Published in final edited form as:

Patient Educ Couns. 2014 September ; 96(3): 339–345. doi:10.1016/j.pec.2014.05.006.

Talking about depression: An analogue study of physician gender and communication style on patient disclosures

Debra L. Roter^{a,*}, Lori H. Erby^a, Ann Adams^b, Christopher D Buckingham^c, Laura Vail^b, Alba Realpe^b, Susan Larson^a, and Judith A. Hall^d

^aDepartment of Health, Behavior, and Society, Johns Hopkins Bloomberg School of Public Health, 624 N. Broadway, Baltimore, MD, 21205 USA; telephone 410 955 6498; fax 410 955 7241

^bUniversity of Warwick, UK

^cAston University, UK

^dNortheastern University, USA

Abstract

Objectives—To disentangle the effects of physician gender and patient-centered communication style on patients' oral engagement in depression care.

Methods—Physician gender, physician race and communication style (high patient-centered (HPC) and low patient-centered (LPC)) were manipulated and presented as videotaped actors within a computer simulated medical visit to assess effects on analogue patient (AP) verbal responsiveness and care ratings. 307 APs (56% female; 70% African American) were randomly assigned to conditions and instructed to verbally respond to depression-related questions and indicate willingness to continue care. Disclosures were coded using Roter Interaction Analysis System (RIAS).

Results—Both male and female APs talked more overall and conveyed more psychosocial and emotional talk to HPC gender discordant doctors (all $p < .05$). APs were more willing to continue treatment with gender-discordant HPC physicians ($p < .05$). No effects were evident in the LPC condition.

Conclusions—Findings highlight a role for physician gender when considering active patient engagement in patient-centered depression care. This pattern suggests that there may be largely

© 2014 Elsevier Ireland Ltd. All rights reserved.

*Corresponding Author: droter@jhsph.edu.

Publisher's Disclaimer: This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Conflict of interest

Debra Roter is the author of the Roter Interaction Analysis System (RIAS) and hold the copyright for the system. Johns Hopkins University also has rights to the RIAS coding software. Neither Debra Roter nor Johns Hopkins collects royalties for use of the system in research as is the case for the current study. Debra Roter and Susan Larson are co-owners of RIASWorks LLC, a company that provides RIAS coding services for non-university projects and it is possible that RIASWorks would benefit indirectly from dissemination of the current research. There are no other conflicts of interest for co-authors.

under-appreciated and consequential effects associated with patient expectations in regard to physician gender that these differ by patient gender.

Practice Implications—High patient-centeredness increases active patient engagement in depression care especially in gender discordant dyads.

Keywords

Depression; patient-centeredness; RIAS; analogue patients; patient-physician communication; gender concordance

1. Introduction

Depression is a common co-morbidity to a host of chronic medical conditions commonly encountered in primary care [1]. It is a risk factor for noncompliance [2] and is associated with increased morbidity and mortality [3]. Despite depression's frequency and clinical significance, both detection and treatment is poor [1,4]. Observational studies in primary care have found that discussion of depression, even among individuals experiencing symptoms, is infrequent and brief [5]. A variety of factors have been associated with inadequate address of depression by primary care physicians including time pressures exacerbated by competing medical priorities, fear of patient resistance to a mental health diagnosis, misattribution of depression to transient life events, and inadequate training in treatment modalities [5-7].

It is within the context of these challenges that physician gender may play a role. Female relative to male physicians spend more time with their patients [8] and engage in communication that more broadly relates to the patient's larger life context by addressing psychosocial and lifestyle issues and being more emotional responsive to their patients [9]. In fact, not only do female physicians communicate in what can be described as a more patient-centered manner, but their communication is reciprocated by their patients [10]. Patients of female doctors, both male and female, talk more overall, disclose more psychosocial and lifestyle information and are more engaged in the medical dialogue than patients of male physicians. Female doctors also differ from their male counterparts in their nonverbal repertoire, along the same lines as established in the general population, including a more positive and attentive nonverbal style marked by more eye contact, smiling, nodding, forward lean, close interpersonal distances, and greater expressivity in face, body, and voice [9,11].

Patient and physician gender concordance appears to strengthen these communication effects. A recent systematic analysis of this literature found that female concordant dyads were characterized by the highest levels of patient-centered communication and facilitative verbal and nonverbal behavior (relative to other combinations). Dyads composed of female physicians and male patients were higher on patient-centered and facilitative communication and were more likely to address the patient's emotional agenda than male-concordant relationships [12].

What is not clear from this literature is whether patients' greater verbal engagement when with female doctors is a function of the patient-centered communication style more broadly adopted by female physicians or a function of stereotypical expectations regarding women's greater attentiveness to and interest in the feelings and emotions of others. These stereotypes about women actually conform to documented gender-linked differences in communication style, emotional intelligence, expressiveness and interpersonal sensitivity -- all of which are applied to women regardless of their professional standing [13].

Investigations of stereotype bias have suggested that the overlap between stereotypical female behaviors and patient-centered behaviors appears to result in evaluative attributions of a female physician who is patient-centered as a "good woman" rather than a "good doctor" while a male physician who is patient-centered is evaluated as an especially good doctor [14-16]. For instance, in the study by Hall and colleagues [16] undergraduate students viewed and rated a set of videos in which physician communication style (high vs low patient-centered), gender and race were experimentally manipulated (the same videos as used in the current study). The students were asked to imagine that they were the patient to whom the doctor was speaking, that is to take on the role of an analogue patient in evaluating the viewed physician on several dimensions of satisfaction. The predicted gender bias emerged; high patient-centered male physicians were rated more highly than their female counterparts (by both male and female viewers) while there were no differences in ratings of low-patient-centered males [16].

These questions are explored by investigating the extent to which physician gender and communication style might affect analogue patients' responsiveness to depression care by actively immersing study participants in a computer-based primary care visit in which they respond to the actor-physician in the video as if in an actual medical visit. This approach was used by Schmid Mast and colleagues (14,17) in a somewhat similar design in which analogue patients orally responded to a male or female physician avatar programmed to appear as if communicating to them in a high or low patient-centered style. In the current study, video recordings of African American and white actors of both genders, rather than computer generated avatars, were used to deliver high and low patient-centered communication and questions to which analogue patients were asked to orally respond.

Other analysis of the current experiment is examining the main effects of physician style and race on analogue patient responsiveness. Preliminary findings indicate a variety of disclosure and rating differences favoring high patient-centered compared to low patient-centered condition (Manuscript under review). Moreover, physician race was not associated with these effects while analogue patient race effects were substantially reduced under the condition of high patient-centeredness.

Considering our earlier findings and those of Hall et al [13], we hypothesize that physician communication style would influence the impact of physician and patient gender on analogue patient responsiveness (both orally and in care ratings) to depression care. Because the communication repertoire associated with patient-centeredness is so strongly gender-linked, we anticipate greater gender effects will be evident in the high relative to the low patient-centered condition.

2. Methods

2.1 Recruitment

A total of 307 racially diverse male and female analogue patients were recruited by flyers in public libraries, community and senior citizen centers, churches and other public places around the Johns Hopkins Hospital and University asking for volunteers to participate in a research study to improve the way doctors and patients talk about depression, feelings and emotions. The study took approximately 1 ½ hours and volunteers were compensated \$30.00 for their time and effort. Individuals younger than 21 years of age and anyone currently being treated for depression were excluded from participation.

The study protocol was approved by the Institutional Review Board of the Johns Hopkins Bloomberg School of Public Health.

2.2 Procedures

Analogue patients were asked to think of a time in their lives when things were especially difficult and they felt physically and emotionally exhausted, and to consider that experience as they participated in the study. They were oriented to the study's computer program and told that they would be asked to participate in two medical visit simulations by verbally responding to the doctor's questions and comments as if talking to their own doctor. Responses were captured through the computer's video cam and the analogue patients rated the video doctors after completing after each simulation. Before seeing the doctor, analogue patients had a practice exchange with a video receptionist who welcomed the patient to the doctor's office and asked about the weather. The research assistant left the room after verifying that the program was being used correctly but was available nearby if help was needed.

2.3 Study manipulation

Four actors were filmed wearing a white coat and talking directly to the camera in a naturalistic manner. The gender (Male or Female), race (African American or white) and communication style (Low Patient-centered (LPC) or High Patient-centered (HPC)) of the physicians were experimentally manipulated to produce 8 simulation conditions that constituted a 2 by 2 by 2 factorial design. The program randomly selected two conditions for each analogue patient, assuring each communication style was selected with the sequence and gender/race factor combinations balanced.

The program presented a series of nine brief video segments (average duration 30 seconds) portraying a physician conducting a depression-focused primary care visit. Each segment ended with the physician asking for additional disclosure through a direct or indirect question. The computer's video recorder was automatically activated at the end of each segment to capture the analogue patient's response. When the response was finished (signaled by a keystroke), the next segment began with a preliminary statement generally acknowledging the earlier disclosure (e.g., "I am sorry to hear that"; "Ok, so you are having trouble") before moving to the next topic, thus simulating a clinical conversation. Each of the segments focused on a somewhat different aspect or theme of the medical interview,

which were: a greeting, elicitation of a presenting concern, probing the full spectrum of patient concerns, follow-up on stated concerns and symptoms, inquiry about family history, diagnostic considerations, treatment recommendations, counseling regarding the treatment plan and visit closing with plans for follow-up.

2.3.1 Script development—The scripts were drafted by the lead author (DR) consistent with earlier observational research in the delivery of depression care in primary care [5-7] and consistent with theoretical conceptualizations of patient-centeredness [10, 18, 19]. Patient-centeredness was operationalized as communication that is emotionally responsive (e.g., statements of empathy, concern, legitimization), facilitative of patient disclosure (e.g., asking for patient opinion and open-ended questions) and informative (provision of information and counseling, especially in the psychosocial and lifestyle domain). The HPC and LPC scripts differed in emphasis but did not present a stylistic caricature with almost all categories differing in relative rather than absolute frequency. For instance, the HPC script included 15 emotionally responsive statements (empathy, concern, reassurance) relative to 7 of these type statements in the LPC script. The HPC relative to the LPC script also included more open-ended questions (10 vs 8 questions, respectively) but fewer closed-ended questions (2 vs 5, respectively). The two conditions conveyed an equal amount of depression information, orientation and social amenities.

The scripts were reviewed by two primary care physicians and a psychiatrist and judged to be realistic.

Each script had a total of 50 statements; 31 statements were unique to each style and 19 were common to both. While the number of statements was equivalent, the HPC videos totaled 40 seconds longer than the LPC videos (207 vs 167 seconds, respectively) and included 112 more words (476 vs 364 words, respectively). Several extracts from the scripts are shown in Table 1.

Because interpretation of nonverbal behaviors is very context dependent, the actors were instructed to maintain a pleasant and open demeanor and not vary their nonverbal expression across conditions. The actors' nonverbal delivery (nodding, frowning, brow raises and the intensity of smiling) was assessed by two independent raters with adequate reliability. Cronbach's alpha reliability for the coders ranged from .61 to .93 and an average score between the two was used. Although the total number of actors is 4 (African American male; African American female; white male; and, white female each representing both HPC and LPC conditions), the manipulation was completely crossed allowing a series of t-tests to be performed comparing the nonverbal behavior means of 4 actors in each condition arm of the experimental design. No significant difference was found for any of the coded behaviors for the HPC vs LPC contrast or the African American vs white contrast. For physician gender, female doctors performed more head nods (32 vs 48) ($p < .05$) but no differences were found for any other behavior.

2.4 Analogue patient questionnaire

Verisimilitude—Analogue patients were asked to rate their ease in taking on the patient role when talking to the video doctor (very difficult to very easy) and how similar their

behavior was to how they would act with an actual doctor under the same circumstances (not at all similar to very similar). They were also asked to rate how real the doctor in the video seemed (not at all real to very real) and how similar the doctor in the video was to doctors they have received care from in the past (not at all similar to very similar). All responses were on 4-point Likert scales were combined to form an overall measure with adequate internal reliability (Cronbach's Alpha 0.73).

Affective impressions—The analogue patients rated 13 pairs of statements representing opposite descriptors of affective attributes such that higher scores reflect more positive demeanor (e.g., cold-warm; uncaring-caring; intolerant-tolerant, etc.) on a 10 cm line. The scale demonstrated high internal reliability (Cronbach's Alpha 0.96).

Non-verbal effectiveness—Analogue patient judgments of the doctor's nonverbal communication effectiveness were assessed for the following behaviors: (eye contact; smiles; head nods; appropriateness of facial expressions to the communication; responsiveness to emotional cues) on a 6-point Likert scale with good internal reliability (Cronbach's Alpha 0.83).

Receptivity to depression care from the doctor—Three items (confidence in the doctor, comfort in disclosing feelings and emotions and overall comfort with the doctor) (4-point Likert scale) were combined to form a measure of receptivity to depression care by the video doctor with good internal reliability (Cronbach's Alpha = .88).

Willingness to return to the doctor—A single item reflecting willingness to return to the doctor for follow up care was assessed on a 4-point scale (not at all, reluctantly, maybe, definitely).

Background characteristics—Analogue patients were asked to complete a background questionnaire following completion of the study to record sociodemographic characteristics, health status including depression history and a literacy screen using the 8-item Rapid Estimate of Adult Literacy in Medicine (REALM) [21] and a 3 item numeracy measure [22].

2.5 Analogue patient talk to the camera responses

The analogue patient responses were coded with the Roter Interaction Analysis System (RIAS), a widely used method for coding medical dialogue [20]. The coding unit is a complete thought that is assigned to mutually exclusive and exhaustive categories. In this study, responses were combined into four relevant code categories: (1) medical history/symptoms and treatment regimen related statements, (2) psychosocial and lifestyle statements, (3) emotionally focused statements, and, (4) positive statements. In addition, global ratings of affect during the disclosures were scored on a 6-point Likert-scale were made reflecting positive affect (interest, warmth, engagement and respectfulness) and negative affect (anxiety, distress, irritation and depressed mood). Both affect scales showed good internal consistency (Cronbach's alpha of .89 and .75, respectively).

2.6 Statistical analyses

Since earlier analysis established the main effects of communication style on analogue patient disclosure and ratings, the current analysis focuses on between subject variation to investigate the effects of patient and physician gender, and gender concordance, on outcomes stratified by communication style. To this end descriptive statistics, t-tests and chi-square analysis were used to contrast differences in sociodemographic and health status variables by patient gender. Analysis of variance (ANOVA), stratified by physician style, was conducted in which categories of patient disclosure and ratings (in separate analysis) were entered as dependent variables with analogue patient gender and physician gender as the independent variables. In all of these models, verisimilitude, depression status, literacy and numeracy were included as covariates. Data were analyzed using SPSS, Version 21 [23].

3. Results

3.1. Subject characteristics

A total of 306 participants enrolled in the study; 172 (56%) were female and 134 (44%) were male. As displayed in Table 2, the majority were African American and middle aged. Overall, 14% reported less than a high school education and another 30% did not continue their education past high school. About one-third of participants scored at the equivalent of 6th grade or below on a literacy screen and 59% failed to correctly answer the 3 basic numeracy screen questions. Females scored significantly higher than males on the literacy screen and tended to score higher than males on the numeracy screen.

Also reflected in Table 2, 32% of participants self-rated their emotional health as fair or poor and 24% self-rated physical health as fair or poor. Despite eligibility criteria excluding individuals who were currently in treatment for depression, 18% reported being currently depressed and an additional 25% indicated they thought they might be depressed or did not know if they were depressed. Consistent with these self-ratings, 44% reported that they had discussed depression with a doctor sometime in their past and 28% reported having been depressed sometime in their past. The majority of participants reported that it was easy (20%) or mostly easy (44%) for them to talk about their feelings, while the remainder was mostly uneasy (27%) or very uneasy (9%) about doing so.

There were no significant differences in any of these ratings by analogue patient gender.

3.2. Verisimilitude

The average verisimilitude score was 3.4 on a 4-point scale (range 2-4; SD = .40) reflecting scores of perceived realism falling mid-way between very and somewhat real and similarity to their experience with physicians ranging from very similar to somewhat similar. No subjects rated the videos as not at all real or not at all similar to their prior experience with physicians.

These scores are virtually identical in regard to male and female physicians in each communication condition. There were no significant differences in verisimilitude scores by analogue patient gender.

3.3. Main effects of physician and analogue patient gender

Physician gender was unrelated to analogue patient disclosures or ratings in the LPC condition, however, in the HPC condition, analogue patients rated female more than male physicians as displaying effective nonverbal communication (3.88 vs 3.64, respectively; $F=3.9$, $p=.05$). There were no significant physician gender differences in patient ratings of physicians' affective demeanor or receptivity to depression care from the doctor.

Analogue patient gender was significantly related to only one category of disclosure; in the HPC condition, male patients used more positive talk in their disclosures than female patients (mean number of positive statements 1.9 vs 1.3, males and females respectively; $F=4.2$; $p=.04$).

3.4. Effects of analogue patient and physician gender

In contrast to the few main effects for disclosure attributable to patient or physician gender, significant interaction effects (patient gender by physician gender) were evident in the HPC condition. Examination of the estimated marginal means (weighted for verisimilitude ratings, depression status, numeracy and literacy), displayed in Table 3, shows a significant pattern of results in which female analogue patients disclosed more information overall to male rather than female doctors while male patients disclose more information to female rather than male doctors. This effect is especially evident in the categories reflecting psychosocial and lifestyle information and emotional statements.

A parallel interaction effect is evident for patient willingness to continue in treatment; female patients indicated greater willingness to continue in treatment with HPC male rather than female doctors while male patients were more willing to continue in treatment with HPC female rather than male doctors.

There were no significant gender interaction effects in the LPC condition for any of these variables.

4. Discussion and conclusion

4.1 Discussion

The study findings support the contention that gender matters and it matters especially in high patient-centered interactions between physicians and patients. Moreover, it is not physician or patient gender alone in that condition that predicts oral responsiveness of analogue patients, but rather the gender interaction both participants. Female analogue patients disclosed more psychosocial and lifestyle information and expressed more emotion to male rather than female doctors. However, male patients expressed more emotion and disclosed more psychosocial and lifestyle information to female rather than male doctors. Consistent with the pattern of verbal engagement and disclosure, female analogue patients

were more willing to continue in treatment with male than female doctors and the opposite was true for male patients.

Results for the male analogue patients are in accord with gender-linked expectations that women are more nonverbally astute and receptive to discussions about feelings and emotions [11] and the small literature on gender concordance that characterizes the communication of female physician/male patient dyads as more likely to address the patient's emotional agenda than male-concordant relationships [12].

We speculate that some aspect of physician gender expectations may be in force for female but not male patients that is particular to disclosure of emotionally charged, depression-related information. Such a mechanism is suggested in an examination of patients' reported experiences of self-disclosure in psychotherapy [24]. A significant interaction between therapist and client gender was found in regard to distress associated with self-disclosure; specifically, female clients reported more disclosure-related distress when with a female compared to a male therapist while there were no differences in male client distress associated with therapist gender. The authors speculate that male therapists may be perceived as more authoritative and expert than female therapists (at least by female patients) or that male therapists may be seen as less judgmental. Other investigators have found that women report greater overall attachment to their male relative to female therapists and also report that these relationships have strong emotional aspects indicative of sexual tension but also an emotional safe haven [25]. For male patients in that study, neither disclosure distress nor attachment was related to therapist gender.

An additional study finding that may indicate gender stereotyping was found in the ratings of physician nonverbal behavior; female physicians were perceived as being more nonverbally effective than the male doctors (equally so by both male and female APs), but again only in the HPC condition. Independent coding of the male and female actors' nonverbal delivery found females to score higher on head nods than males but to be very similar in frowning, brow raises and the intensity of smiling; the nonverbal behaviors did not differ by patient-centeredness. It is possible that the patient ratings were sensitive to this small difference or it may be that there was an attribution of more effective nonverbal behavior to female doctors in accord with gender-linked expectations women are more nonverbally astute and receptive to discussions about feelings and emotions [11].

Consequently, female patients may very well hold similar gender-linked expectations as male patients regarding female doctors' nonverbal effectiveness and experience the benefits of gender-concordant communication described earlier, but the importance of these factors may be changed by distress and attachment strength when it comes to sensitive and emotional disclosures.

Study limitations include artificiality introduced in asking study participants to assume the analogue patient role and the use of video recorded actors as stand-ins for actual doctors. Nevertheless, we are reassured by relatively high ratings of study verisimilitude; participants reported ease in assuming the patient role, indicated that their disclosures about depression were similar to what they would say to an actual doctor under the same circumstances and

they judged the video doctors as seeming both “real” and similar to doctors from whom they received care in the past. These ratings are consistent with conclusions drawn from a recent systematic review of analogue patient studies that confirmed the validity of their use as a proxy for actual patient perceptions and judgments, especially when the analogues are similar in key characteristics with the patients with whom they are asked to identify [26]. In this instance, a significant proportion of the study subjects reported experience with depression and this may have enhanced their ease in engagement in the study simulation.

4.2. Conclusion

The study findings highlight the role of gender in patient responsiveness to patient-centered physician care. At least within the context of depression care, female patients may more fully disclose emotionally charged information to patient-centered male physicians and be more willing to continue in care with them than patient-centered female physicians. The opposite appears to be the case for male patients and they favor patient-centered female over male physicians. This pattern suggests that there may be largely under-appreciated and consequential effects associated with patient expectations in regard to physician gender that may be different for male and female patients, especially when considering the sensitive and emotionally charged nature of depression-related care.

4.3. Practice implications

Not to be lost in the interpretation of the study’s gender findings is the strong effect of patient-centeredness on psychosocial and emotional disclosure that is evident for patients of both genders. There is some evidence in the literature that male in contrast to female primary care physicians may be less engaged in the management of emotionally distressed patients given that they record fewer diagnoses of a psychosocial nature [28-29]. It is not known whether these differences can be attributed to communication style or physician gender but the current result suggests that both may be in effect. Nevertheless, considering the magnitude and significance of disease burden attributed to depression and the low levels of identification and adequacy of depression treatment for patients of both genders, this study suggests that a significant positive contribution to patient care can be achieved by attending to communication dynamics that are optimized within the context of patient-centered care.

Acknowledgments

The authors acknowledge with gratitude the help of the many study participants and our wonderful Research Assistants Yue Guan, Jennifer Halbert, Rita Johnson and Annie Waller who made it possible to conduct this study.

Role of Funding

Funding for this project was provided by the National Institute of Mental Health (NIMH) R01MH086449 (Debra Roter, PI) “Understanding Social Contributions to Disparities in Depression Care: US and UK”.

References

- [1]. Gonzalez HM, Vega WA, Williams DR, Tarraf W, West BT, Neighbors HW. Depression Care in the United States: Too little for too few. *Arch Gen Psychiatry*. 2010; 67:37–46. [PubMed: 20048221]

- [2]. DiMatteo MR, Lepper HS, Croghan TW. Depression is a risk factor for noncompliance with medical treatment: meta-analysis of the effects of anxiety and depression on patient adherence. *Arch Intern Med.* 2000; 160:2101–7. [PubMed: 10904452]
- [3]. Prince M, Patel v, Saxena S, Maj M, Maselko J, Philips MR, Rahman A. Global Mental Health: No health without mental health. *Lancet.* 2007; 370:859–77. [PubMed: 17804063]
- [4]. Craven MA, Bland R. Depression in Primary Care: Current and future Challenges. *Can J Psychiatry.* 2013; 58:442–8. [PubMed: 23972105]
- [5]. Ghods BK, Roter DL, Ford DE, Larson S, Arbelaez J, Cooper LA. Patient-Physician Communication in the Primary Care Visits of African Americans and Whites with Depression. *J of Gen Internal Med.* 2008; 23:600–6. [PubMed: 18264834]
- [6]. Robinson JW, Roter DL. Counseling by primary care physicians of patients who disclose psychosocial problems. *J of Fam Prac.* 1999; 48:598–605.
- [7]. Roter DL, Hall JA, Kern DE, Barker LR, Cole KA, Roca RP. Improving physicians' interviewing skills and reducing patients' emotional distress: A randomized clinical trial. *Arch Intern Med.* 1995; 155:1877–84. [PubMed: 7677554]
- [8]. Jefferson L, Bloor K, Birks Y, Hewitt C, Bland M. Effect of physicians' gender on communication and consultation length: a systematic review and meta-analysis. *J Hlth Serv & Res.* 2013; 18:242–8.
- [9]. Roter DL, Hall JA, Aoki Y. Physician gender effects in medical communication: A meta-analytic review. *J Amer Med Assoc.* 2002; 288:756–64.
- [10]. Roter DL, Hall JA. Physician gender and patient-centered communication: A critical review of empirical research. *Ann Rev Pub Hlth.* 2004; 25:497–519.
- [11]. Hall, JA.; Gunnery, SD. Gender differences in nonverbal communication. In: Hall, JA.; Knapp, ML., editors. *Nonverbal communication.* deGruyter Mouton; Berlin: 2013. p. 639-69.
- [12]. Sandhu H, Adams A, Singleton L, Clark-Carter D, Kidd J. The impact of gender dyads on doctor-patient communication: A systematic review. *Patient Educ Couns.* 2009; 76:348–355. [PubMed: 19647969]
- [13]. Briton NJ, Hall JA. Beliefs about female and male nonverbal communication. *Sex Roles.* 1995; 23:79–90.
- [14]. Schmid Mast M, Hall JA, Roter DL. Disentangling physician sex and physician communication style: Their effects on patient satisfaction in a virtual medical visit. *Patient Educ Couns.* 2007; 68:16–22. [PubMed: 17482418]
- [15]. Blanch-Hartigan D, Hall JA, Roter DL, Frankel RM. Gender bias in patients' perceptions of patient-centered behaviors. *Patient Educ Couns.* 2010; 80:315–20. [PubMed: 20638813]
- [16]. Hall JA, Roter DL, Blanch-Hartigan D, Schmid Mast M, Pitegoff C. How patient-centered do female physicians need to be? Analogue patients' satisfaction with male and female physicians' identical behaviors. *Hlth Comm.* Forthcoming.
- [17]. Schmid Mast M, Hall JA, Roter DL. Caring and dominance affect participants' perceptions and behaviors during a virtual medical visit. *J Gen Intern Med.* 2008; 23:523–7. [PubMed: 18259824]
- [18]. Mead N, Bower P. Patient-centredness: A conceptual framework and review of the empirical literature. *Soc Sci & Med.* 2000; 51:1087–110. [PubMed: 11005395]
- [19]. Mead N, Bower P. Measuring patient-centredness: A comparison of three observation-based instruments. *Patient Educ Couns.* 2000; 39:71–80. [PubMed: 11013549]
- [20]. Roter DL, Larson Susan. The Roter Interaction Analysis System (RIAS): Utility and Flexibility for Analysis of Medical Interactions. *Patient Educ Couns.* 2002; 46:243–51. [PubMed: 11932123]
- [21]. Bass PF III, Wilson JF, Griffith CH. A shortened instrument for literacy screening. *J Gen Intern Med.* 2003; 18:1036–38. [PubMed: 14687263]
- [22]. Schapira MM, Davids SL, McAuliffe TL, Nattinger AB. Agreement between scales in the measurement of breast cancer risk perceptions. *Risk Anal.* 2004; 24:665–73. [PubMed: 15209937]
- [23]. IBM SPSS Statistics Version 21. © Copyright IBM Corporation 1989; 2012.

- [24]. Pattee D, Farber BA. Patients' experiences of self-disclosure in psychotherapy: the effects of gender and gender role identification. *Psychother Res.* 2008; 18:306–15. [PubMed: 18815982]
- [25]. Parish M, Eagle MN. Attachment to the therapist. *Psychoanalytic Psychology.* 2003; 20:271–286.
- [26]. Blanch-Hartigan D, Hall JA, Krupat E, Irish JT. Can naïve viewers put themselves in the patients' shoes? reliability and validity of the analogue patient methodology. *Med Care.* 2013; 51:16–21.
- [27]. Roter DL, Hall JA. Why physician gender matters in the shaping of the patient-physician relationship. *J Womens Hlth.* 1998; 7:1093–97.
- [28]. Cypress, BK. Characteristic of visits to female and male physicians. US Department of Health and Human Services; Hyattsville, MD: 1980. Vital and Health Statistics: Series 13, No. 49
- [29]. Bensing J, van den Brink-Muinen A, de Bakker D. Gender differences in practice style: A Dutch study of general practitioners. *Med Care.* 1993; 31:219–29. [PubMed: 8450680]

Table 1
Extracts from physician scripts and Analogue Patient responses

High patient-centered	Low patient-centered
<p>Good morning, I'm Dr. Wallace. I know you spoke with our nurse and I have her notes which are helpful. But, I want to hear directly from you ... What brings you in today?</p> <p>I am sorry to hear that.</p> <p>What I would like to do today is get to know you a bit and understand what is happening. Then, we can make a decision together about what can be done to help you.</p> <p>Your problem is having a negative impact on many aspects of your life and I can see you are suffering.</p> <p>The symptoms you are describing could be depression but it is sometimes difficult to diagnose.</p> <p>What do you think is going on?</p> <p>Considering all that I have heard, I think you are depressed.</p> <p>There are a number of things that may help you feel better. Medications are effective for some patients and some patients are helped by talking to a therapist. I have seen a lot of patients with depression and what works for one person may or may not work for another. What do you think would help you the most?</p>	<p>Good morning, I'm Dr. Wallace. What brings you in today?</p> <p>Okay, so you are having some trouble.</p> <p>What I would like to do today is talk about your symptoms and what I think could help.</p> <p>Your problem is having a negative impact on many aspects of your life.</p> <p>The symptoms you are describing could be depression but it is sometimes difficult to diagnose.</p> <p>Could it be depression in your case?</p> <p>Considering all that I have heard, I think you are depressed.</p> <p>There are a number of things that may help you feel better. Medications are effective for some patients and some patients are helped by talking to a therapist. I have seen a lot of patients with depression and I do think you should wait to start treatment. I would like to start you on medication right away. If I prescribe medication for you, will you take it?</p>

Table 2
Analogue Patient Characteristics by Gender

Characteristics	Total (n=306)	Males (n=134)	Females (n=172)
Age	47.1 (range 21-88)	46.7 (range 21-83)	47.5 (range 21-88)
Ethnicity			
African American	214 (70%)	92 (68%)	122 (72%)
White	63 (21%)	27 (20%)	35 (21%)
Asian	20 (6.5%)	12 (9%)	8 (5%)
Mixed/other	8 (2.5%)	4 (3%)	4 (2%)
Health Literacy **			
< 6 th grade level	59 (20%)	35 (27%)	24 (15%)
6 th – 8 th grade level	39 (13%)	21 (16%)	18 (11%)
>8 th grade level	198 (67%)	74 (57%)	124 (67%)
Numeracy ⁺			
Less than basic	173 (59%)	69 (53%)	104 (63%)
Adequate	122 (41%)	61 (47%)	61 (37%)
Education			
< HS	44 (14%)	22 (16%)	22 (13%)
HS graduation	92 (30%)	49 (36%)	43 (25%)
Post high school	116 (38%)	45 (33%)	71 (41%)
College graduate	24 (8%)	8 (6%)	16 (9%)
Post college education	30 (10%)	11 (8%)	19 (11%)
Physical Health			
Excellent	66 (21.5%)	22 (16%)	44 (26%)
Good	168 (54.7%)	80 (59%)	83 (51%)
Fair	68 (22.1%)	30 (22%)	37 (22%)
Poor	5 (1.6%)	3 (2%)	2 (1%)
Emotional Health			
Excellent	56 (18.2%)	19 (14%)	37 (22%)
Good	153 (49.8%)	67 (50%)	86 (50%)
Fair	82 (26.7%)	43 (32%)	39 (23%)
Poor	16(5.2%)	6 (4%)	9 (5%)
Easy to talk about feelings			
Not at all easy	23 (9%)	12 (10%)	11 (8%)
Mostly not easy	70 (27%)	35 (30%)	35 (25%)
Mostly easy	113 (44%)	48 (41%)	65 (46%)
Easy	52 (20%)	21 (18%)	31 (22%)

Characteristics	Total (n=306)	Males (n=134)	Females (n=172)
Age	47.1 (range 21-88)	46.7 (range 21-83)	47.5 (range 21-88)
Past depression discussion			
Yes	135 (44%)	53 (39%)	82 (48%)
No	170 (56%)	82 (61%)	88 (52%)
Currently depressed			
Yes	46 (18%)	20 (17%)	26 (18%)
Not sure	65 (25%)	28 (24%)	19 (13%)
No	147 (57%)	59 (51%)	88 (62%)
Depressed in the past			
Yes	73 (28%)	33 (28%)	40 (28%)
No	185 (62%)	83 (72%)	102 (72%)

⁺ p<.1;

^{**} p<.01

Table 3
Interaction of AP and Video Doctor Gender in Depression-related Disclosures

	Male Video Doctor		Female Video Doctor		F; p-value
	Male AP	Female AP	Male AP	Female AP	
Total Statements					
HPC condition	34.4	39.7	48.0	34.0	F=5.9; p=.02
LPC condition	27.0	27.3	30.6	24.2	F=1.9; p=.17
Psychosocial statements					
HPC condition	14.8	17.0	20.5	13.5	F=4.8; p=.03
LPC condition	9.5	10.4	11.6	9.9	F=1.8; p=.18
Emotional statements					
HPC condition	7.4	9.4	11.0	8.2	F=5.4; p=.02
LPC condition	5.2	5.4	6.0	4.8	F=1.1; p=.29
Medical statements					
HPC condition	8.5	10.5	11.4	9.5	F=2.9; p=.09
LPC condition	9.5	9.1	8.4	9.5	F=1.6; p=.21
Positive talk					
HPC condition	1.5	1.3	2.2	1.3	F=2.8; p=.09
LPC condition	1.7	1.7	1.9	1.1	F=3.7; p=.06
Continue in Treatment					
HPC condition	3.4	3.5	3.7	3.4	F=4.8; p=.03
LPC condition	3.1	2.8	3.1	2.9	F=10; p=.80

Estimated means are weighted for verisimilitude ratings, depression status, numeracy and literacy.