Major Contribution

Introducing an Observational Rating System for Studying Concordance in Patient–Physician Relationships

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Abstract

We developed the System for Observing Medical Alliances (SOMA) to study relationships between medical providers and patients with medically unexplained symptoms (MUS). Based on literature in health psychology, medicine, and the psychotherapeutic alliance, the SOMA operationalizes three medical alliance dimensions: Engagement in the Consultation Process, Trust in the Provider, and Concordance of Illness Beliefs and Treatment Recommendations. Specific behavioral indicators, tallied as observed by trained judges, are used as the basis for rating each dimension. In a sample of 33 medical consultations with veterans who had MUS, interrater reliabilities ranged from .79 to .94. Notably, the other dimension ratings accounted for 40% of the variability in Concordance, with Trust in the Provider contributing unique variance. In addition to research, psychologists in integrated health

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settings can use the SOMA to consult and train medical providers on communication skills that enhance concordance.

Keywords
health psychology, prevention, professional issues, adult populations, hospital settings

Previously termed "somatization," conditions that are now referred to as *medically unexplained* (e.g., irritable bowel syndrome, chronic fatigue syndrome, fibromyalgia) are characterized by chronic symptoms for which the cause is unknown or contested (Page & Wessely, 2003). As described in the lead article of this Major Contribution (McAndrew et al., 2019 [this issue]), counseling psychologists can play multiple roles to improve the lives of patients with medically unexplained symptoms (MUS).

Our major role is, of course, a clinical one. Physicians often refer patients with MUS for cognitive–behavioral interventions. Indeed, cognitive–behavioral treatment is recommended as the first-line treatment for MUS (e.g., van Dessel et al., 2014). Although some patients gratefully accept a referral for mental health care, others see the referral as an invalidation of their illness (Page & Wessely, 2003). In cases like these, the psychologist who receives the "warm hand-off" from a physician needs to listen, understand, and empathize with the patient's frustration before explaining the potential benefits of psychosocial treatment.

Understandably, when diagnostic testing has been inconclusive and multiple treatments have been tried unsuccessfully, both physicians and patients are likely to be frustrated (Epstein et al., 2006). For this reason, psychologists can play two additional roles in the care of these patients: (a) training and/or consulting with medical providers about how to talk with patients about their chronic physical symptoms and, to guide these efforts, (b) researching best communication practices for relating to patients with chronic MUS (McAndrew et al., 2019).

At present, most of the literature on communicating and developing relationships with patients with MUS is clinical opinion or, if empirical, qualitative rather than quantitative (cf. van Ravenzwaaij et al., 2010). Overall, authors emphasize the need to reassure and empower rather than reject patients with MUS, who are frustrated over what they see as poor medical care (e.g., Page & Wessely, 2003). Patients want their providers to believe that their physical symptoms are real and to treat them respectfully. Exemplifying this point, Nordin et al. (2006), using qualitative methods,

found that for some patients with MUS improving their relationships with medical providers was their top concern, even exceeding their desire for functional improvement.

McAndrew et al. (2019) pointed out that counseling psychologists can also contribute meaningfully to the treatment of patients with MUS by researching the predictors and outcomes of effective patient–provider relationships. To further this objective, it is first necessary to identify the kinds of communications that characterize strong relationships.

Consistent with this thinking, we are conducting a federally-funded project to study effective aspects of observable physician–patient relationships in primary care consultations with military veterans who have Gulf War Illness, one type of MUS. For these veterans, that their physicians believe them concerning the etiology and reality of their symptoms is of paramount importance. The literature on concordance in medical care informed our plan for this project. *Concordance* refers to interactions in which patient and provider listen to one another's beliefs about the illness or condition, negotiate a shared understanding of these beliefs (Royal Pharmaceutical Society of Great Britain, 1997), and come to an agreement about how to move forward. Essentially, concordance is at the heart of what Epstein et al. (2005) termed *patient-centered communication*, meaning the patient and physician reach a "shared understanding of the problem and its treatment" (p. 1521).

Generally speaking, authors concur that a lack of concordance—*dis*cordance—is exceedingly problematic (e.g., Salmon, 2007; Wileman, May, & Chew-Graham, 2002). In the context of MUS, perceived discordance is common (Engel, Adkins, & Cowan, 2002) since patients often see their MUS as physically determined (Chew-Graham, Dowrick, Wearden, Richardson, & Peters, 2010; olde Hartman et al., 2009), whereas medical providers often see these conditions as stress-related (Reid, Whooley, Crayford, & Hotopf, 2001). Unfortunately, all too often discordant views wind up "pit[ting] patients and providers against each other" (McAndrew, Friedlander, Phillips, Santos, & Helmer, 2018, p. 140).

So how is concordance reflected in observable patient–provider communication? In searching the relevant literature, we found no measure of this specific construct, despite an abundance of articles on the characteristics of relationship-centered care (e.g., Roter, 2000) and shared decision-making (e.g., Makoul & Clayman, 2006). To fill this gap, we created the System for Observing Medical Alliances, or SOMA, to assess concordance of illness perceptions and treatment recommendations behaviorally. In this article, we describe the development of the SOMA and an initial test of its interrater reliability.

Our secondary aim in this article is to introduce readers to the health psychology literature underpinning our development of the SOMA. We begin with a discussion of the concepts *concordance around illness beliefs* (Phillips, Leventhal, & Leventhal, 2011; Royal Pharmaceutical Society of Great Britain, 1997), which informed the SOMA's operational definition of concordance, and *shared decision-making* in medical care (e.g., Makoul & Clayman, 2006), which informed our development of a pool of patient and provider behaviors that may facilitate concordance.

Concordance Around Illness Beliefs

To identify specific behavioral indicators of concordance for the SOMA, we began by reviewing Leventhal, Brissette, and Leventhal's (2003) Common-Sense Model of Self-Regulation (Hale, Treharne, & Kitas, 2007; Leventhal, Weinman, Leventhal, & Phillips, 2008; McAndrew et al., 2008). In this model, individuals' medical self-management efforts, including when to seek treatment and whether to follow a provider's suggestions, are guided by their beliefs about five aspects of the health threat (McAndrew, Friedlander, et al., 2018): (a) the identity or nature of the underlying condition, (b) its cause and (c) consequence, (d) the timeline for symptom relief or cure, and (e) the degree of perceived control over the problematic symptoms and possible treatments (McAndrew, Martin, et al., 2018; McAndrew, Schneider, Burns, & Leventhal, 2007).

From this perspective, individuals' self-management efforts are reflected in how they make behavioral adjustments in response to attempts to relieve a problematic health condition (McAndrew et al., 2008). Consider, for example, sudden, unusual, and acute back pain. The belief that the pain is due to back strain (identity) after lifting a heavy object (cause) prompts the person to apply a topical cream. If the pain continues unabated, the person's next self-management attempt might be to use a heating pad, get a massage, or take an analgesic. If all these control attempts fail, the person is likely to make an appointment with a medical provider, believing that the pain has become chronic (timeline) and may result in serious debilitation (consequence).

Furthermore, suffering from unexplained symptoms is sustained in a circular fashion by these kinds of illness beliefs (van Ravenzwaaij et al., 2010); that is, the onset of symptoms typically prompts a person to make some sense of them, but this increased sensitivity to the symptoms and consequent avoidance of physical and social activity may exacerbate the symptoms, leading to further attempts to find a cause, with increasingly more avoidance and greater functional impairment.

To interrupt this vicious cycle, providers need to negotiate a shared understanding of the health threat with their patients before recommending interventions to improve quality of life (McAndrew, Friedlander, et al., 2018). Supporting this point, the results of a survey of patients seeking care at an internal medicine clinic indicated that perceived concordance with physicians around illness beliefs predicted patients' adherence to their physicians' recommendations in the subsequent month (Phillips et al., 2011). By contrast, when patients and providers disagree about the nature or cause of a health condition, not only does their relationship tend to suffer (Hahn, 2001; Ring, Dowrick, Humphris, & Salmon, 2004; Smith et al., 2006; Wileman et al., 2002), but also the physician's recommendations tend to be dismissed or, if passively accepted, not adhered to.

In short, providers who recognize the importance of concordance purposefully engage patients in a discussion of illness beliefs to negotiate a singular view of the health condition that will align with the proposed treatment. In this sense, patient–provider concordance around illness beliefs is the outcome of shared decision-making, a more longstanding term in the health field.

Shared Decision-Making

Interest in viewing patients as partners in their health care has burgeoned over the past 35 years since the concept of shared decision-making was mentioned in a 1982 Presidential Commission report on biomedical ethics (Makoul & Clayman, 2006). Contemporary authors concur that medical care has moved away from what has been called the traditional, "paternalistic" approach to patients (Charles, Gafni, & Whelan, 1999, p. 651) to a more equitable sharing of treatment decisions. This movement was no doubt fueled by an exponential increase in treatment options for even the most serious diseases, and by the recognition that (a) benefits need to be balanced against risks when choosing one treatment option over another (Charles et al., 1999) and (b) patients differ in the value they place on risk taking (Ford, Schofield, & Hope, 2003).

Although the benefit of involving patients in decision-making has been amply demonstrated in terms of enhanced patient satisfaction, better adherence to treatment, reduction of physical symptoms, improved psychological well-being (Ford et al., 2003), and retention in therapy for PTSD (Mott, Stanley, Street, Grady, & Teng, 2014), less is known about behaviors that contribute to effective decision-making. Addressing this question, Ford et al. (2003) conducted a qualitative study in the United Kingdom to discover aspects of informed decision-making that people see as essential. Analysis of

semistructured interviews with patients, providers, and lay individuals showed no clear consensus on the amount of guidance medical personnel should offer patients, but the provision of up-to-date health information and a strong patient–provider relationship emerged as important themes. With respect to qualities of the relationship, most participants mentioned "trust, respect, honesty and partnership building" (p. 595), all of which seem essential for developing concordance.

Using a different methodology, Smith, Pandit, Rush, Wolf, and Simon (2016) surveyed 3,400 adults to understand the behavioral and demographic factors associated with patients' preferences for shared decision-making. Respondents who viewed this process as most beneficial were significantly older, more highly educated, had more income and were in better health overall, with fewer chronic conditions. When the researchers controlled for demographic characteristics, viewing shared decision-making as desirable was positively associated with what Smith et al. called *patient activation*, or "the degree to which an individual possesses knowledge, motivation, skills, and confidence to make effective health-related decisions" (p. 68). The authors recommended that providers need to prepare patients, particularly those who are younger, with low incomes, and less education, on how to engage in meaningful discussions of their medical care.

In short, the literature on shared decision-making highlights two important aspects of provider behavior that informed our creation of the SOMA: facilitating the patient's (a) trust and (b) active engagement in the consultation process. These aspects brought to mind the working alliance in psychotherapy, which Fuertes and colleagues (Fuertes, Boylan, & Fontanella, 2009; Fuertes et al., 2007) adapted to be a closer fit to physical medicine by defining it as "patient–provider trust and agreement about the nature of the treatment" (2007, p. 30). For this reason, we reviewed the literature on patients' and providers' perceptions of the medical working alliance to develop specific items for the SOMA.

Perceptions of the Medical Working Alliance

The working alliance construct, having originated in the psychotherapy literature, has recently received a fair amount of attention in the fields of physical rehabilitation (Hall, Ferreira, Maher, Latmer, & Ferreira, 2010) and oncology (e.g., Mack et al., 2009; Trevino, Maciejewski, Epstein, & Prigerson, 2015). As is well known in our field, perceptions of the working alliance have demonstrated significant, substantive associations with client outcomes in literally hundreds of studies of individual (Flückiger, Del Re,

Wampold, & Horvath, 2018) and couple and/or family (Friedlander, Escudero, Welmers-van der Poll, & Heatherington, 2018) therapies.

In adapting the shortened version (Tracey & Kokotovic, 1989) of the Working Alliance Inventory (Horvath & Greenberg, 1989) to physical medicine, Fuertes et al. (2007) discussed the failure of other medical relationship measures to adequately assess the alliance construct as defined by Bordin (1979): a strong emotional bond and negotiated agreements on the goals and tasks of treatment. Fuertes et al.'s (2007) 12-item Physician-Patient Working Alliance Inventory (P-PWAI) operationalizes the *bond* as liking, trust, understanding and confidence in the physician, and *agreements* as shared ideas about (a) the medical problem and treatment plan (goals), and (b) health improvement methods (tasks). From this definition, we considered that the trust aspect of alliance in medical care seems less personal than the emotional bond aspect of the alliance in psychotherapy, and the agreement aspect is more specific to concordance of illness beliefs and treatment recommendations.

Fuertes et al.'s (2007, 2009) studies with the P-PWAI showed significant associations between patients' perceptions of the alliance and their actual adherence to treatment recommendations, adherence self-efficacy, perceptions of their physicians' empathy, and satisfaction with medical treatment. However, because the self-report items on the P-PWAI are phenomenological (e.g., "I believe that my doctor likes me") rather than behavioral, we searched the observational communication literature to discover whether Fuertes et al.'s (2007, 2009) two aspects of the medical alliance (trust and agreement) had been operationalized behaviorally. As described next, compared to agreement and/or concordance, the relational aspect of patient–provider communication has received the bulk of attention in the health care literature.

Observing Relationship-Centered Care

The construct of relationship-centered care, characterized as optimal in terms of mutuality between patient and provider (Roter, 2000), set the stage for health researchers' development of various observer measures of physicians' communication behaviors. Describing what she called a building-block approach to studying these behaviors, Roter (2000) delineated five aspects of physician communication: information giving (content and manner), question asking (format and content), partnership-building, rapport-building, and socioemotional talk. All five of these aspects are represented in the Roter Interaction Analysis System (RIAS; Roter, 1977, 1995; Roter & Larson, 2002), the most comprehensive and widely used observer measure of patient–physician communication. Compared with other measures that only assess

the behavior of physicians (e.g., Elwyn et al., 2003; Krupat, Frankel, Stein, & Irish, 2006), the RIAS allows for an assessment of both the patient and physician, and accounts for nonverbal as well as verbal behavior.

Although the RIAS does not measure concordance, use of this measure in a study of contingent physician/patient behaviors (Eide, Quera, Graugaard, & Finset, 2004) informed our conceptualization of the SOMA. Specifically, Eide et al. conducted a lag sequential analysis of the RIAS' categories during cancer and hematology consultations to investigate how patient behaviors may have acted as cues for physician behaviors, and vice versa. The purpose of the analysis was to identify specific pairs of behaviors that might be significantly and substantively associated. Results indicated that, in both samples, behaviors indicative of emotional support (e.g., affirmation) on the part of the physician significantly preceded patients' expressions of concern about their condition. Similarly, patient expressions of concern were significantly followed by physicians' emotional support. The authors noted the importance of these relational aspects of communication given that in previous literature (e.g., Lo, 1995; Maguire, Faulkner, Booth, Elliott, & Hillier, 1996), questioning was described as the best method for prompting patients to become actively involved in the consultation process. The results of this sequential study supported our decision to include dimensions of patient engagement and trust in the SOMA.

Overview and Development of the SOMA

Alliance Dimensions and Items

The SOMA model has three alliance dimensions: Engagement in the Consultation Process (Engagement), Trust in the Provider (Trust), and Concordance of Illness Beliefs and Treatment Recommendations (Concordance). Based on their observations of patient and provider behavior (nonverbal as well as verbal), trained raters use these indicators to arrive at five ratings of a medical consultation: patient Engagement, provider contribution to patient Engagement, patient Trust, provider contribution to patient Trust, and patient–provider Concordance. The various operationally defined indicators, clustered within each dimension, reflect patients' positive or facilitative (+) and negative or hindering (-) behaviors related to engaging with and trusting their providers; providers' behaviors reflecting their contributions to (+) or detractions from (-) their patients' engagement and trust; and patient–provider interactions that reflect concordance (+) and discordance (-).

We developed the original pool of verbal and nonverbal behavioral indicators from four sources: (a) studies of concordance of illness beliefs, shared

decision-making and relationship-centered health care referenced earlier; (b) Fuertes et al.'s (2007, 2009) self-report measure of the medical alliance, the P-PWAI; (c) various observer systems for coding patient–physician communication (Del Piccolo, Putnam, Mazzi, & Zimmermann, 2004; Elwyn et al., 2003; Krupat et al., 2006; Roter & Larson, 2001); and (d) Friedlander et al.'s (2006) System for Observing Family Therapy Alliances (SOFTA-o), an observer measure of alliance-related behaviors in psychotherapy. Although the behavioral indicators in the SOMA system reflect medical working alliances in physical healthcare, we do not assume that this set of indicators reflects the universe of alliance-related behaviors, but rather is indicative of common occurrences in consultations with diverse kinds of medical providers.

We intentionally wrote the behavioral indicators (italicized) to require little inference on the part of raters. In order to further minimize subjectivity, raters were directed to refer to an indicator's operational definition when in doubt about its presence. As an example, a negative indicator of patient Trust, *patient refuses or is reluctant to respond to the provider's questions*, is operationally defined as:

> This item is checked each time the patient purposefully does not respond or react, verbally or nonverbally, to a comment, question, or request made by the provider. This item may also be checked if the provider has to repeat the comment or question multiple times in order to elicit a response (with the exception of patients who have difficulty hearing, etc.), or if the patient only responds when explicitly invited by the provider ("What do you think about that?" "Did you hear my question?"). The patient may also express reluctance by saying, for example, "I don't want to talk about it," or "I don't care," or "It's none of your business." Moments of silence in which the patient is thinking should *no*t be checked. Additionally, if the patient nods or shake his/her head, but does not respond verbally, this item should *not* be checked.

Next we present the definitions of each SOMA dimension, with sample behaviors; Table 1 shows hypothetical patient and provider dialogue for several indicators. The complete list of behaviors and their operational definitions can be found in the supplemental material (available online at https://journals.sagepub.com/doi/suppl/10.1177/0011000019891434).

Engagement in the consultation process. This refers to the patient's view of the medical consultation as meaningful and potentially helpful; a sense of involvement in the process; a sense that improvement of the medical condition or in the patient's health is possible. Examples of behavioral indicators

Table 1. Examples of SOMA Indicators and Illustrative Quotes by Alliance Dimension

Dimension	Sample Behavioral Indicators	Hypothetical Quotes
Engagement		
Patient	Patient asks the provider to explain the treatment recommendations	"So you think more exercise will help? How often should I be exercising?"
Provider	Provider encourages the patient to take an active role in the consultation	"I am really curious to hear your thoughts about what would be most helpful for you right now."
Trust		
Patient	Patient expresses confidence in the provider's knowledge, expertise, or ability to help	"You have always helped me in the past, and you are the one with the medical degree and experience, so I will do whatever you think I should try next."
Provider	Provider offers reassurance or normalizes the patient's reactions or emotions	"It is really hard to live with constant pain, and I am aware that many people with your condition often feel frustrated or even hopeless at times."
Concordance	Provider and patient agree on the etiology of the patient's health concerns	*Patient*: "I think I am short of breath because I have been smoking for so long." *Provider*: "Yeah, I think you are probably right about that."

of patient Engagement include *patient asks the provider to explain the treatment recommendations* (+) and *patient shows a lack of involvement or indifference toward the consultation process* (-). Some indicators of provider Engagement include *provider encourages the patient to take an active role in the consultation* (+), and *provider criticizes the patient's lack of involvement in the consultation process* (-).

Trust in the provider. The patient's sense that the provider is trustworthy, respectful, genuinely concerned, and cares about the patient's welfare; a sense that the provider has the requisite knowledge, skills, and expertise to help the patient; a sense of comfort, safety, and lack of defensiveness. Some patient indicators include *patient expresses confidence in the provider's knowledge/expertise or ability to help* (+), and *patient avoids eye contact with the provider throughout much of the consultation* (-). Examples of

provider indicators include *provider offers reassurance or normalizes the patient's reactions or emotions* (+), and *provider does not attend to overt expressions of patient vulnerability* (-).

Concordance of illness perceptions and treatment recommendations. The patient and provider have a sense of working collaboratively to understand and address the patient's symptoms and improve the patient's health, well-being, and quality of life; a sense of mutuality or solidarity ("we're in this together"), or a felt unity between patient and provider. Some patient–provider interactions indicative of concordance (+) and discordance (-) include *provider and patient agree on the etiology of the patient's health/medical concerns* (+), *provider and patient negotiate or compromise on how the patient will follow the treatment recommendation(s)* (+), *provider and patient disagree on the etiology of the patient's health/medical concerns* (-) and *provider and patient disagree that a proposed treatment plan can achieve the desired health outcome(s)* (-).

Assessments of Face and Content Validity

To refine our initial 84-item pool of indicators based on an assessment of face and content validity, we surveyed two panels identified through professional networks. First, 23 medical professionals (physicians, registered nurses, and dentists) were asked to indicate whether each behavioral indicator reflected a facilitative or hindering attitude toward the medical consultation on the part of patient or provider. Second, 12 health psychology researchers were asked to rate into which of the three SOMA dimensions each indicator could be categorized, its clarity (on a 3-point scale from *not clear* to *clear*), and representativeness (on a 3-point scale from *not representative* to *highly representative*). We also asked the panelists for suggested clarifications and identification of additional behaviors that they viewed as particularly relevant to the medical alliance.

Based on the responses of both panels, we eliminated eight indicators due to unclear positive or negative valence, a lack of clarity or representativeness, or an unclear match with the SOMA dimension. We also modified three Trust and Engagement indicators and recategorized them as Concordance. As described in more detail next, we used the resulting behaviors in the first assessment of the SOMA.

SOMA Rating Procedure

Similar to the rating procedure for Friedlander et al.'s (2006) observer measure of the psychotherapeutic alliance, trained SOMA raters independently

record the key behaviors that are clustered within each dimension as they observe the behaviors in a medical consultation session, referring to the operational definitions as needed. Next, each rater considers the frequency of the tallied behaviors, their valence (+ or -) and contextual meaningfulness in order to arrive at a global rating (for the entire consultation session) for each of the 5 SOMA dimensions (patient Engagement and Trust, provider Engagement and Trust, and patient–provider Concordance).

The ratings for each of the five dimensions can range from -3 (*extremely problematic*) to +3 (*extremely strong*). Based on specific guidelines in the rating manual, when only positive indicators are observed, the rating must be between +1 and +3; when only negative indicators are observed, the rating must be between -1 and -3; and when both positive and negative indicators are observed, the rating must be between -2 and +2. According to the guidelines, a dimensional rating of 0 (*unremarkable/ neutral*) is required when none of the behaviors in that dimension is observed.

Further Item Refinement and Interrater Reliabilities

In an initial test of the SOMA's interrater reliability, five raters (three women and two men PhD students in counseling psychology) used the SOMA to rate 33 audiotapes of primary and specialty care consultations with Gulf War veterans, all of whom had been deployed to the Persian Gulf between August 1990 and July 1991, and were formally diagnosed with Chronic Multisymptom Illness (i.e., MUS), commonly known as Gulf War Illness. These veterans (92% male; M_{age} = 51.33 years, SD = 4.59) identified as African American (29.17%), White/Caucasian (62.5%), Hispanic/Latinx (4.17%), or multiracial (4.17%). The providers either saw the veterans in primary care or at a specialty center, the War Related Illness and Injury Study Center, a national program in the Veteran's Administration Post Deployment Health Services. The consultations were conducted by physicians from various medical specialties (e.g., internal medicine, gerontology, physical medicine/rehabilitation, occupational medicine, pulmonary/chronic care) who reviewed the veterans' medical concerns (e.g., joint pain, irritable bowel syndrome) and conducted semi-structured interviews to obtain the veterans' personal health histories and inquire about their exposures to chemicals, dust, contaminated water, and so on, prior to making treatment recommendations.

To maximize rater independence, one three-person team rated patient Engagement and Trust, and a different two-person team rated provider Engagement and Trust. All five judges rated Concordance. The judges evaluated the audiotapes independently, after which as a team they negotiated discrepant ratings. By keeping track of the timing of each observed behavior

using the tape counter, team members easily discussed discrepancies while reviewing the audio recordings.

Since this was the first application of the SOMA, the raters conferred with the first author about adding or modifying specific indicators to more fully capture the consultation process. Specifically, we added two indicators to patient Engagement, we added one indicator to provider Trust, we deleted one indicator from patient Trust, and we modified one patient Engagement indicator. After these modifications, patient and provider Engagement each had 13 indicators, patient and provider Trust each had 14 indicators, and the Concordance dimension had 15 indicators. We adjusted the operational definitions of the new and modified items accordingly.

Based on the five judges' independent ratings of the development sample of audiotapes, we calculated intraclass correlation (ICC) reliabilities using a two-effects, consistency model in which raters were random and effects of the measures were fixed. Results were as follows: patient ICC $(3,3) = .94$ (Engagement) and .89 (Trust); provider ICC $(3,2) = .79$ (Engagement) and .82 (Trust); and Concordance ICC $(3,5) = .92$. Team members negotiated all discrepancies to arrive at the final ratings used in the following analyses.

Descriptive Statistics

Table 2 summarizes the means, standard deviations, skewness, kurtosis, and intercorrelations of the five SOMA dimensions based on the sample of 33 audiotapes. As shown in the Table, the indices were normally distributed, and all mean ratings were moderately positive. Ratings were highest for patient Engagement, and lowest for Concordance.

We anticipated moderately positive correlations between the two patient dimensions and between the two provider dimensions. Based on the development sample, this prediction was supported for patient and provider Engagement and Trust. Notably, only patient Engagement and patient Trust were significantly correlated with Concordance; however, the relation between Concordance and provider Trust approached significance ($p = .065$). Although patient Trust was significantly associated with provider Trust, patient and provider Engagement were not significantly correlated.

Prediction of Patient–Provider Concordance

For exploratory purposes, we regressed Concordance on the four other alliance dimensions. Results were statistically significant, $F(4, 26) = 4.36$, $p = .008$, $R^2 = .40$. Examination of the beta weights indicated that only patient Trust accounted for significant unique variance in the prediction of Concordance, $b = 0.45$, $t = 2.31$, $p = .03$.

Table 2. SOMA Descriptive Statistics and Interrater Reliabilities

Dimension	1	2	3	4	5
Patient					
1. Engagement	—				
2. Trust	.45**	—			
Provider					
3. Engagement		.12	−.01	—	
4. Trust	.07	.32*	.65***	—	
5. Patient–Provider Concordance	.46**	.58***	.13	.28	—
M	2.08	1.42	0.92	1.40	1.26
SD	0.82	1.15	0.85	0.83	1.02
Skewness	−0.54	−0.62	0.20	−0.56	−0.57
Kurtosis	−0.74	1.35	0.15	1.47	−0.00
Minimum, Maximum	0, +3	−2, +3	−1, +3	−1, +3	−1, +3
ICC	.94[a]	.89[a]	.79[b]	.82[b]	.92[c]

Notes. SOMA = System for Observing Medical Alliances. ICC = Intraclass correlation coefficient. *Ns = 33* (descriptive statistics), 16–23 (reliabilities). SOMA ratings can range from -3 (*extremely problematic)* to +3 (*extremely strong*), where 0 = *unremarkable* or *neutral.*
[a]Team 1 (3 raters). [b]Team 2 (2 raters). [c]Teams 1 and 2 (5 raters).
**p < .01. ***p < .001.

Discussion

Our immediate objective in creating the SOMA was to create a behavioral measure of the relationship between patients with MUS and their medical providers. Due to the contested nature of MUS, we anticipated that strong patient–provider relationships would be reflected in observed concordance about the nature of the illness and recommended treatment(s). This prediction was based on a study (Phillips & McAndrew, 2019 [this issue]) in which self-reported concordance about MUS between patients and providers was associated with greater patient satisfaction, and on interviews with patients and providers who described discordance about the nature of MUS as an indicator of a poor medical alliance (Ring et al., 2004; Smith et al., 2006).

In our initial assessment of the SOMA, we sampled health care consultations with Gulf War veterans suffering from MUS. As anticipated, our results indicated that Engagement and Trust were positively associated within each perspective (i.e., patient, provider). Notably, only the two patient dimensions were significantly associated with patient–provider Concordance, a finding that reflects (a) the importance of active patient involvement in the health

care literature (e.g., Smith et al., 2016), and (b) the adaptation of the working alliance to the medical encounter, in which patient trust figures prominently (Fuertes et al., 2007, 2009).

This is not to say that provider behavior is unrelated to concordance. Rather, it seems likely that providers' attempts to enhance their patients' trust may indirectly facilitate concordance. Although this reasoning awaits further testing, we found a significant correlation between patient and provider Trust, and patient Trust was the strongest unique contributor to Concordance. Our latter finding extends the literature on facilitation of concordance around treatment recommendations. In particular, our result is consistent with studies indicating that providers' trust-building behaviors are crucial aspects of relationship-centered care (Eide et al., 2004), especially for patients who have MUS (Nordin et al., 2006; Page & Wessely, 2003). For example, in one study, 30% of veterans suffering from MUS indicated that having a provider validate their experience was the most helpful aspect of the encounter (Anastasides et al., 2019).

Interestingly, the nonsignificant association between patient and provider Engagement indicates that these two perspectives on engagement were distinct (i.e., patients' behavior was reflective of their level of engagement vs. providers' behavioral contributions to their patients' engagement). Alternatively, because patient Engagement was, on average, quite high compared to provider Engagement and provider Trust, the physicians in our sample may have considered it more necessary to foster their patients' trust than their engagement. This explanation is consistent with the results of an observational study of supportive communication by medical providers (Street, O'Malley, Cooper, & Haidet, 2008), in which patient engagement was self-initiated 84% of the time. Similarly, Street, Gordon, Ward, Krupat, and Kravitz (2005) concluded that supportive communication is infrequent, but when providers do provide support, it tends to facilitate greater patient engagement.

Some authors have suggested that active patient engagement, with little encouragement on the part of providers, can challenge traditional expectations for medical care (Anderson & Funnell, 2010). In support of this claim, a qualitative study indicated that patients with MUS are seen as demanding when they pressure their providers for medical interventions (Salmon, Ring, Dowrick, & Humphris, 2005). In this regard, the high average patient Engagement rating in our military sample is noteworthy, given that veterans with MUS have had to empower themselves to manage their condition (Iversen, Chalder, & Wessely, 2007; Zavestoski et al., 2004). For most of the 25 years since Operation Desert Shield and Operation Desert Storm (Persian Gulf War), veterans with MUS have been marginalized by the medical

community, told by physicians that their symptoms are either "all in [their] head" or due to posttraumatic stress (Brown et al., 2001). In response, these veterans have advocated for better treatments, resulting in the Veterans Administration and Department of Defense investing hundreds of millions of dollars to improve the treatment of Gulf War Illness.

Although we created the SOMA to study war-related MUS, researchers can use the measure to investigate medical alliances in various physical care settings with diverse populations. Indeed, our conceptualization of concordance as a critical component of the medical alliance reflects the growing trend in health care in which the term *compliance* with treatment was first replaced by *adherence* to treatment, and then more recently by *concordance* (Bell, Airaksinen, Lyles, Chen, & Aslani, 2007).

In developing the operational definition of concordance for the SOMA, we included patient–provider agreement on illness perceptions as well as on treatment recommendations. This definition is our contribution to the concordance literature, which mainly focuses on the shared decision process regarding treatment options (Joosten et al., 2008). However, patient and provider also need to agree on the nature and etiology of the problem, that is, when patient and provider do not share an understanding of the problem, self-management is likely to be compromised, as the daily management of chronic conditions like MUS relies heavily on the patient's investment.

In reviewing the health psychology literature, we found that despite growing theoretical, empirical, and clinical interest in concordance, there is little understanding of its behavioral manifestation. We believe that our identification of key behavioral indicators of concordance for the SOMA will be helpful for psychologists, especially as they carry out consultations with physicians who are having difficulty reaching concordance with their patients. Because medical providers tend to overestimate their patients' understanding, satisfaction, and adherence intentions (Phillips et al., 2011; Shannon, Mitchell, & Cain, 2002), estimation levels may improve when providers are introduced to the SOMA's behavioral indicators of concordant versus discordant communication, patient indicators of engagement and trust, and specific behaviors providers can use to facilitate patient engagement and trust. In this sense, the SOMA is potentially as important for the training of medical students and residents as it is for researching patient–physician interactions.

A strength of the SOMA is its relative ease of use. Raters do not require extensive training, and unlike some coding systems, a transcript of the medical encounter is not needed. We found that within a few hours of working with the measure, our raters, none of whom was a medical provider, could code in time with the audio recording. In other words, providing a SOMA rating for a consultation only takes as long as the length of the recording.

Future studies should be conducted to examine if concordance is optimized when the levels of both patient and provider engagement are high. It is also important to examine the longitudinal development of patient trust and engagement to understand their temporal relations to patient–provider concordance. With a large sample, researchers could determine whether patient engagement mediates the relation between provider trust and concordance. In other words, particularly for patients with complex conditions, is concordance stronger when providers intentionally make the consultation process as comfortable as possible in order to activate patient involvement?

Because our assessment of the SOMA was based on a sample of primary and specialty care consultations with veterans who have MUS, future researchers could determine whether the measure is equally reliable for studying encounters among patients with other physical health conditions and diverse medical providers, such as physician assistants, dentists, or chiropractors. It would also be important for researchers to determine the degree to which ratings of the three SOMA dimensions—Trust, Engagement, and Concordance—are most predictive of patient compliance with the negotiated treatment recommendations. For example, does high concordance predict patient follow-through on health promotion behaviors such as exercise and diet?

The SOMA is the first observational measure of the working alliance tailored specifically for patient–provider relationships in physical healthcare. In introducing this measure to readers, we wanted to provide an example of how, as counseling psychologists, we can leverage our expertise in relational psychotherapeutic processes to enhance the care of medical patients through research, consultation, and training. As the SOMA's development was part of a large, federally funded study of patient–provider relationships for veterans with MUS, a secondary aim of this article is to encourage counseling psychologists to collaborate with physicians to conduct grant-funded research in areas that speak to our expertise (cf. Burrow-Sánchez, Martin, & Imel, 2016), such as developing and sustaining strong interpersonal relationships.

Declaration of Conflicting Interests

Funding

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