < 18.5 \text{ kg/m}^2$ ,  $n = 107$ ) were excluded, as were 293 respondents for whom BMI was unknown. Because the PCC questions asked about experiences in the previous year, individuals who reported they had not seen a healthcare provider or had only seen a provider in an emergency room in the past 12 months were also excluded ( $n = 1,133$ ). Women were more likely than men (odds ratio [OR] = 1.99, 95% confidence interval 1.65–2.39) and patients with obesity were more likely than those with normal weight (OR = 1.71, 95% confidence interval 1.26–2.33) to have seen a provider in the past 12 months and thus be eligible for inclusion. There was no association between BMI category and having a regular provider within gender categories. After exclusions, the final sample for analysis was 5,712.

## Measures

### *Patient-centred communication experience*

Patient-centred communication experience was measured using a six-item scale ( $\alpha = 0.91$ ). Items were modified from those used by the Consumer Assessment of Health Plans survey (39), with additional items developed for HINTS (40). Items asked respondents to report on how often in the past 12 months healthcare professionals used elements of PCC. The items map onto the six dimensions of PCC identified by Epstein: exchanging information, responding to emotions, making decisions, enabling patient self-management, managing uncertainty and fostering healing relationships (41). Scale items asked how often, during the past 12 months, doctors, nurses or other healthcare professionals did the following: 'Give you the chance to ask all the health-related questions you had'; 'Give the attention you needed to your feelings and emotions?'; 'Involve you in decisions about your healthcare as much as you wanted?'; 'Make sure you understood the things you needed to do to take care of your health?'; 'Help you deal with feelings of uncertainty about your health or healthcare?'; and 'In the past 12 months, how often did you feel like you could rely on your doctors, nurses, or other health care professionals to take care of your health care needs?'

A mean of these six items was calculated, which was highly skewed, and thus split into two categories, high PCC and low PCC, representing a score above or below the sample median.

### *Body mass index*

Body mass index was calculated using self-reported height and weight. Individuals were categorized into underweight (BMI < 18.5 kg/m<sup>2</sup>), normal weight (BMI 18.5–24.9 kg/m<sup>2</sup>), overweight (BMI 25.0–29.9 kg/m<sup>2</sup>), obese class I & II (BMI 30.0–39.9 kg/m<sup>2</sup>) and obese class III (BMI 40 kg/m<sup>2</sup> and above). Underweight respondents were excluded from the current analysis.

### *Moderators and covariates*

Gender, age, education, annual household income, race/ethnicity, marital status and health insurance status were assessed using standard survey items. Age was collapsed into four categories: 18–34, 35–49, 50–64 and over 64. Education was recoded into four categories: less than high school, high school graduate, some college and college graduate. Annual household income was recorded as less than \$20,000, \$20,000–\$34,999, \$35,000–\$49,999, \$50,000–\$74,999 and \$75,000 and

over. Race/ethnicity was collapsed into four categories: Hispanic/Latino, non-Hispanic White, non-Hispanic Black and non-Hispanic other. Respondents reported how many times over the past 12 months they had visited a healthcare provider, which was modelled on an ordinal scale (1, 2, 3, 4, 5–9 and 10+). The survey also included the Patient Health Questionnaire-4 (PHQ4), a brief measure of depression and anxiety (42). Scores on the PHQ4 were highly skewed and thus were categorized into none (0–2) vs. mild, moderate or severe (3–12) (42). Whether the individual had a regular provider (usual source of care) was measured using a single yes/no question: 'Not including psychiatrists and other mental health professionals, is there a particular doctor, nurse, or other health professional that you see most often?'

### Statistical analysis

Logistic regression using SAS Survey 9.4 was used to model the odds of having a PCC score greater than the sample median. All models were weighted to provide national estimates and correct for nonresponse. In addition, jackknife replicate weights, calculated by drawing random subsamples of the sample to determine sampling probabilities, were used to estimate standard errors and confidence intervals to account for the HINTS complex sampling design. Unadjusted associations were examined, and then a multivariable model was developed to adjust for all sociodemographic variables and other covariates. As a sensitivity analysis, we also examined the fully adjusted model selecting participants who reported receiving medical care 2–4 times, 5–9 times and 10 or more times in the past 12 months.

An interaction term was added to test whether gender moderated the effects of BMI on PCC and presented the effect through stratified ORs. Complete case analysis with listwise deletion was used to handle missing data.

## Results

Sample characteristics and their distribution by PCC are presented in Table 1. Overall, the sample was 55% female, 70% non-Hispanic White, 13% Hispanic, 11% non-Hispanic Black and 6% non-Hispanic other races. People with normal weight or overweight BMIs made up 34% of the sample each, with 27% obese I & II and 5% obese III. In bivariate Rao–Scott chi-square tests, PCC was not associated with BMI category or gender but was significantly associated with having a usual source of care, age, higher education and a lower PHQ depression score.

Bivariate and multivariable regression models predicting a PCC score above the sample median are

**Table 1** Sample demographics and association with PCC (N = 5,712)

	Total N (%) <sup>a</sup>	High PCC N (%) <sup>a</sup> 2,622 (44.9)	Low PCC N (%) <sup>a</sup> 3,090 (55.1)	p value <sup>b</sup>
<b>BMI category</b>				0.636
Normal weight (18.5–24.9)	1,843 (34.1)	804 (46.1)	1,039 (53.9)	
Overweight (25.0–29.9)	2,009 (33.9)	932 (43.0)	1,077 (57.0)	
Obese I & II (30.0–39.9)	1,549 (26.8)	734 (45.8)	815 (54.2)	
Obese III (40.0+)	311 (5.2)	152 (45.2)	159 (54.8)	
<b>Usual source of care</b>				<0.0001
Yes	4,405 (72.8)	2,151 (47.9)	2,254 (52.1)	
No	1,265 (27.2)	453 (37.1)	812 (62.9)	
<b>Gender</b>				0.466
Female	3,477 (54.5)	1,621 (45.7)	1,856 (54.3)	
Male	2,167 (45.5)	969 (44.0)	1,198 (56.0)	
<b>Race/ethnicity</b>				0.145
Non-Hispanic White	3,537 (70.3)	1,673 (46.2)	1,864 (53.8)	
Hispanic	645 (12.6)	266 (42.3)	379 (57.7)	
Non-Hispanic Black	819 (11.1)	386 (43.7)	433 (56.3)	
Non-Hispanic other	337 (6.1)	127 (35.8)	210 (64.2)	
<b>Age category</b>				<0.0001
18–34	807 (28.4)	304 (38.6)	503 (61.4)	
35–49	1,317 (26.6)	553 (41.6)	764 (58.4)	
50–64	1,939 (26.5)	882 (46.9)	1,057 (53.1)	
65+	1,551 (18.4)	836 (55.9)	715 (44.1)	
<b>Education</b>				0.008
College graduate or more	2,308 (32.1)	965 (39.2)	1,343 (60.8)	
Some college	1,692 (35.6)	818 (46.3)	874 (53.7)	
High school graduate	1,138 (20.5)	562 (49.0)	576 (51.0)	
Less than high school	476 (11.8)	230 (48.5)	246 (51.5)	
<b>Annual household income</b>				0.526
Less than \$20,000	1,076 (20.6)	482 (43.6)	594 (56.4)	
\$20,000 to <\$35,000	817 (15.3)	394 (48.3)	423 (51.7)	
\$35,000 to <\$50,000	744 (13.9)	342 (46.3)	402 (53.7)	
\$50,000 to <\$75,000	874 (16.9)	393 (44.5)	481 (55.5)	
\$75,000 or more	1,608 (33.3)	712 (42.0)	896 (58.0)	
<b>Health insurance</b>				0.107
Yes	5,188 (87.8)	2,416 (45.7)	2,772 (54.3)	
No	508 (12.2)	201 (39.6)	307 (60.4)	
<b>Marital status</b>				0.654
Married/living as married	3,114 (57.5)	1,422 (45.3)	1,692 (54.7)	
Divorced/widowed/separated	2,464 (42.5)	1,135 (44.3)	1,329 (55.7)	
<b>PHQ score</b>				<0.0001
None (0–2)	3,728 (66.1)	1,862 (49.0)	1,866 (51.0)	
Mild, moderate or severe (3–12)	1,870 (33.9)	705 (36.8)	1,165 (63.2)	
<b>Frequency of going to provider</b>				0.562
1	1,024 (22.0)	458 (43.8)	566 (56.2)	
2	1,324 (23.4)	613 (44.3)	711 (55.7)	
3	1,016 (16.7)	473 (48.8)	543 (51.2)	
4	810 (12.8)	390 (47.1)	420 (52.9)	
5–9	932 (15.6)	408 (42.1)	524 (57.9)	
10+	573 (9.5)	266 (44.0)	307 (56.0)	

<sup>a</sup>Percents are weighted to provide representative estimates of the adult population.

<sup>b</sup>Rao–Scott chi-square test.

BMI, body mass index; PCC, patient-centred communication; PHQ, Patient Health Questionnaire.

presented in Table 2. In the multivariable model, having a usual source of care (OR = 1.46,  $p = 0.01$ ), being over 65 years (age 18–34 OR = 0.58,  $p = 0.001$ ; age 35–49 OR = 0.73,  $p = 0.04$ ; and age 50–64 OR = 0.81,  $p = 0.07$ ), having less education than a college degree

(less than high school OR = 1.76,  $p = 0.04$ ; high school OR = 1.52,  $p = 0.01$ ; and some college OR = 1.43,  $p = 0.006$ ) and not having symptoms of depression or anxiety (OR = 1.81,  $p < 0.0001$ ) were associated with greater PCC. Neither gender (female OR = 1.18,

**Table 2** Unadjusted and adjusted main complete case effects logistic regression models predicting patient-centred communication above the group median ( $n = 4,620$ )

	Unadjusted <sup>a</sup>			Adjusted <sup>b</sup>		
	Odds ratio	95% confidence interval	$p$ value	Odds ratio	95% confidence interval	$p$ value
<b>BMI category</b>						
Normal weight (18.5–24.9)	a					
Overweight (25.0–29.9)	0.91	(0.72–1.15)	0.43	0.84	(0.65–1.08)	0.17
Obese I & II (30.0–39.9)	1.00	(0.76–1.31)	0.97	0.94	(0.70–1.27)	0.68
Obese III (40.0+)	0.93	(0.62–1.39)	0.72	0.86	(0.57–1.31)	0.47
<b>Usual source of care</b>						
Yes	1.51	(1.14–2.00)	0.005	1.46	(1.08–1.98)	0.01
No	a					
<b>Gender</b>						
Female	1.13	(0.90–1.40)	0.28	1.18	(0.93–1.48)	0.17
Male	a					
<b>Race/ethnicity</b>						
Non-Hispanic White	a					
Hispanic	0.83	(0.59–1.19)	0.31	0.88	(0.61–1.28)	0.50
Non-Hispanic Black	0.85	(0.62–1.16)	0.30	0.88	(0.63–1.23)	0.45
Non-Hispanic other	0.67	(0.44–1.01)	0.05	0.73	(0.46–1.15)	0.17
<b>Age category</b>						
18–34	0.49	(0.37–0.66)	<0.0001	0.58	(0.41–0.80)	0.001
35–49	0.57	(0.45–0.71)	<0.0001	0.73	(0.55–0.98)	0.04
50–64	0.69	(0.57–0.83)	<0.001	0.81	(0.64–1.02)	0.07
65+	a					
<b>Education</b>						
College graduate or more	a					
High school graduate	1.43	(1.10–1.86)	0.007	1.52	(1.10–2.08)	0.01
Less than high school	1.51	(0.96–2.36)	0.07	1.76	(1.03–3.02)	0.04
Some college	1.33	(1.07–1.64)	0.01	1.43	(1.11–1.83)	0.006
<b>Annual household income</b>						
Less than \$20,000	1.07	(0.77–1.47)	0.69	1.13	(0.73–1.74)	0.59
\$20,000 to <\$35,000	1.28	(0.94–1.75)	0.12	1.33	(0.90–1.97)	0.15
\$35,000 to <\$50,000	1.19	(0.85–1.66)	0.30	1.18	(0.80–1.76)	0.40
\$50,000 to <\$75,000	1.15	(0.85–1.55)	0.36	1.18	(0.84–1.66)	0.33
\$75,000 or more	a					
<b>Health insurance</b>						
Yes	a					
No	0.82	(0.59–1.14)	0.24	0.95	(0.64–1.40)	0.78
<b>Marital status</b>						
Married/living as married	a					
Divorced/widowed/separated	0.92	(0.74–1.13)	0.41	1.00	(0.77–1.29)	0.97
<b>PHQ score</b>						
None (0–2)	a					
Mild, moderate or severe (3–12)	0.60	(0.48–0.76)	<0.0001	0.55	(0.43–0.71)	<0.0001
Frequency of going to provider	1.00	(0.93–1.05)	0.77	0.96	(0.90–1.03)	0.27

<sup>a</sup>Reference group.

<sup>b</sup>Adjusted models include all variables in table.

BMI, body mass index; PHQ, Patient Health Questionnaire.

$p = 0.17$ ) nor BMI category relative to normal weight (overweight OR = 0.84,  $p = 0.17$ ; obese I & II OR = 0.94,  $p = 0.68$ ; and obese III OR = 0.86,  $p = 0.47$ ) was associated with PCC. The same pattern of associations between obesity and PCC was seen in each of the sensitivity models restricted to people who reported seeing a doctor 2–4 times, 5–9 times or 10+ times over the past 12 months.

The overall interaction effect between being in the obese III group and gender was significantly associated with PCC ( $p = 0.015$ ). Women had four times greater odds than men of reporting high PCC when presenting with BMIs of 40.0+ kg/m<sup>2</sup> (OR = 4.08,  $p = 0.0006$ ) (Table 3).

This interaction was not significant in any other BMI group (Figure 1).

## Discussion

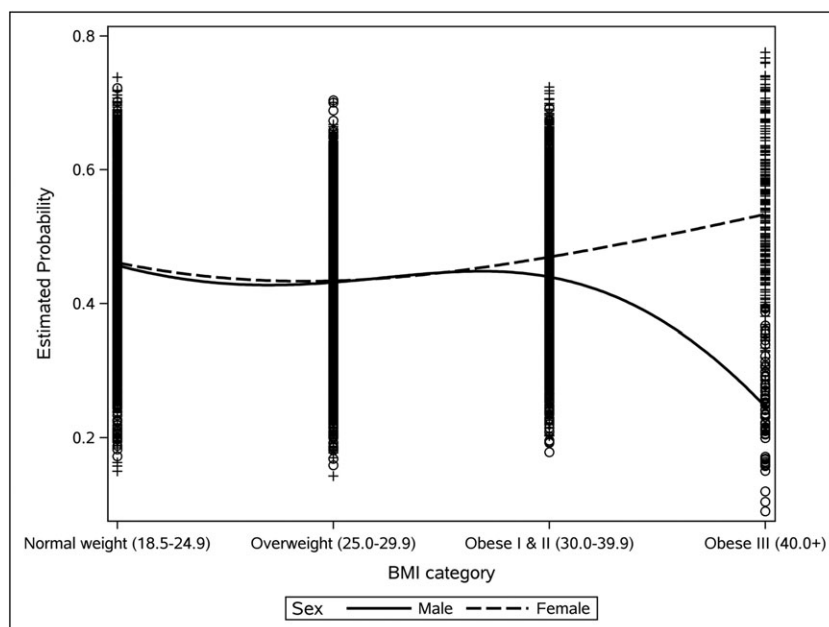
In this nationally representative sample, there was no association between BMI and self-reported PCC. This is inconsistent with the hypothesis that individuals with higher BMI would experience less PCC (18), as has been found in other studies (3,5) and with other stigmatized patient groups (8,9). However, there was an interaction between BMI and gender such that for men, but not women, higher BMI was associated with lower probability of PCC.

**Table 3** Stratified odds ratios\* for association between BMI category and patient-centred communication for women compared with men\*\* ( $n = 4,620$ )

Strata variable	Odds ratio (ref. = male)	95% confidence interval	$p$ value
Class III obese (BMI = 40.0+)	4.084	(1.50–11.15)	0.006
Class I & II obese (30.0–39.9)	1.207	(0.84–1.74)	0.31
Overweight (25.0–29.9)	1.074	(0.79–1.47)	0.39
Normal weight (18.5–24.9)	1.063	(0.67–1.70)	0.53

\*To test for effect modification, main effects variables were included in the models with interaction terms.

\*\*Adjusted for usual source of care, race, age, education, income, health insurance, marital status, Patient Health Questionnaire score and frequency of going to provider.  
BMI, body mass index.



**Figure 1** Model estimated probability of reporting receipt of patient-centred communication above the median by body mass index (BMI) category for women and men ( $n = 5,712$ ).

The lack of association between BMI and PCC is inconsistent with a recent study that found a small but statistically significant difference in patient–physician communication quality between obese and non-obese patients (4). This study also used a self-administered survey to measure communication quality and BMI. It also restricted analyses to people who reported seeing a primary care provider, whereas in this analysis, we included people who had seen any non-emergency care provider in the past 12 months. This might explain the difference in findings if, e.g. communication with patients with obesity is much lower quality in primary care encounters than in specialty care encounters. To investigate this interpretation, the adjusted main effects model selecting only those who reported having a regular source of care was examined. The pattern of results for BMI did not change, although having a regular source of care does not necessarily mean that the doctor seen in the past 12 months was a primary care provider. Other research has found that physicians, on average, have less respect for patients with obesity (6) and want to spend less time with them (13). There is also evidence from a study using observed and coded encounters that physicians develop less rapport and engage in less relationship-building talk with patients with obesity (3). One possibility for the discrepancy in PCC rating between observed physician encounters and self-reported satisfaction by patients may be that patients are less likely to identify communication in the past 12 months as less patient-centred if their lifetime healthcare experiences have been of consistently lower quality.

The hypothesized association between BMI and less PCC existed in men only. This is consistent with prior research showing that obese men report less patient-centred care than women or non-obese men (36). The consistency between the prior research and this finding, using a large nationally representative sample, suggests that the healthcare domain may be a unique setting where obese/overweight men experience stigma differently than obese/overweight women. This is especially striking considering the evidence that outside of medical care, weight stigmatization is worse for women than men (33). One implication of this finding is that obese/overweight men may be at greater risk than women for worse adherence and outcomes associated with less PCC (3,19–24). Another implication of these findings, in light of evidence of observed difference in provider behaviour by patient BMI, is that men and women may experience similar provider communication differently. Alternatively, there may be actual differences in communication between male and female patients (rather than differences in perception only) that have not been identified in studies of observed patient–provider communication. Future research should

examine whether there are gender differences in observed communication with patients with obesity and whether the perception of less PCC among men contributes to gender differences in the utilization and outcomes of health care.

One potential explanation for the observed gender difference in the association between BMI and PCC is that women may be more likely to try different providers until they find one that they feel communicates well and does not stigmatize, whereas men may be less likely to ‘doctor shop’, although there is contradictory evidence that this is the case (43). There is also evidence that women who feel most stigmatized by their doctor avoid seeking follow-up care and thus may be excluded from this analysis (44). Given evidence that women experience more weight stigma outside of the healthcare setting (33), comments about and focus on their size and weight may be less unexpected and thus not identified as particularly stigmatizing. Finally, the extent to which these findings can be attributed to patient selection of same gender providers, combined with gender differences in communication, is not known (45).

In addition to the significant interaction between BMI and gender, several covariates were associated with PCC. Having a usual source of care was associated with PCC, which is not surprising because patients may be more likely to stay with a provider who communicated effectively. Older age was also associated with more PCC, and depressive symptoms were associated with lower PCC. Lower education was associated with greater PCC, which is somewhat surprising given previous research using the HINTS data that found no association (46). However, that relationship was modelled continuously.

There are clear limitations to this cross-sectional study, most notably the inability to draw causal conclusions and the inability to compare perceived with observed communication quality. Additionally, HINTS response rates, although comparable with other large population-based mailed surveys, may affect the generalizability of findings. Women and individuals with obesity were more likely to be eligible for study inclusion, which also may affect generalizability. Patient report is a commonly used method for assessing communication quality (41) but is more susceptible than direct third party observation to spurious associations driven by group differences in measurement bias.

## Conclusion

Results from this nationally representative sample suggest that for men, obesity is associated with a lower likelihood of reporting PCC in their healthcare encounters in the past year. This finding suggests that the impact of

weight bias on men and women may vary by setting and that in health care, obese/overweight men, but not women, may experience less PCC relative to normal weight individuals. Given evidence that communication quality predicts patient adherence and outcomes, this area deserves further extensive research in order to understand whether disparities in PCC contribute to differences in risk of chronic disease and poor health outcomes between patients with obesity and normal weight patients and whether these effects differ by gender.

## Conflict of Interest Statement

The authors declare no conflicts of interest.

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