

Inter-Rater Reliability of the Measure of Patient – Centered Communication in Health Promotion Clinic Visits with Youth

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Abstract

Patient-centered communication during clinic visits is critical for a patient and provider to establish a relationship that explores the patient's needs and desires and tailors health care accordingly. However, there are currently limitations to measuring patient-centered communication within the clinic visit. This study will examine the inter-rater reliability of a modified version of the Measure of Patient-Centered Communication (MPCC) for use with youth in health promotion clinic visits. Transcripts from actual patient-provider interactions (n=11) with 17-23 year old participants and providers (n=6; NPs and MDs) were analyzed for inter-rater reliability of a modified version of the MPCC. The MPCC demonstrated satisfactory inter-rater reliability among the five components of patient-centered communication ($\kappa=0.78$) and good mean inter-rater reliability among the five provider responses (percent agreement=87.5%). Measuring patient-centered communication presents challenges.

This study demonstrated that the MPCC could be a potential tool in this endeavor; however, adjustments are needed for it to be a reliable measure of patient-centered communication during clinic visits with youth. In order to provide patient-centered communication and care we must be able to accurately measure the communication and techniques being implemented in all patient visits.

Key words: Measure of Patient-Centered Communication, patient-centered communication, youth, inter-rater reliability

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Adolescent and young adult health clinic visits are critical events and are often an individual's first experience of communicating independently with providers about personal health concerns and/or behaviors. The United States Department of Health and Human Services' (USDHHS, 2012) Healthy People 2020 initiative recognizes health care providers' assessment and communication as essential components of reducing health risk

behaviors and improving health outcomes among youth. In addition, interactive patient visits are posited to benefit youth, as they would encompass the components of patient-centered care that are so critical to positive health care experiences. Thus, it is essential that methods be developed to reliably measure and implement components of patient-centered communication in order to truly engage youth and providers in clinical interactions occurring within a health care clinic visit.

Key characteristics of patient-centered care are patient involvement in care and individualizing patient care (Robinson, Callister, Berry, & Dearing, 2008). In addition, specific actions have been identified as essential

components of patient-centered care including confidentiality, courtesy, respect, empathy, mutual trust, accessibility, availability, and shared medical information (Kahn, Emans, & Goodman, 2001; Jennings, Heiner, Loan, Hemman, & Swanson, 2005; Robinson et al., 2008). However, the hallmark feature of high quality health care is open and honest communication between patients and providers (i.e., patient-centered communication; Robinson et al., 2008; USDHHS, 2012). Providers implementing patient-centered communication are able to understand and validate the patient's perspective, to view the patient as situated within their unique surrounding contexts, to reach a shared understanding on health decisions with their patients, and to share power in health care decisions with their patients (Epstein & Street, 2007). Patient-centered communication therefore forms the cornerstone of a trusting and respectful patient-provider relationship.

Background on Measuring Patient-Centered Communication

Over the last 25 years a variety of measures have been developed to evaluate different aspects of patient-centered care and communication. Some of these measures include observational tools such as audio- or video-taping patient-provider interactions. Although not an exhaustive list, major efforts in the measurement of patient-centered communication include the: (a) Euro-communication scale (Mead & Bower, 2000); (b) Roter-based method (Ford, Fallowfield, & Lewis, 1996; Roter, 1993); (c) Henbest-Stewart model (Henbest & Stewart, 1989; Henbest & Stewart, 1990); and (d) the Measure of Patient-Centered Communication (MPCC; Brown, Stewart, & Ryan, 2001).

Specifically, the Euro-communication scale (Mead & Bower, 2000) rates the provider's patient-centered behavior as poor to excellent within five dimensions: (a) problem definition; (b) decision-making; (c) identifying hidden aspects; (d) exploring patient reservations; and (e) overall response. Validation of this measure was sought in a sample of 72 visits between general practitioners and their patients. Results demonstrated low inter-rater reliability among reviewers but high internal consistency across individual doctors, which may reflect the limited developmental work completed with the measure and the inability of the measure to differentiate different components of patient-centered communication (Mead & Bower, 2000). The Henbest-Stewart model (Henbest & Stewart, 1989; Henbest & Stewart, 1990) also assesses the provider's behaviors and interactions with a patient. In particular, this measure estimates how open, closed, or attentive/non-attentive a provider's response is to a patient's feelings, thoughts, symptoms, and expectations (Henbest & Stewart, 1989; Henbest & Stewart, 1990). The Henbest-Stewart model has had limited reliability testing and validity testing has established that the measure may not be related to the psychosocial component of clinical visits; thus,

further work may be warranted in evaluating what components of patient-centered care and communication the model assesses (Mead & Bower, 2000).

The Roter-based method (Ford et al., 1996; Roter, 1993) is slightly different than the previous two measures, as it codes both patient *and* provider statements. There are 34 categories to describe what was discussed during the health care clinic visit and it also measures the extent to which the communication within the clinical visit was provider-centered or patient-centered (Ford et al., 1996; Mead & Bower, 2000). Past work with the Roter-based measure has demonstrated moderate to good inter-rater reliability (Ford et al., 1996; Mead & Bower, 2000; Roter, Hall, & Katz, 1987). Like the Roter-based method, the MPCC (Brown, Stewart, & Ryan, 2001) is a theoretically based measure that aims to understand the patient's unique experience of disease and health through open communication that is not solely focused on the provider's agenda. The MPCC utilizes six components to measure both the patient and provider's statements that reflect a patient-centered focus (Brown et al., 2001). The MPCC has demonstrated adequate inter-rater reliability ($r = 0.687-0.835$) and adequate validity, established by a high correlation with global scores ($r = 0.85$), in previous research conducted by experienced communication researchers (Brown et al., 1986; Stewart et al., 2000).

Although these measures are all a step toward better understanding the relationship and communication between providers and patients, they have been developed for and examined among middle-aged patients. Thus, little is known about measuring communication with young adults or adolescents. The transition into adolescence and young adulthood is associated with a myriad of health problems including more involvement in health-damaging behaviors, higher rates of mortality, and an increase in chronic conditions leading to the recommendation that health care systems should focus on how to communicate with youth about preventive services related to their health (Ozer, Urquhart, Brindis, Park & Irwin, 2012). Adolescence and young adulthood also entail significant developmental and social transitions that are influenced by numerous contextual factors including family, friends, school, neighborhoods, work, and society that intermingle to influence the individual's health and well-being (Muyle et al., 2009). Thus, it is essential that providers are able to communicate openly and honestly with adolescents and young adults. At this time, new models for improved patient-centered communication with youth are being developed. It is therefore essential that we have reliable and valid measures to evaluate patient-centered communication within the clinical setting. Mead and Bower (2000) warn investigators to select measures cautiously to ensure that the measure selected matches the operational definition of patient-centeredness and the patient population utilized in the study. Patient-centered communication within the health care clinic visit has not been considered specifically with youth; a developmental period where this type of connection and open communication may be most important.

Purpose

There is therefore a critical need to address this lack of knowledge regarding patient-centered communication between providers and youth patients as well as the ways in which it can be measured. Grounding attempts to measure patient-centered communication in theory is important (Mead & Bower, 2002), and can aid in findings being interpretable across studies and the lifespan. Accordingly, this study was guided by Stewart et al.'s (1995) Patient-Centered Clinical Method which is comprised of six components that are thought to be essential for a provider to comprehensively understand the patient and their health care needs and desires. These six components illustrate the framework for the definitions and measures of patient-centered care implemented in this study. These components include: (a) *exploration* of both the disease and the person's experience with illness; (b) understanding the *patient's health within their surrounding context*; (c) *finding common ground* between the patient and provider; (d) incorporating *health promotion and prevention* in every patient encounter; (e) using each patient contact to enhance the *patient-provider relationship*; and (f) *being realistic* about what can be accomplished at each patient visit in regards to time and resources (Stewart et al., 1995).

In using the Patient-Centered Clinical Method (Stewart et al., 1995) this paper will address two aims in order to enhance the literature on patient-centered communication using a modified version of the theoretically-grounded MPCC with a sample of youth: (a) determine the inter-rater reliability of this modified MPCC and (b) assess the utility of this modified MPCC in health promotion clinic visits.

Methods

This study will focus on the communication patterns of patients (n=11) and their providers (n=6) within three health care clinics who participated in audio recorded interviews during their health care clinic visit. Institutional review board (IRB) approval was obtained from each institution involved with data collection and a Certificate of Confidentiality was obtained. Assent for those under age 18 or consent for those 18 and older was obtained from all participants. A waiver of consent from parents was obtained for those under age 18.

Participants

Participants were both patients and providers. The patient sample was comprised of individuals from a participatory research-based randomized controlled trial designed to evaluate the effect of the event history calendar (EHC) and Guidelines for Adolescents Preventive Services (GAPS) clinical assessment tools on sexually active youths' cognitive appraisals of risk, sexual risk behaviors and intentions, and quality of communication with providers that was conducted between 2010-2013 (see Martyn et al., 2013 for additional details). These participants were from the

Midwest and were recruited via posted flyers and clinic staff at three locations: (a) a sexually transmitted infection (STI) clinic; (b) a community center that provides health care to Arab-Americans; and (c) a university health center. Inclusion criteria for patients were: (a) 15-27 year olds; (b) new patients to the clinic; and (c) able to speak, read, and write English. For this study, the patient sample (n=11) ranged in age from 17-23 years old (M=20.5 years; SD=2.5) and consisted of five females and six males. The majority of individuals self-identified their race as White (n=9; 82%), and four patients specified they were of Arab ethnicity (36%) while another six reported that they were not Hispanic (55%). All of the participants reported being students. Six of the audio-taped visits included the EHC intervention group and five were of the GAPS control group.

The sample of health care providers (n=6) in this study was predominantly female (n=5; 83%), ranged in age from 37-55 years old (M=45.3; SD=6.6), and included two physicians and four nurse practitioners. These providers all self-identified as White, five specified they were not Hispanic, and one reported an Arab ethnicity. Providers varied in their experiences, with a reported range of 5-20 years (M=12.3; SD=6.4) working with youth in primary health care contexts and engaging in visits that typically lasted between 5-30 minutes (M=22.5; SD=9.9).

Procedure and Measure of Patient-Centered Communication

Study procedures

After consent was garnered, randomization occurred among both the providers and participants. Providers were randomized within clinics so that each clinic had a provider in the intervention (EHC) and control (GAPS) group. The EHC is a calendar-based health history assessment tool that records past, present, and future goals focused on psychosocial characteristics of a patient including protective factors, risk behaviors, social supports, and education/employment (Martyn & Belli, 2002). The GAPS is a gold-standard health assessment tool designed to identify common causes of morbidity among youth to guide preventive health care guidelines within the clinic visit (American Medical Association, 1997; Levenberg, 1998). Once randomized, all providers underwent a two-hour training on the use of their respective history tool in a clinic visit with youth. Similarly, patients were also randomized when enrolled in the study. After randomization they completed a pre-intervention survey and the history tool to which they had been randomized (EHC or GAPS) before their clinic visit with a provider. After completion of the clinic visit patients completed a post-intervention survey as well as three, six, and 12 month follow-up survey assessments. Additional details about the randomization and study procedures can be found in Martyn et al. (2013).

Audio recordings

Throughout the study, selected clinic visits were audio recorded in order to provide an accurate account of the interaction between the provider and patient. Consent prior to the clinic visit was always obtained from both the patient and provider before any audio recording took place.

The provider was responsible for starting and stopping the audio recorder to coincide with the beginning and ending of the clinic visit so that members of the research team were not present during the clinical interaction. A member of the research team transcribed all audio tapes verbatim. This resulted in a total of 11 transcripts from patient-provider interactions.

Measure: The MPCC

The MPCC was used to explore the presence of patient-centered communication components during the clinic visits (Brown et al., 2001). In keeping with our theoretical framework, this tool is based on the six components of the Patient-Centered Clinical Method (Stewart et al., 1995): exploration; patient's health in context; finding common ground; health promotion and prevention; patient-provider relationship; and being realistic. The MPCC can be used to score the occurrence of these components during audio-taped or video-taped patient-provider visits (Brown, Stewart, McCracken, McWhinney, & Levenstein, 1986). In the past, this scoring tool has been implemented during clinical visits with a focus on a particular disease or illness, and statements from the patient are coded according to the six components of Stewart's Patient-Centered Clinical Method.

After the presence or absence of these components has been determined, the provider's response or lack of response to a patient's statement is assessed. The MPCC coding system is intended to capture three dimensions, or process categories, of patient-centered communication between the provider and the patient including: (a) examination of the patient's illness and symptoms; (b) investigation of the contextual factors that encompass the whole person; and (c) attainment of common ground or mutual definition of the problem, treatment, and goals (Brown et al., 2001). A yes or no format is used to identify and count the existence of provider behaviors that suggest a patient-centered approach. Traditionally scores are computed for each dimension of patient-centered communication by assigning points for the presence of patient-centered behaviors and then averaging these by a total possible score. This total score therefore represents the percentage of patient-centered communication ranging from 0 (not at all patient-centered) to 100 (very patient-centered).

The modified MPCC

Due to differences in the nature of the clinical visits for this study compared to those traditionally assessed with the MPCC, modifications were made to the MPCC in order to accurately capture all components of the clinic visits in this study. Specifically, the clinical visits considered in this study focused on health promotion and health risk prevention in youth, whereas clinical visits typically assessed with the MPCC tend to have a specific disease and illness focus. Changes to the tool included the: (a) scoring of the three additional

components of patient-centered communication that are measured in Stewart et al.'s (1995) model (i.e., *health promotion and prevention, patient-provider relationship, and being realistic*); (b) removal of *exploration* as a component of patient-centered communication; and (c) omission of provider response categories not applicable to certain components of patient-centered care. These modifications increased the relevance and usability of the MPCC for health promotion and health risk prevention clinic visits with youth.

Data Analysis

Data in the form of transcripts from actual patient-provider interactions were analyzed to establish inter-rater reliability of the components of patient-centered communication using kappa (Viera & Garrett, 2005). Additionally, the provider's responses were coded dichotomously (yes-no) to indicate whether or not the provider used patient-centered responses (i.e., *clearly expressed themselves, gave the patient an opportunity to ask questions, conducted a preliminary exploration of the patient's question/complaint/problem, allowed for mutual discussion, and clarified agreement with the patient*). The provider's responses were also analyzed to establish inter-rater reliability using consensus estimates of percent agreement to compare nominally scored concepts (Stemler & Tsai, 2008). The current analysis strategy was informed by theories of patient-centered communication (Stewart et al., 1995) and allowed for analyst triangulation (Patton, 1999). Triangulation in qualitative analysis allows for a more rigorous test of phenomenon within the data (Creswell, 2007; Glaser, 1978).

Accordingly, two members of the research team (a nursing research fellow and an undergraduate nursing student) performed a preliminary analysis of three different clinical visit transcripts independent of one another using the MPCC to find instances of the following components of patient-centered communication: *patient's health in context; finding common ground; health promotion and prevention; patient-provider relationship; and being realistic* (see Table 1 for definitions and examples). Then, these two individuals compared and counted any discrepancies in their coding as well as solidified operationalizations of the patient-centered communication components on this first round of transcripts. In the next step of analysis, these two researchers examined the transcripts with an eye towards the provider's response using five yes/no categories: (a) *clearly expressed* (the provider explained their reasoning and choices); (b) *opportunity to ask questions* (the provider allowed questions and did not cut off the patient); (c) *preliminary exploration* (the provider made at least one probing attempt into the problem or question); (d) *mutual discussion* (there was further exploration and exchange of ideas about the problem or question); and (e) *clarification of agreement* (the provider sought to make sure the patient understood). The researchers assessed their percent agreement on provider response coding and determined if any modifications to the tool were necessary before coding the remaining eight clinical visit transcripts. At this point, clarification of key component aspects were discussed, however, changes were not made with respect to definitions. The final stage of analysis involved a third

member of the research team (a postdoctoral fellow in social welfare, who was not involved in the prior phases of data analysis), who reviewed all coding procedures and audited the coding transcripts for validity including consistency with definitions.

Results

Inter-rater Reliability

The overall percent agreement for the components of patient-centered communication as measured by patient-provider transcripts was 86.6% between the two coders. To more stringently assess the inter-rater reliability, analysis of the kappa statistic was also conducted. Our kappa of 0.78 indicated satisfactory inter-rater reliability, using the commonly applied criteria of 0.70 (Viera & Garrett, 2005). Therefore, both statistics used to evaluate inter-rater reliability indicated that the MPCC is an adequate tool for assessing patient-centered communication within the health promotion visit with youth. Instances of disagreement were largely related to particular components of patient-centered communication (i.e., *finding common ground*, *patient-provider relationship*, and *being realistic*). It is important to note that two of these three components (i.e., *patient-provider relationship* and *being realistic*) were scored for this study in order to make the MPCC more relevant for health promotion clinic visits rather than health care clinic visits that focus on disease and illness, which was the original purpose of the MPCC.

Percent agreement for providers' responses using patient-centered communication techniques ranged from 75.0%-100.0% with a mean percent agreement of 87.5%. The results indicated that the MPCC was reliable and useful for assessing the provider's response to a youth patient using a patient-centered framework. See Table 2 for additional details.

Table 1 Definitions and Examples of Patient-Centered Communication Using the MPCC

Component	Definition	Example
Component II: Understanding the Whole Person	An integrated understanding of the whole person in the context of their life setting and stage of personal development that may include such things as family, their work, their beliefs, and their struggles with various life crises (Brown et al., 2001). Patient's cultural beliefs and attitudes also influence their care.	<p><i>PROVIDER: Excellent. Okay. And now there was fire?</i> <i>PATIENT: We had a fire in the Fall of '08, so like late October, so that last week of October, when my sister was in the ICU in the hospital for over a week on a ventilator for a couple of days, for like 4 or 5 days. And our entire second floor had to be redone.</i> <i>PROVIDER: WOW!</i> <i>PATIENT: That is definitely an issue we are dealing and that next year with obviously finances hurting and with everything else and having life just in chaos.</i> <i>PROVIDER: Wow that is a lot to deal with.</i></p>
Component III: Finding Common Ground	A shared attempt at finding common ground which involves creating an effective management plan by reaching agreement in three areas: (a) the nature of the problem and priorities, (b) goals of treatment and management, and (c) the goals of the patient and provider (Brown et al., 2001). If the patient and provider do not agree, then does the provider respond in an appropriate way to be able to still find common ground?	<p><i>PROVIDER: All right. So it looks like you are sexually active.</i> <i>P: Mmmhmm.</i> <i>PROVIDER: And, um, you said birth control so do you mean. Are you using condoms?</i> <i>P: No, we don't use condoms. But we do use, or she uses birth control.</i> <i>PROVIDER: So, what do you think about using condoms?</i> <i>P: Well, I mean we both discussed it and I mean I know it is something that we probably should do but at the same time since she is on birth control I guess mentally it alleviates that risk.</i> <i>PROVIDER: The risk of the pregnancy, certainly. Although it doesn't alleviate the risk of an STD.</i> <i>P: Yes.</i> <i>PROVIDER: So, even though I know that is probably an awkward thing to talk to your girlfriend about when you are in a monogamous relationship. So, that's hard. But certainly, you know, you are at risk, both of you are, for STDs. So, something to think about.</i> <i>PATIENT: Ok.</i></p>
Component IV: Incorporating Prevention and Health Promotion	In order to make an impact on health, there is a collaborative on-going effort to be able to provide education on both disease prevention and health promotion (Brown et al., 2001). Health promotion is the process of enabling people to take control over and to improve their health. Providers and patients jointly monitor areas in their life that need strengthening in regards to emotional and physical health while working in collaboration with other providers as needed. General recommendations are made for screening and health promotion.	<p><i>PROVIDER: Now, are you sexually active?</i> <i>PATIENT: Uh, I mean, yes. Not every day.</i> <i>PROVIDER: Not every day.</i> <i>PATIENT: No</i> <i>PROVIDER: Do you use condoms?</i> <i>PATIENT: Yes</i> <i>PROVIDER: All the time?</i> <i>PATIENT: Yes</i> <i>PROVIDER: Be careful, condoms very important. They protect you from diseases, especially HIV. You know, which you have forever. So, you got to be careful. It's the best thing to abstain, but if you cannot then using condoms will be the second best thing you can do. Ok, it's very important using condoms. Ok.</i> <i>PATIENT: Yes</i></p>
Component V: Enhancing the Patient-Provider Relationship	A conscious attention to enhancing the relationship in order to use the relationship for healing potential. Providers use themselves and their relationships with the patient through self-awareness, empathy, and positive self-regard to mobilize the strengths of the patients for a healing purpose (Brown et al., 2001).	<p><i>PROVIDER: Very good. Wow, you had a lot of opportunities to learn a lot of things from that experience.</i> <i>PATIENT: Oh, I know. Tell me about it.</i> <i>PROVIDER: And you have taken it in such a positive way.</i> <i>PATIENT: I'm just lucky, I'm lucky. I was lucky.</i></p>
Component VI: Being Realistic	The provider manages time efficiently for the maximum benefit of the patient while developing skills of priority setting, resource allocation, and teamwork (Brown et al., 2001). The provider must also respect their own limits of emotional energy (Brown et al., 2001).	<p><i>PROVIDER: And I mean even once a month, it's not drastic, but it's bad enough. I mean, I would advise you not to smoke at all, but....I mean if you were doing it once a day, two times a day, the risks would be a lot more, but I do recommend not to smoke at all. Um.....</i> <i>PATIENT: Uh, I don't do a whole lot – it's like one or two puffs and I'm done.</i> <i>PROVIDER: OK. Just so you know the risks....I mean, it's minimal risk the amount you are doing, but it's still a risk....yeah.</i></p>

Table 2 Percent Agreement for Components of Patient-Centered Communication and the Provider's Responses

Provider's Response

Component	Clearly expressed: Percent agreement	Opportunity to ask questions: Percent agreement	Preliminary exploration: Percent agreement	Mutual discussion: Percent agreement	Clarification agreement: Percent agreement	of
Component II: Understanding the Whole Person	N/A	94	94	88.1	N/A	
Component III: Finding Common Ground	92.3	92.3	92.3	84.6	100	
Component IV: Incorporating Prevention and Health Promotion	100	82.4	76.5	76.5	82.4	
Component V: Enhancing the Patient-Provider Relationship	95.8	N/A	79.2	75	91.6	
Component VI: Being Realistic	90.9	90.9	100	90.9	81.2	

Validity

The final phase of data analysis was an evaluation of the validity of the first two phases of coding. This required a third member of the research team to review all of the transcripts and coding decisions. Of the 156 communication components originally coded, the third coder agreed with 154 of the codes, translating to 98.7% agreement for the validity check. The two instances of disagreement involved two different components: *understanding the whole person* and *prevention and health promotion*. Specifically, where the first two coders had given a code of *understanding the whole person* the third coder felt that this was an example of a provider incorporating *prevention and health promotion*. In addition, there was a patient-provider interaction that was not coded by the first two coders that the third coder felt exemplified *prevention and health promotion*.

Discussion

Patient-centered communication and care are hallmark features of high quality health care and risk reduction (USDHHA, 2012) that allow for rapport building between the provider and patient, and provide the space to tailor health care options to the patient's needs and desires (Kahn, Emans, & Goodman, 2001; Jennings et al., 2005; Robinson et al., 2008). Unfortunately, traditional ways of measuring this type of care are limited, especially within the context of youth health care and clinic visits. This study attempted to modify a validated measure of patient-centered communication for adults, the MPCC, and assess its utility in youth health care clinic visits.

The results of this study suggest that the modified MPCC has satisfactory inter-rater reliability measured by percent agreement and the kappa statistic among the five components of patient-centered communication (i.e., *patient's health in context; finding common ground; health promotion and prevention; patient-provider relationship; and being realistic*). The modified MPCC also displayed good mean inter-rater reliability among the provider responses (i.e., *clearly expressed, opportunity to ask questions, preliminary exploration, mutual discussion, and clarification of agreement*).

These findings extend previous work on the MPCC by evaluating the tool with a new patient population, youth, using modifications for a health promotion visit. For instance past work by Pollak, Alexander, Grambow, and Tulsy (2010) did not achieve reliability while coding the component *finding common ground*. Additionally, Clayton, Latimer, Dunn, and Haas (2011) found that their inter-rater reliability while using the MPCC was below the desirable cutoff point of $r = .70$. These ubiquitously low levels of agreement may be related to the conceptualization and operationalization of the different components assessed in the MPCC. The original intention of the MPCC (Brown et al., 2001) was to aid in patient-centeredness within problem focused clinic visits (i.e.,

illness or disease focused visits) as opposed to health promoting components such as *health promotion and prevention, patient-provider relationship, and being realistic*, which were considered in this study.

As noted by Epstein et al. (2005), patient-centered communication is difficult to measure because it is both: (a) a state, or way of interacting within the clinic visit and (b) a trait of the provider. Thus, both subjective and objective methods of measurement are needed when considering patient-centered communication in order to gain an accurate understanding of this complex health care necessity (Epstein et al., 2005). This study established that currently available tools for measuring patient-centered communication are reliable for (a) health promotion visits and (b) for use in patient interactions with youth. As we look for ways to engage youth in health care interactions, it is imperative that we are able to understand and measure our ability to communicate with them in order to determine what models of care are needed and what works best for youth. Although novel in our efforts to examine patient-centered communication in youths' health care clinic visits, this study has certain limitations that should be recognized. Our sample was quite small and was not geographically diverse; thus, our ability to generalize our findings is hindered. Future work should expand the use of the MPCC to a larger sample of health promotion clinic visits in various locations to increase heterogeneity of samples and generalizability of findings. Furthermore, in this study both the patients and providers were aware of the fact that they were being audio-taped during their health care clinic visit, which may have influenced their behavior and/or responses (Coleman, 2000; Themessl-Huber et al., 2008). Our study was also limited in our attempt to use a more stringent measure of inter-rater reliability with the provider's responses. We were only able to utilize percent agreement because of the dichotomous scoring used to indicate whether or not provider's utilized each patient-centered response. Given the results for the components of patient-centered communication discussed in the visit and the high percent agreement achieved with the providers' responses, it is likely that we would have had similar findings for the kappa statistic if we had the appropriate data.

Conclusion

In sum, patient-centered care and communication are clinical skills that have been used by nurses for centuries. However, the ability to quantify and measure these skills is necessary in order to achieve widespread adoption across the health care sector. In its current form, the MPCC's utility is limited to health care clinic visits focused only on illness and disease as opposed to including wellness and prevention clinic visits as well. This study demonstrated that the MPCC may be a viable option to measure patient-centered communication in the context of all types of health care clinic visits; however, there are adjustments that are still needed especially when considering youths' health promotion clinic visits. Patients deserve care that is focused on their needs and desires. In order to provide this kind of patient-centered communication and care we must be able to accurately measure the communication and techniques being implemented in all patient visits.

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