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Futris, Ted G.; Campbell, Kelly; Nielsen, Robert B.; and Burwell, Stephanie R., "The Communication Patterns Questionnaire-Short Form: A Review and Assessment" (2010). *Psychology Faculty Publications*. 4.
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Running head: PSYCHOMETRICS PROPERTIES OF THE CPQSF

The Communication Patterns Questionnaire-Short Form: A Review and Assessment

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ABSTRACT

The Communication Patterns Questionnaire-Short Form (CPQ-SF) is an 11-item self-assessment of spouses' perceptions of marital interactions. A cited reference review of the CPQ-SF literature revealed no formal assessment of its psychometric properties and that researchers are imprecise in their use, reporting, and referencing of the assessment. Toward improving the use of the CPQ-SF in research and practice, the factor structure and psychometric properties of this scale were examined with data collected from a diverse sample of married individuals. Three latent constructs were identified: criticize/defend, discuss/avoid, and positive interaction patterns. Support for the original two-factor structure, demand/withdrawal and positive interaction, was also found. Suggestions for a more precise use of the CPQ-SF in research and practice conclude the paper.

Key words: Assessment, Communication Patterns Questionnaire Short-Form, Marital Communication, Conflict, Interaction Patterns, Demand-Withdraw

The Communication Patterns Questionnaire-Short Form: A Review and Assessment

In an effort to understand various marital outcomes, researchers have conducted observational studies of married couples and their interaction patterns (Gottman & Notarius, 2000). Although observational methods provide exceptional assessments of marital interactions, they are costly and time consuming to use (Hahlweg, Kaiser, Christensen, Fehm-Wolfsdorf, & Groth, 2000). They are also unnatural in that couples are prompted to engage in a conflict discussion while being videotaped in a laboratory setting (Eldridge & Christensen 2002; Roberts, 2000). This limits the ability to capture conflict occurring across different time points (e.g., a problem occurring in the morning might be discussed in the evening) and multiple settings (e.g., the car, the bedroom). As well, couples are not likely to engage in behaviors reflective of withdrawal and avoidance when instructed to discuss a topic for a specified amount of time. Last, observational methods rely on researchers' codings of the interaction, which may not reflect the couple members' perceptions of the conflict discussion.

Christensen (1987; 1988; Christensen & Sullaway, 1984) developed the Communication Patterns Questionnaire (CPQ) to address the limitations of observational assessments of couple interactions. Items for the CPQ were developed by Christensen and Sullaway (1984). Drawing from their extensive clinical experience and research, and the work of Fogarty (1976), Gottman (1979), and Peterson (1983), they composed an initial list of scale items representing couple interaction and communication. These items were then refined through a series of empirical studies with couples. The final CPQ consisted of 35-items in which couple members are asked to independently self-report on their typical interaction patterns. The CPQ assesses interactions across three time periods: when an issue or problem arises, during discussions of the issue or problem, and after discussion of the issue or problem. Respondents read descriptions of how

conflict might typically be addressed in their relationship and use a 9-point Likert scale to indicate the likelihood of that particular pattern occurring. Each pattern is reflective of either complementary behavior, where partners exchange different behavior (e.g., “Man tries to start a discussion while woman tries to avoid a discussion”), and symmetrical behavior, where partners exchange similar behavior (e.g., “Both members avoid discussing the problem”).

Researchers have conceptualized the CPQ subscales differently over time. Initially, Christensen (1988) theoretically organized 11 of the CPQ’s 35 items into 3 subscales: (a) demand/withdraw communication (6 items), in which one partner initiates discussion, demands, criticizes, or nags, while the other partner avoids or withdraws from discussion; (b) demand/withdraw roles, which consists of the same six interaction patterns but men’s scores are subtracted from women’s scores to identify which gender demands versus withdraws the most; and (c) mutual constructive communication (5-items), in which both partners contribute to the discussion and try to solve problems. Subsequently, Noller and White (1990) identified four subscales: (a) destructive process, which is similar to Christensen’s (1988) demand/withdraw communication subscale; (b) coercion, which included threatening, aggressive, and pressuring/resist interaction patterns, (c) mutuality, which consisted of symmetrical interaction patterns such as mutual avoidance, discussion, expression, negotiation, and withdrawal; and (d) post-conflict distress, which included post-conflict interaction patterns in which one partner feels guilty or tries to reconcile while the other feels hurt or withdraws.

Next, Christensen and Shenk (1991), like Christensen (1988), divided the CPQ into a mutual constructive communication subscale and a demand/withdraw communication subscale, but separated the latter into two scores reflective of gender specific patterns (wife demand/husband withdraw and husband demand/wife withdraw). They also added the mutual

avoidance subscale which consisted of three symmetrical patterns in which both partners avoid, withdraw, or withhold from discussion. Last, Heavey, Larson, Zumbotel, and Christensen (1996) reconceptualized and examined the psychometric properties of the constructive communication subscale, which consisted of the sum of three items reflecting positive communication patterns (i.e., mutual discussion, expression, and negotiation) being subtracted from the sum of four items assessing destructive communication patterns (i.e., mutual blame, mutual threat, and verbal aggression by the man and by the woman).

Overall, the CPQ and its subscales have been used widely in research on couple communication and therapy and have demonstrated acceptable validity and reliability (Christensen, Eldridge, Catta-Preta, Lim, & Santagata, 2006; Doss, Thum, Sevier, Atkins, & Christensen, 2005; Roberts, 2000). Importantly, research has demonstrated consistency between partner self-reports, self-reports, and observer ratings (e.g., Bodenmann, Kaiser, Hahlweg, & Felm-Wolfsdorf, 1998; Christensen, 1988; Hahlweg et al., 2000).

The CPQ Short-Form

Christensen and Heavey (1990) developed a condensed version of the Communication Patterns Questionnaire, the CPQ-Short Form (CPQ-SF). The scale asks spouses to identify their typical communication patterns for two of the original three time periods: when an issue or problem arises and during discussions of the issue or problem. Items from the CPQ that pertained to these two time periods and that assessed demand/withdraw and positive interactions were included in the CPQ-SF. As shown in Table 1, the short form consists of 11 items, six to assess complementary interaction patterns between spouses and five to assess symmetrical interaction patterns. The complementary patterns include: one partner discusses while the other avoids, one partner demands while the other withdraws, and one partner criticizes while the other defends.

Each of these patterns is assessed with two items that present the wife and husband in alternating roles. The symmetrical patterns reflect mutual discussion, expression of feelings, negotiation, avoidance, and blame.

Christensen and Heavey (1990; Heavey, Layne & Christensen, 1993) conceptually organized the CPQ-SF into 4 subscales: (a) wife demand/husband withdraw (sum of items 3, 8, and 10); (b) husband demand/wife withdraw (sum of items 4, 9, and 11); (c) total demand/withdraw (sum of items 3, 4 and 8-11); and (d) overall positive interaction (sum of items 2, 5, and 7). The demand/withdraw subscales of the CPQ-SF consist of the same items used in the demand/withdraw communication subscale of the CPQ. The overall positive interaction subscale represents three of the five symmetrical interaction patterns from the original mutual constructive communication subscale (Christensen, 1988). Christensen and Heavey do not indicate how the remaining two symmetrical interaction patterns in the CPQ-SF (i.e., mutual avoidance and mutual blame, items 1 and 6) fit into the subscales, or explain why they are excluded. To date, no formal assessment of the CPQ-SF's factor structure or psychometric properties has been published.

We conducted a cited reference search using the Web of Science to identify research that had cited publications that originally present the CPQ-SF (Christensen & Heavey, 1990; 1993; Heavey, et al 1993). A total of 231 authors cited Christensen and Heavey's (1990) article, 155 authors cited Heavey et al's (1993) article, and another 39 authors cited Christensen and Heavey's (1993) book chapter. From these publications, we determined that 21 had administered the CPQ-SF to participants who reported on their couple relationships (see Table 2). The other papers referenced the CPQ-SF publications but did not administer the scale to participants, administered the full CPQ or were not clear on whether they used the short or full version of the

CPQ, or administered the CPQ-SF to samples where the focus was not on intimate partner relationships (e.g., adolescent-parent dyads). We used these 21 empirical studies to identify what is currently known about the CPQ-SF, including its factor structure and psychometric properties.

In reviewing these studies, we noticed a number of inconsistencies in the use and referencing of the CPQ-SF. For example, researchers referred to the CPQ-SF using different acronyms (study 7, 11), described the scale as consisting of eight (study 5, 7) or seven (study 12) items rather than 11, and used Likert scales with differing anchor points (i.e., 7-points rather than 9; study 18). The overall positive interaction subscale was referred to by different names including mutual constructive communication (studies 1, 6, 12, 16), constructive communication (studies 7, 17), positive communication (study 11, 15), symmetrical positive communication (studies 8, 20), and mutually integrative interaction (study 18). Researchers also failed to cite the appropriate source(s) when describing the CPQ-SF and/or cited studies to support the CPQ-SF's validity and reliability that pertained to the CPQ, not the CPQ-SF (studies 2, 5, 7, 15, 18, 19). Only five studies (studies, 1, 6, 8, 11, 16) used the full 11-item CPQ-SF and cited the appropriate source(s) (i.e., Christensen & Heavey, 1990; 1993; Heavey et al., 1993).

These inconsistencies in the use and citation of the CPQ-SF present some challenges for researchers who desire to either replicate or place prior research into context, but in most cases a thorough reading of the articles provides clues to the methodological path taken by the researchers. Like most studies using the 35-item CPQ measure, all 21 studies examined demand/withdrawal communication patterns. As shown in Table 2, five studies computed only a total demand/withdrawal score (studies 5, 6, 7, 8, 11), 13 studies computed only female demand/male withdrawal and male demand/female withdrawal scores (studies 2, 3, 4, 9, 10, 13, 14, 15, 17, 19, 20), and three computed all three scores (studies 1, 12, 21). Most of these studies

adhered to the conceptualized scoring of these subscales, however five studies that only examined gender-specific demand and withdrawal communication patterns (studies 3, 9, 10, 13, 14) intentionally excluded items 3 and 4 (see Table 1), albeit for different reasons: Heffner, Loving, Kiecolt-Glaser, Himawan, Glaser, and Malarkey (2006) explained that they were primarily interested in communication patterns during a discussion, whereas Caughlin and colleagues noted that the term “discussion” in these items “does not reflect the negative affect implied by the demanding behaviors inherent in demand/withdrwal” (Caughlin & Huston, 2002, p. 100). Overall, across all 21 studies, the demand/withdrawal subscales exhibited moderate to high internal consistency (alphas ranging from .50 to .85), with the exception of three of the five studies that computed 2-item subscale scores (alphas = .33 in studies 9, 13, 14).

Still, our review revealed a fundamental challenge for researchers administering, or interpreting, the CPQ-SF scoring. Specifically, of the remaining five items, it is unclear why Christensen and Heavey (1990) included items 1 (mutual avoidance) and 6 (mutual blame) in the scale but excluded them from scoring (see Table 1). As summarized in Table 2, 13 of the 21 studies computed a positive interaction score using the three mutually constructive communication items and reported relatively high internal consistency (alphas ranging from .68 to .91) (studies 1, 5, 6, 7, 8, 11 12, 15, 16, 17, 18). And, although subsequent researchers have included the two destructive communication items in their administration of the CPQ-SF, only three studies included them in their analyses, albeit as separate single-item scores (studies 16, 17 and 18). As a result, the literature provides little, and often inconsistent, guidance for CPQ-SF users.

The Current Study

Discrepancies in the use and referencing of the CPQ-SF are likely due to the lack of formal, published research on the assessment's psychometric properties. Therefore, the goals of this study are two-fold. Our first goal was to critically examine the factor structure of the CPQ-SF. While previous research on the factor structure of the CPQ is limited (Noller & White, 1990), similar analyses with the CPQ-SF do not exist, and researchers using the CPQ-SF (and CPQ) have been primarily dependent on the original conceptualization of the six item demand/withdraw subscales. Christensen and Heavey (1990) organize the CPQ-SF according to two factors: demand/withdraw (complementary interaction patterns) and overall positive interactions (symmetrical interaction patterns). An alternative structure is a three-factor model in which husbands' and wives' demand/withdraw behaviors are conceptualized separately, with overall positive interactions constituting the third factor. This organization would be consistent with the research identifying gender differences in demand/withdraw patterns (Christensen, 1988; Christensen & Heavey, 1990; Eldridge & Christensen, 2002; Heavey et al., 1993). Second, to provide researchers with a basis for assessing their own use of the CPQ-SF we formally examine the psychometric properties of the CPQ-SF. Specifically, with a relatively large and diverse sample of individuals from married and remarried households we examine the internal consistency of the CPQ-SF subscales and evaluate the convergent validity of the CPQ-SF by assessing associations of its subscales with relationship well-being.

Methods

The current data were drawn from a larger study that examined married individuals' perceptions of their relationship behaviors and well-being. A total of 517 computer assisted telephone interviews were obtained from a random-digit dialed sample of households conducted

by a university-based survey research center in a Southeastern state. Respondents were screened to assure that they were 18 years of age or older, currently married, and sharing a residence with their spouse. To balance the number of male and female spouses participating in the study, a household-level random selection procedure was used to determine whether the male or female spouse would complete the survey. Finally, to insure that rural respondents were well represented, rural telephone exchanges were oversampled, resulting in 53.5% of respondents who lived in non-metropolitan statistical areas.

Sample

Of the 517 married respondents, 477 provided complete data on the CPQ-SF and were included in the analyses reported here. The sample ranged in age from 18 to 85 years ($M=50.5$ years, $SD=15.2$ years) and 60% were female. Eighty percent were White, 17% were Black or African American, and 3% classified themselves as “other”. Most of the sample (67%) had completed at least some college or had one or more college degree(s), 28% had only completed high school or had a G.E.D, and 5% had less than a high school diploma. The majority of respondents (62%) were in first-time marriages with the remainder (38%) in a marriage in which one or both partners had been previously married. The duration of participants’ current marriage ranged from under 1 year to 66 years ($M=22.9$ years, $SD=16.2$ years).

Measures

Communication Patterns Questionnaire, Short Form (CPQ-SF). The CPQ-SF is a condensed version of the Communication Patterns Questionnaire consisting of 11 items (Christensen & Heavey, 1990; 1993). Individuals were read descriptions of interaction patterns over the telephone and used a 9-point Likert scale (1 = very unlikely; 9 = very likely) to indicate the representativeness of that description for the conflict and communication patterns in their

relationship. As described more fully in the results section, items corresponding to each of four conceptualized subscales were summed: (a) male demands/female withdraws; (b) female demands/male withdraws; (c) the total demand/withdraw communication behaviors of the couple (sum of the first two subscales); and (d) positive interaction. Higher scores on each subscale indicate a greater likelihood of using that pattern during conflict interactions.

Demographics. Participants provided information on sex, age, race, ethnicity, education, years married, marital status (i.e., first marriage for both spouses versus repeat marriage for respondent and/or spouse), and number of children.

Revised Dyadic Adjustment Scale (RDAS). The Revised Dyadic Adjustment Scale (RDAS) (Busby, Crane, Larson, & Christensen, 1995) is a condensed version of the widely-used Dyadic Adjustment Scale (DAS). It consists of 14 items that assess relationship adjustment across three dimensions: dyadic consensus, satisfaction, and dyadic cohesion. An overall sum score was computed (possible range: 0 to 69), with higher scores indicating greater relationship quality (Cronbach's alpha coefficient = .78). Consistent with the scoring of the RDAS (Crane, Middleton & Bean, 2000), participants were divided into two groups: those who scored 48 and above were categorized as high in marital adjustment ($n=353$, $M = 55.24$, $SD = 4.37$), and the remaining participants were categorized as low in marital adjustment ($n=124$; $M = 40.27$, $SD = 7.18$). There were no statistically significant differences between the two groups in terms of the respondents' age, education, marital status, years married, and the presence and total number of children. However, a higher proportion of female respondents were categorized as low (68%) versus high (57%) in marital adjustment compared to males (32% vs. 43%, respectively), $X^2 = 4.45$, $p = .04$, and a higher proportion of respondents who specified their race as African American or "other" were categorized as low (30%) versus high (18%) in marital adjustment

compared to Whites (70% vs. 82%, respectively), $X^2 = 8.41$, $p = .004$. These results are consistent with previous research that found that relative to men and Caucasian individuals, women and ethnic minority populations tend to experience lower marital satisfaction (Adelman, Chadwick, & Baerger, 1996; Whisman, Uebelacker, & Weinstock, 2004).

Results

Factor Analysis

To confirm that the 11 items on the CPQ-SF loaded in a manner consistent with the three originally conceptualized subscales (i.e., wife demand/husband withdraw, husband demand/wife withdraw, and overall positive interaction; total demand/withdraw was excluded because it reflects a combined score of the first two subscales), a principle components factor analysis with an orthogonal varimax rotation was conducted on the sample of 477 respondents. This analysis resulted in a three factor solution, albeit not the three factors we expected to find based on prior conceptualizations of the CPQ or CPQ-SF, which accounted for 59% of the overall variance. As shown by Model 1 in Table 3, the first factor ($\lambda_1 = 4.04$) included items reflective of criticizing and defensive communication patterns during a discussion (criticize/defend) and accounted for 37% of the total variance. The second factor ($\lambda_2 = 1.46$), which included items that represented efforts to discuss problems when they arise countered by attempts by one or both partners to avoid such discussions (discuss/avoid), accounted for 13% of the variance. A third and final factor ($\lambda_3 = 1.01$) comprised of mutually integrative interaction patterns—the three items which make up the positive interaction subscale—accounted for 9% of the variance. Items 8 and 9, which reflect demand/withdrawal patterns for both males and females during a discussion, were split loadings that contributed to both the first and second factors.

To assess the relative effects of items 8 and 9 on the three-factor solution, both items (male and female demand and withdraw patterns) were dropped. As shown by Model 2 in Table 3, the first factor ($\lambda_1 = 3.17$) again retained the criticize/defend items and accounted for 35% of the variance. The original second and third factors (demand/withdraw and positive interaction) switched eigenvalue hierarchy strength such that the second factor ($\lambda_2 = 1.44$), which included the mutually integrative interaction patterns that resulted in λ_3 in the 11-item solution, accounted for 16% of the variance. A third and final factor ($\lambda_3 = 1.00$), comprised of discuss/avoid items (λ_2 in the 11-item solution), accounted for 11% of the variance. This 9-item solution appears to offer an efficient 3-items per factor solution that identifies criticize/defend, discuss/avoid, and positive interaction factors while effectively reducing split loadings that occur when items 8 and 9 were included.

Next, to confirm the presence of the conceptualized total demand/total withdraw and positive interaction subscales, additional analyses forced all items to load via a two factor solution. Confirmation of the presence of these subscales is shown in Models 3 and 4 (Table 3). According to the initial analyses presented in Model 3, items 3, 4, 6, 8, 9, 10, and 11 loaded together (total demand/withdraw subscale, $\lambda_1 = 4.03$; 37% total variance explained) and the remaining items loaded together to construct a positive interaction subscale ($\lambda_2 = 1.46$) accounting for an additional 13% of the total variance. One item, female discusses and male avoids issues (item 3) exhibited a split loading and contributed to both factors. In Model 4, we dropped mutual avoidance (item 1) and mutual blame (item 6) to recreate Christensen and Heavey's (1990) scoring of the two subscales and exclusion of these two items. Again, results held with items 3, 4, 8, 9, 10, and 11 loading on the conceptualized demand/withdraw subscale ($\lambda_1 = 3.52$) and items 2, 5, and 7 loading on the conceptualized positive interaction subscale ($\lambda_2 = 1.35$). This

final 2-factor solution yielded no split loadings, and factor 1 (total demand/withdrawal) and factor 2 (positive interaction) accounted for 39% and 15% of the total variance, respectively.

Reliability

To assess the reliability of the CPQ-SF subscales, Cronbach's alpha coefficients were computed. Although the internal consistency of the 3-items making up the criticize/defend was strong ($\alpha = .83$), the reliability of the discuss/avoid subscale was moderate ($\alpha = .57$). The internal consistency for the 3-items in the positive interaction subscale was .60. Last, alpha coefficients for the originally conceptualized male demand/female withdraw (items 4, 9 and 11), female demand/male withdraw (items 3, 8 and 10), and total demand/withdraw (items 3, 4, and 8-11) subscales were $\alpha = .71$, $\alpha = .66$, and $\alpha = .82$, respectively. These coefficients are consistent with those reported in previous studies (see Table 2).

Validity

To assess convergent validity of the CPQ-SF, a Pearson's correlation coefficient was computed for each of the CPQ-SF subscales and the RDAS. These measures assess similar constructs (i.e., marital interaction and marital adjustment) but the instruments do not contain overlapping content. Prior research has shown that the full versions of the CPQ and DAS are significantly correlated, with coefficients ranging from .54 to .78 (Heavey et al., 1996). As shown in the Table 4, the CPQ-SF subscales used here, including the "new" 3-item criticize/defend and discuss/avoid subscales, are significantly correlated with RDAS in the expected direction, though the magnitude may be slightly lower with the absolute value of the Pearson coefficients ranging from .317 to .396.

Last, to confirm that the subscales clearly discriminate respondents with high (RDAS = 48 or higher; $n = 353$; range = 48 - 67) and low (RDAS = 47 or lower; $n = 124$; range = 10 - 47)

marital adjustment, ANOVAs were computed to compare group means across the six CPQ-SF subscales. Consistent with similar assessments conducted with the full CPQ (Noller & White, 1990), the results in Table 4 indicate that the groups significantly discriminated on all six subscales. Respondents in the low marital adjustment group reported more use of criticize/defend, $F(1,475) = 45.66, p < .001$, and discuss/avoid, $F(1,475) = 40.29, p < .001$, communication patterns than those in the high marital adjustment group, and those in the high marital adjustment group reported more positive interactions than those in the low marital adjustment group, $F(1,475) = 59.71, p < .001$. Also, respondents in the low marital adjustment group reported more frequent female demand and male withdrawal, $F(1,475) = 39.93, p < .001$, male demand and female withdrawal, $F(1,475) = 48.98, p < .001$, and total demand and withdrawal, $F(1,475) = 53.21, p < .001$, communication patterns than those with high marital adjustment.

Discussion

The study of couple interaction patterns remains an important focus for researchers and clinicians because it predicts marital outcomes such as intimacy (Cook et al., 2004), satisfaction (Caughlin 2002; Caughlin & Huston, 2000; Bodenmann, et al., 1998; Heavey et al., 1996; Heavey et al., 1993), and dissolution (Gottman & Notarius, 2000; Gottman, 1994). The CPQ-SF, an 11-item abbreviation of the 35-item CPQ, as well as other abbreviated versions of the CPQ are widely used to assess couple communication and interaction, yet the usage and referencing of the CPQ-SF have been imprecise. Inconsistencies may have resulted from the absence of empirical testing on the scale's factor structure and psychometric properties. We sought to fill this gap by examining the factor structure, reliability, and validity of the CPQ-SF with data from a large, diverse and representative sample of married and remarried individuals.

When the CPQ and subsequent CPQ-SF were originally developed, the items were organized into subscales representing two underlying factors, demand/withdraw patterns and positive interaction patterns (Christensen & Heavey, 1990). Because these subscales were theoretically conceptualized but not empirically tested, we examined the underlying factor structure of the CPQ-SF using a principle components factor analysis. Our initial analysis revealed three latent communication constructs that accounted for 59% of the scale's overall variance: criticize/defend patterns, discuss/avoid patterns, and positive interaction patterns. Subsequent analyses forcing a two-factor structure solution yielded the originally-conceptualized total demand/withdraw and positive interaction subscales.

The results of our analyses provide several advancements that provide guidance to researchers and clinicians who rely on the CPQ-SF. Notably, the results revealed a 3-factor solution that has not been conceptualized in previous studies. Specifically, a distinct criticize/defend factor was identified. This distinct factor was comprised of three items (2 complementary and 1 symmetrical interaction pattern) with the highest degree of internal consistency relative to the other subscales identified. In other studies, the criticize/defend pattern is normally subsumed within the demand/withdraw subscale(s) (Christensen & Heavey, 1990; Holtzworth-Munroe, Smutzler, & Stuart, 1998). We looked to Gottman's work to help explain why it may be important to consider these patterns independently. Gottman (1994) identified four dysfunctional behavioral processes (i.e., "The Four Horsemen of the Apocalypse", p. 110) that contribute to the demise of intimate relationships (in order of least to most detrimental): criticism, contempt, defensiveness, and withdrawal. Accordingly, the criticize/defend interaction pattern is conceptually distinct from the demand (i.e., criticize)/withdraw interaction pattern. Defensiveness typically occurs in response to criticism and involves a denial of responsibility.

This pattern serves to escalate conflict, but is not as destructive as withdrawal, which is an emotional, psychological, and/or physical separation from the interaction. Defensive behaviors therefore keep partners engaged in communication, whereas withdrawal serves to minimize or terminate an interaction. Based on Gottman's work, it is appropriate to conceptualize the criticize/defend pattern as a unique factor, distinct from the demand/withdraw interactions.

In future applications, researchers and clinicians may wish to score the CPQ-SF differently, depending on their goals and contexts. For example, clinicians treating couples who seek therapy as a final relationship-saving effort (Wolcott, 1986) may find little value in obtaining separate scores for criticize/defend and discuss/avoid patterns because couples are likely to score high on all negative communications. Clinicians working with couples in this context might wish to use the two-factor structure to assess a couple's total amount of negative communication as a whole (i.e., demand/withdraw behaviors) and then examine gender differences in these patterns. However, using the three-factor structure with proactive couples in clinical settings may elucidate specific patterns of communication and interaction, which can inform and modify existing models of couple therapy to target the sequences of criticize/defend and discuss/avoid. Such a discriminating use of the CPQ-SF subscale structures can inform clinicians who work with couples in very different stages of distress. Finally, researchers may find it useful to use the three-factor structure, which distinguishes criticize/defend from discuss/avoid patterns, depending on their research goals.

Of particular interest, our analyses yielded discuss/avoid (factor 2 in models 1 and 2) as a unique construct--as opposed to demand/withdraw--with moderately robust internal consistency. This suggests that there may be differences between the terms "discuss" versus "demand" and "avoid" versus "withdraw." For instance, Denton and Burleson (2007) have used use the terms

“initiate/avoid,” a process they conceptualize as being distinct from demand/withdraw.

Accordingly, the act of initiating is viewed as taking the initiative in raising a discussion. This differs from demanding in that discussions can be initiated by making polite requests, voicing expressions of concern, or by using humor. Others using the CPQ-SF have intentionally excluded these “discuss” items when computing demand/withdraw patterns because they do not clearly denote affectively negative conflict (Caughlin & Vangelisti, 2000). Denton and Burleson (2007) further point out that avoiding and withdrawing are not necessarily synonymous. As suggested, avoiding can be as benign as not voicing a particular concern, whereas withdrawing may be a deliberate refusal to participate in a discussion or administering punishment (e.g., the ‘silent treatment’). Further, withdrawal is the most severe behavior in terms of detriment to the relationship (Gottman, 1994).

Regarding positive interaction, the results of the current study provide evidence supporting Christensen and Heavey’s (1990) conceptually constructed 3-item subscale. Across all four models, the pattern of item loadings for the three symmetrical positive communication patterns (mutual discussion, expression and negotiation) was consistently similar. The moderate association between positive interaction and the other CPQ-SF subscales ($r = -.27$ to $-.37$, see Table 4) reinforced the unique nature of positive interaction patterns relative to negative interaction patterns. These findings are supported by prior studies that distinguish positive from negative affective behaviors and identify differing roles for each within intimate relationships (Christensen, 1988; Gottman & Notarius, 2000; Bradbury & Karney, 2004). The positive interaction subscale was found to be internally consistent, although its alpha coefficient of .60 was weak relative to previous studies (alphas ranging from .68 to .87, see Table 2).

Because the CPQ-SF was originally conceptualized as consisting of two primary factors, we forced the analyses to yield a 2-factor solution and removed the two items that Christensen and Heavey (1990) excluded (mutual avoidance and mutual blame). Only then were we able to establish clear and distinct total demand/withdraw and positive interaction subscales. As initially conceptualized, the total demand/withdraw subscale consisted of three pairs of complementary behaviors that reflect criticize/defend, discuss/avoid and demand/withdraw interaction patterns. As a reminder the demand/withdraw interaction patterns (items 8 and 9) did not load distinctly in the initial analyses (models 1 and 2). Additional post-hoc analyses that forced a 4-factor solution failed to generate a unique factor. The complementary behavior patterns reflected across the various items making up this construct are arguably distinct, as discussed above, but when combined, a strong internal consistency coefficient is observed for this subscale ($\alpha = .82$). Christensen (1988) theoretically conceptualized the demand/withdraw subscale of the CPQ to include criticize/defend, discuss/avoid and demand/withdraw interaction patterns, and subsequent research provided empirical support for grouping these behaviors together (i.e., Christensen & Heavey, 1990; Holtzworth-Munroe et al., 1998). However, future research should explore the distinctiveness of these interactions, particularly in light of Gottman's (1994) work.

A final important finding is that our factor analyses, like that of others (Noller & White, 1990), did not yield separate constructs for the gender-specific interaction patterns. In other words, all of the male demand/female withdraw complementary communication pattern items did not load together and distinctly from the female demand/male withdraw items. This was noteworthy because prior researchers have used the CPQ-SF to identify a gender specific demand/withdraw pattern. For instance, a number of studies have shown that the wife demand/husband withdraw pattern is significantly more common than the husband demand/wife

withdraw pattern, particularly when couples discuss wives' issues (Christensen & Heavey, 1990; Heavey, Layne, & Christensen, 1993; Vogel, Murphy, Werner-Wilson, Cutrona, & Seeman 2007). Congruent with prior research using the CPQ-SF (e.g., Vogel et al., 2007; Troy et al., 2006), both the male demand/female withdraw and female demand/male withdraw subscales showed acceptable levels of internal consistency ($\alpha = .71$ and $.66$, respectively).

The current study also provides continued evidence of the construct validity of the original CPQ-SF subscales as well as new evidence for the two newly identified subscales, criticize/defend and discuss/avoid, based on their associations with relationship quality. Overall, positive interaction was positively associated with relationship quality, whereas criticize/defend, discuss/avoid, and all three versions of demand/withdraw were negatively associated with relationship quality. The findings presented here demonstrate that all the CPQ-SF subscales discriminate respondents with low and high marital adjustment, a pattern consistent with prior research (e.g., Caughlin, 2002, Christensen et al., 2006; Kluwer et al., 1997).

Limitations

Although these findings provide meaningful direction to the future use and adaptation of the CPQ-SF, this study is not without limitations. Participants in this study were asked to report on their dyadic relationships, and hence the data are representative of only one spouse's perception of the relationship. Previous research has found significant correlations between husbands' and wives' reports on the CPQ-SF (Heavey et al., 1996). Although a complete assessment of the CPQ-SF would include similar assessments of husbands' and wives' reports, the data in this study preclude an assessment of inter-spouse agreement. Second, these data were collected as part of a larger effort that specifically sought to understand marital relationships, and thus excluded non-married couples (e.g., cohabiting, same-sex, dating). Because relationships

among non-married couples are increasingly varied, future research that explores the factor structure and psychometric features of the CPQ-SF with unmarried couples would contribute an important dimension to the CPQ literature. Another limitation of these results is reflected in the percentage of Blacks or African Americans (n=80, or 17%) and participants of other racial backgrounds (n=19, or 3%) relative to Whites (n=378, or 80%). Although the number and percentage of Blacks or African Americans was large relative to other research using the CPQ-SF, we do not assess the psychometric properties by race. Although the CPQ-SF and demand/withdraw subscales have been validated with cross-cultural samples (Christensen et al., 2006; Kluwer et al., 1997), the literature would benefit from an assessment of the CPQ-SF that is specifically designed to explore the applicability of the use of the CPQ-SF among even more diverse populations.

Despite these limitations our sample exhibits numerous strengths. Notably, our relatively large sample was selected via a state-representative sample of residents of a large Southeastern state. As a result, many of the problems inherent with small, self-selecting, or purposively-selected research participants, who often receive monetary incentives, are minimized. Although the sample is limited to married couples, there is notable diversity in other relevant areas, including the respondent's sex, age, education, prior marital history, number of years married, and residence in metro/non-metro communities. In these ways our research benefits from a much more diverse sample of respondents than prior work.

Conclusion

The Communication Patterns Questionnaire-Short Form (CPQ-SF) has been shown to be a valid measure of the interpersonal communication and interaction between married couples, but further refinement of the use of the measure will assist researchers and clinicians. Our review

of the CPQ-SF literature confirmed extensive use by researchers and clinicians, and our formal assessment of its factor structure and psychometric properties provide guidance for those interested in using the CPQ-SF. The brevity of the scale makes it easy for clinicians to administer and interpret in their practice, and our results suggest that depending on one's research goals the scale may be further condensed. And, depending on the researchers' interest and theoretical orientation, our findings suggest that the CPQ-SF can provide a means to assess negative and positive affect in couple communication and interaction in multiple ways. Our analyses also demonstrate that the inclusion or exclusion of particular items does affect researchers' choices regarding constructs of interest. Regardless of how future researchers choose to structure the CPQ-SF and its subscales, greater care must be taken when reporting the composition of the scales.

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Table 1

Components of the CPQ-SF

Items	Complementary (C) vs Symmetrical (S) Pattern
<u>When issues or problems arise, how likely is it that...</u>	
1. Both spouses avoid discussing the problem.	Mutual Avoidance (S)
2. Both spouses try to discuss the problem.	Mutual Discussion (S)
3. Female tries to start a discussion while male tries to avoid a discussion.	F-Discusses/ M-Avoids(C)
4. Male tries to start a discussion while female tries to avoid a discussion.	M-Discusses/F-Avoids (C)
<u>During a discussion of issues or problems, how likely is it that...</u>	
5. Both spouses express feelings to each other.	Mutual Expression (S)
6. Both spouses blame, accuse, or criticize each other.	Mutual Blame (S)
7. Both spouses suggest possible solutions and compromises.	Mutual Negotiation (S)
8. Female pressures, nags, or demands while male withdraws, becomes silent, or refuses to discuss the matter further.	F-Demands/M-Withdraws (C)
9. Male pressures, nags, or demands while female withdraws, becomes silent, or refuses to discuss the matter further.	M-Demand/F-Withdraws (C)
10. Female criticizes while male defends himself.	F-Criticizes/M-Defends (C)
11. Male criticizes while female defends herself.	M-Criticizes/F-Defends (C)

Note. Items 3, 8, and 10 are summed for the female demand/male withdraw subscale; items 4, 9, and 11 are summed for the male demand/female withdraw subscale; items 3, 4, 8, 9, 10, and 11 are summed for the total demand/withdraw subscale; and items 2, 5, and 7 are summed for the overall positive interaction subscale. Christensen and Heavey (1990) did not indicate how to score items 1 and 6.

Table 2

Results from empirical studies using the CPQ-SF

Study	Participants	Cronbach's Alpha Coefficients	
		Partner 1	Partner 2/Combined
1. Denton & Burleson (2007)	120 married individuals (69 women)	.56 P1D/P2W .74 P2D/P1W .69 TDW .83 PI	
2. Vogel et al. (2007)	72 married couples	.75 P1D/P2W .60 P2D/P1W	.66 P1D/P2W .70 P2D/P1W
3. Heffner et al. (2006)	31 married couples		.76 P1D/P2W ¹
4. Malis & Roloff (2006)	219 individuals (137 women)		.82 P1D/P2W .82 P2D/P1W
5. Troy et al. (2006) ²	Study 1: 118 dating couples Study 2: 109 dating couples	.58 TDW .72 PI .68 TDW .80 PI	.58 TDW .72 PI .68 TDW .68 PI
6. Byrne et al. (2004)	60 couples		NR ³
7. Cook et al. (2004) ²	331 individuals		.85 TDW .85 PI
8. Kurdek (2004)	101 married heterosexual and 111 cohabiting gay and lesbian couples	.70 TDW .91 PI	
9. Caughlin (2002)	46 married couples	.65 P1D/P2W ¹ .57 P2D/P1W ¹	.69 P1D/P2W ¹ .33 P2D/P1W ¹
10. Caughlin & Huston (2002)	90 married couples	.74 P1D/P2W ¹ .58 P2D/P1W ¹	.69 P1D/P2W ¹ .64 P2D/P1W ¹
11. Kurdek (2001)	198 married heterosexual and 252 gay and lesbian couples	.70 TDW .91 PI	
12. Byrne & Carr (2000) ²	28 couples		.69 P1D/P2W .74 P2D/P1W .70 TDW .71 PI

Table 2 (*continued*)

Study	Participants	Cronbach's Alpha Coefficients	
		Partner 1	Partner 2/Combined
13. Caughlin & Vangelisti (2000)	57 married couples	.67 P1D/P2W ¹ .63 P2D/P1W ¹	.68 P1D/P2W ¹ .33 P2D/P1W ¹
14. Caughlin & Vangelisti (1999)	57 married couples	.67 P1D/P2W ¹ .63 P2D/P1W ¹	.68 P1D/P2W ¹ .33 P2D/P1W ¹
15. Vogel et al. (1999)	118 individuals (60 women)	.71 P1D/P2W .66 P2D/P1W .87 PI	
16. Holzworth-Munroe et al. (1998)	119 married men	.63 P1D/P2W .67 P2D/P1W .75 PI	
17. Kiecolt-Glaser, et al. (1997)	31 married couples		NR ⁴
18. Kluwer et al. (1997)	494 couples (75% married; 25% cohabiting)		.65 P1D/P2W .58 P2D/P1W .74 PI
19. Klinetob & Smith (1996)	50 married couples	.79 P1D/P2W ^{5a} .77 P1D/P2W ^{5b} .57 P2D/P1W ^{5a} .74 P2D/P1W ^{5b}	.71 P1D/P2W ^{5a} .72 P1D/P2W ^{5b} .65 P2D/P1W ^{5a} .72 P2D/P1W ^{5b}
20. Heavey et al. (1993)	29 married couples		.71 P1D/P2W .66 P1D/P2W .87 PI
21. Christensen & Heavey (1990)	31 married couples	.85 P1D/P2W .50 P2D/P1W .73 TDW .78 PI	.71 P1D/P2W .72 P2D/P1W .74 TDW .73 PI

Note. NR = information was not reported. Partner 1 = Female or self (if couple data not collected), Partner 2/Combined = Male or averaged couple report. P1D/P2W = Partner 1 demand and partner 2 withdraw. P2D/P1W = Partner 2 demand and partner 1 withdraw. TDW = Total demand-withdraw. PI = Overall positive interaction or constructive communication.

¹ Based on 2-items from demand/withdraw subscale; excluded items 1 and 2 (see Table 1)

² Shortened version of CPQ-SF with 8-items (studies 5 and 7) and 7-items (study 12).

³ Computed TDW and PI; cronbach's alpha coefficients were reported as being above .70,

⁴ Computed P1D/P2W, P2D/P1W, PI, and negative behaviors (items 10 & 11)

⁵ Each partner completed CPQ-SF twice with respect to (a) one issue identified by the wife and (b) one issue identified by the husband.

Table 3

Item Descriptives and Rotated Factor Structures

Item	Mean	SD	Model 1 ^a			Model 2 ^b			Model 3 ^c		Model 4 ^d	
			1	2	3	1	2	3	1	2	1	2
11. M-Criticizes/F-Defends	2.78	2.56	<u>0.86</u>	0.15	-0.06	<u>0.88</u>	-0.08	0.18	<u>0.84</u>	-0.02	<u>0.82</u>	-0.02
10. F-Criticizes/M-Defends	2.92	2.64	<u>0.85</u>	0.13	-0.07	<u>0.86</u>	-0.08	0.16	<u>0.82</u>	-0.03	<u>0.80</u>	0.00
6. Mutual Blame	3.09	2.81	<u>0.76</u>	0.09	-0.16	<u>0.76</u>	-0.17	0.11	<u>0.73</u>	-0.09		
9. M-Demands/F-Withdraws	2.52	2.53	<u>0.59</u>	<u>0.44</u>	-0.15				<u>0.71</u>	-0.25	<u>0.73</u>	-0.21
8. F-Demands/M-Withdraws	2.74	2.61	<u>0.51</u>	<u>0.44</u>	-0.20				<u>0.62</u>	-0.31	<u>0.66</u>	-0.27
3. F-Discusses/M-Avoids	7.89	2.09	0.21	<u>0.76</u>	-0.16	0.22	-0.15	<u>0.78</u>	<u>0.47</u>	<u>-0.43</u>	<u>0.56</u>	-0.32
4. M-Discusses/F-Avoids	2.86	2.54	0.29	<u>0.73</u>	0.03	0.29	0.02	<u>0.73</u>	<u>0.55</u>	-0.25	<u>0.64</u>	-0.15
1. Mutual Avoidance	3.05	2.91	-0.04	<u>0.52</u>	-0.36	-0.04	-0.33	<u>0.58</u>	0.14	<u>-0.54</u>		
7. Mutual Negotiation	2.63	2.50	-0.17	0.01	<u>0.78</u>	-0.15	<u>0.79</u>	0.01	-0.10	<u>0.68</u>	-0.10	<u>0.77</u>
5. Mutual Expression	7.54	2.29	-0.09	-0.12	<u>0.74</u>	-0.07	<u>0.74</u>	-0.13	-0.08	<u>0.71</u>	-0.11	<u>0.75</u>
2. Mutual Discussion	7.79	2.19	-0.10	-0.24	<u>0.62</u>	-0.08	<u>0.63</u>	-0.25	-0.14	<u>0.65</u>	-0.18	<u>0.64</u>

Note. F = Female; M = Male. Items with loadings above .40 on any factor have been underlined.

^a Model 1 = initial 3-factor structure identified: (1) criticize/defend, (2) discuss/avoid, and (3) positive interaction.

^b Model 2 = modified 3-factor structure with items 8 and 9 removed: (1) criticize/defend, (2) positive interaction, and (3) discuss/avoid.

^c Model 3 = forced 2-factor solution to confirm conceptualized subscales: (1) total demand/withdraw and (2) positive interaction.

^d Model 4 = forced 2-factor solution with items 1 and 6 removed: (1) total demand/withdraw and (2) positive interaction.

Table 4

Mean (SD) and Intercorrelations for CPQ-SF Subscales and RDAS

	CD	DA	FDMW	MDFW	TDW	PI	RDAS
Criticize/Defend (CD)	1.000	0.400	0.748	0.740	0.809	-0.266	-0.355
Discuss/Avoid (DA)		1.000	0.659	0.668	0.721	-0.371	-0.317
F-Demand/M-Withdraw (FDMW)			1.000	0.694	0.920	-0.323	-0.363
M-Demand/F-Withdraw (MDFW)				1.000	0.921	-0.355	-0.365
Total Demand/Withdraw (TDW)					1.000	-0.369	-0.396
Positive Interaction (PI)						1.000	0.392
Revised Dyadic Adjustment Scale (RDAS)							1.000
Overall Sample Mean (SD)	8.56 (6.67)	8.77 (6.04)	7.98 (6.11)	8.70 (6.14)	16.68 (11.28)	23.22 (4.91)	51.34 (8.40)
Low Marital Adjustment Sample Mean (SD)	11.89 (7.25)	11.62 (6.63)	10.85 (7.02)	11.86 (6.34)	22.71 (11.83)	20.45 (5.67)	40.27 (7.18)
High Marital Adjustment Sample Mean (SD)	7.39 (6.04)	7.77 (5.49)	6.97 (5.42)	7.59 (5.67)	14.56 (10.28)	24.19 (4.21)	55.24 (4.37)

Note. All correlations and F-values significant at $p < .001$. Low marital adjustment (RDAS 47 or lower) sample, $n = 124$. High marital adjustment (RDAS 48 or higher) sample, $n = 353$.