THE DUTCH MARITAL SATISFACTION AND COMMUNICATION QUESTIONNAIRE: A VALIDATION STUDY

Ann VAN DEN TROOST, Ad A. VERMULST, Jan R. M. GERRIS
& Koen MATTHIJS
Catholic University of Leuven & Radboud University Nijmegen,
The Netherlands

The purpose of this study is to validate the Dutch Marital Satisfaction and Communication Questionnaire (DMSCQ), a 16-item measure that disentangles marital satisfaction, negative communication and open communication. In three subsequent studies empirical evidence for the construct and criterion validity is presented using (confirmatory) factor analyses, and correlational analyses with criterion variables. Results indicate that the 16 items represent a solid three-factor structure, which was replicated across time and in independent samples. High agreement in factor structure between men and women was demonstrated by high levels of Tucker's coefficient of congruence. The internal consistencies of the marital satisfaction and negative communication scales are good; for the open communication scale it is somewhat lower but still acceptable. Consistent evidence was obtained for a negative relationship between the three marital outcomes and parental depression and conflictual family climate whereas the three former are positively related to life satisfaction and well-being. Spouses who feel restricted by their parental role or experience parenting stress tend to be less satisfied with their partnership and perceive the marital communication as more negative. Our results demonstrate that the DMSCQ provides a brief, valid and reliable measure of marital satisfaction, negative and open communication.

Marital communication and satisfaction represent two key elements in understanding current marital dynamics. Since the maintenance of relationships has increasingly become dependent on husbands' and wives' appreciation of marriage, gaining insight in spousal marital satisfaction is of utmost importance (Beck & Beck-Gernsheim, 1995). Several researchers and family therapists claim that one of the core elements in this appreciation of the mar-

ital relationship is communication (Becvar & Becvar, 1996; Fitzpatrick & Ritchie, 1994; Meeks, Hendrick, & Hendrick, 1998). Communication is not only instrumental for marital satisfaction but even one of the most crucial factors contributing to it (Karney & Bradbury, 1995; Noller & Fitzpatrick, 1990).

The close association between satisfaction and communication might explain the conceptual confusion about these concepts in the past. Within a Dyadic Adjustment approach, which was prominent during the 1970s, satisfaction and communication were both considered as indicators of a broader concept labeled marital adjustment or marital quality (Spanier, 1976). However, this approach and the widely known Dyadic Adjustment Scale that was developed within this thinking, received much conceptual as well methodological criticism (Fincham & Bradbury, 1987; Norton, 1983; Sabatelli, 1988). The major drawback relates to the confounding of descriptions of the marriage with its evaluation. As a matter of fact, the dyadic adjustment approach makes it difficult to examine how marital communication is related to spouses' satisfaction with marriage. Because items used to measure communication overlap in content with items used to measure marital quality, it is doubtful whether these measures assess distinct constructs.

In answer to this content overlap, a new conceptualisation of marital quality, assessing only subjective evaluations of the marriage, was suggested (Fincham & Bradbury, 1987; Norton, 1983). The underlying assumption is that the person in question is the only expert with regard to his/her well-being. Thus instead of measuring different aspects of the marital relationship, only marital satisfaction, which is an overall evaluation toward one's partner and the relationship, is used as a referent for marital quality. This approach is appealing, particularly because it allows researchers to draw inferences about how communication behaviour is associated with marital satisfaction.

The latter question embodies the quintessence of behavioural marriage therapy. One of the goals behavioural therapists strive towards is to increase the frequency of positive communication behaviours and decreasing the frequency of negative ones. Yet, what 'good' and 'bad' or 'negative' and 'positive' communication precisely is, cannot easily be defined and is often based on global notions within the field of family and couple therapy (Kerkstra, 1985). Although an excess of 'good' communication could also work out negatively whereas not all 'bad' communication styles should be equally harmful, some negative communication styles, such as withdrawal, criticizing and blaming the other, have been systematically linked with lower marital satisfaction and higher rates of divorce (Brown & Rogers, 1991; Buunk & Nijskens, 1980; Gottman, 1991, 1993, 1994; Gottman & Krokoff, 1989; Karney & Bradbury, 1995). Reversely, daily event talk and sharing thoughts and feelings about the relationship are considered as instrumental and functional for the relationship (Canary & Stafford, 1992; Wood, 1993). Evidence

for the beneficial effect of this behaviour is obtained in several studies (Buunk & Nijskens, 1980; Canary, Stafford, & Semic, 2002; Honeycutt & Wiemann, 1999; Weigel & Ballard-Reisch, 1999, 2001).

Moreover, both communication behaviours strongly correspond to two relationship maintenance strategies identified by Canary and Stafford (1992). A first strategy is *openness* and includes behaviours such as discussing the relationship and sharing relational feelings. A second maintenance strategy is labeled *positivity* and refers to interacting in a polite, cheerful and uncritical manner. This behaviour represents the opposite of the aforementioned negative interaction behaviour.

Hence, the assessment of these communication behaviours along with spousal marital satisfaction is important for therapeutic as well as theoretical aims. However, Dutch measures on this issue are scarce and the few available instruments consist of a large number of items, validated in relatively small research groups (see Kerkstra, 1985). As space is at a premium in family survey research, the availability of brief, but valid and reliable measures of marital satisfaction and communication, would suit the purpose of quantitative research designs (Schumm et al., 1986).

In addition to this, validation studies on communication and satisfaction measures are mainly directed towards internal consistencies and cross-sectional validation, failing to take into account the stability of the measures across time. Particularly, within the scope of longitudinal research, the latter is of utmost importance. When examining marital satisfaction and communication in a multiwave design, one needs to ascertain that questioning quantitative change in marital satisfaction over time is meaningful at all, i.e. the concept of interest at Time 1 should be comparable to the same concept at later points in time. Since individuals perpetually constitute and reconstitute their interpretation of reality and events, it is conceivable that at two different points in time, two different concepts are measured with the same set of indicators (Steenkamp & Baumgartner, 1998). This phenomenon is referred to as measurement variance or instability. It is striking to note, though, that the marriage literature is increasingly focusing on longitudinal research designs while it leaves the matter of measurement invariance undiscussed. Nonetheless, it is a logical and inevitable prerequisite to analyse longitudinal hypotheses. Therefore, in contrast to which has often been the case until now, research into concept validation should also address stability across time.

Research Aim

To deal with the need for a valid but briefer and stable measure of the above-cited aspects, we present in this article the development and validation

of the Dutch Marital Satisfaction and Communication Questionnaire (DMSCQ). The DMSCQ is an instrument designed to measure marital satisfaction and spousal negative and open communication styles. The initial 24-item questionnaire was derived from the Marital Satisfaction and Stability Inventory and the Communication Inventory developed by Kerkstra (1985).

From the former instrument, we exclusively retained those items measuring *global* experiences of the relationship and the partner, i.e., marital satisfaction. This conceptualisation precludes some difficulties expressed on previous measurements such as blending general marital satisfaction and satisfaction with specific aspects of one's marriage.

The Communication Inventory of Kerkstra (1985) assesses couples' perception of the way in which they and their partner communicate in marriage. The items are derived from several communication questionnaires such as the Communication Questionnaire of Buunk and Nijskens (1980), the Primary Communication Inventory (Navran, 1967) and the Marital Communication Inventory (Bienvenu, 1970). Using factor analysis, two dimensions proved to be paramount, i.e. destructive communication and intimacy. Although Kerkstra (1985) and Buunk and Nijskens (1980) also identified a third factor tapping 'avoidance', these items yielded low reliability.

Because it was attempted to validate a brief battery of items regarding marital communication, the items of the destructive and intimacy scales were selected for the DMSCQ. Both communication scales measure the perception of communication behaviour and not individual communication skills. The destructive communication items measure to what degree certain forms of negative communication are characteristic of the marital relationship (e.g., "My partner often blames me when we are quarreling"). In this study, we label this scale *Negative Communication*. The intimacy scale maps out communication styles of which it is assumed that this way of communicating results in emotional closeness and intimacy between the partners (e.g., "I often talk to my partner about personal problems"). Because the items measure the openly sharing of personal experiences, we refer to this scale as the *Open Communication* scale.

Using exploratory and confirmatory factor analysis, we attempt to test the factorial structure of the DMSCQ. Both the internal consistency of the identified scales and their construct validity are demonstrated. We report on three studies to describe the psychometric properties of the DMSCQ. A first study explores the factor structure of the initial questionnaire in a sample of 646 couples followed by some validation tests. In a second study this factor solution is evaluated in a sample of 1187 couples and the correlations with five criterion variables are studied. The third study examines the stability of the factor solution over time.

Study 1

The objective of the first study is to evaluate the initial 24-item questionnaire in a sample of Dutch married couples. Four criterion variables will be used to assess the construct validity of the DMSCQ: (1) parental depression, (2) parenting stress, (3) conflictual family climate and (4) parental role restriction. We hypothesise that parental depression and a conflictual family climate perception are related to lower marital satisfaction, more negative communication and less open communication (Beach, Katz, Sooyeon, & Brody, 2003; Olson, McCubbin, Barnes, & Hill, 1983). Because of a spillover effect between the spousal and the parental system, parenting stress is expected to be negatively correlated with marital satisfaction and to result in more negative communication (Wise, 2003). It is not clear whether parenting stress is strongly associated with open communication behaviour because the latter measure does not refer to the dyadic system but to the individual him/herself. Further we hypothesise that the degree to which the parent reports feeling restricted by his or her role of parenting in arranging one's personal life is negatively related to marital satisfaction and open communication and may be associated with more negative communication (Lavee & Sharlin, 1996; Rogers & White, 1998).

Procedure and Participants

The research sample consists of married men and women participating in the longitudinal research project "Child-rearing and Family in the Netherlands" (Gerris et al., 1992, 1993, 1998). Families were recruited using a multi-stage sampling method. In the first stage, a sample was taken of all Dutch municipalities; in a second stage a sample of children aged 9 to 16 years was selected in these municipalities. These children as well as their parents were included in the research group. In 1990, this procedure resulted in a sample of 788 families. In order to establish a homogeneous research group, only first married couples were selected. This selection resulted in 646 couples with children. The sample's representativeness regarding regional zone, degree of urbanisation, age at first marriage and employment status was satisfactory. No figures, however, were available to compare the educational level of our specific sample with the Dutch population cohort. For more information on the external validation of our sample see Van den Troost (2005). Data were gathered by means of structured interviews and questionnaires, completed by both the child and the parents. Mothers were 40 years ($SD = 4.88$) and fathers were 42,5 years old ($SD = 4.17$) on average. The couples had been married for about 17 years ($SD = 3.37$).

Measures

All measures described below consist of 7-point Likert items, ranging from 1 = "not at all applicable" to 7 = "very applicable".

Marital satisfaction is measured by nine items referring to the degree to which parents experience the marital relationship as satisfying and positive (e.g., "If I could choose again, I would choose the same partner").

The *Negative Communication* scale assesses the degree to which the partner reports to experience the communication and interaction with the partner as negative. The scale consists of nine items (e.g., "My partner often blames me when we are quarrelling").

The *Open Communication* scale maps out the degree to which the parent reports exchanging personal experiences with the marital partner. It is a six-item scale (e.g., "I often talk to my partner about personal problems").

The *Conflictual Family climate* is a scale used to assess the extent to which conflictual interactions are characteristic of the family (e.g., "We quarrel a lot in our family") (Moos & Moos, 1976). The scale consists of 5 items with internal consistencies (Cronbach's alpha) of .66 for fathers and .70 for mothers in this study.

Parental Depression measures the degree to which the parent reports being confused about and to feel unhappy with his functioning as a person and to be subject to feelings of depression (e.g., "Whatever I am doing, I will never manage") (Abidin, 1983, De Brock, Vermulst, & Gerris, 1990). It is a 7-point Likert item scale consisting of 9 items. Alpha coefficient in this sample is .79 (fathers) and .81 (mothers).

The *Parenting Stress* scale is a 3-item scale with alpha .77 for fathers and .81 for mothers participating in this study. It refers to the degree to which the parent reports experiencing child-rearing as a burden and as problematic (e.g., "raising my child(ren) frequently causes problems") (Abidin, 1983, De Brock, Vermulst, & Gerris, 1990).

The *Parental Role Restriction* scale consists of 5 items measuring the degree to which the parent feels that the parenting role restricts their personal life (e.g. "Because of your children you cannot plan your life as you want") (Abidin, 1983, De Brock, Vermulst, & Gerris, 1990). In this study alpha is .67 (fathers) and .69 (mothers).

Results

Factorial structure

Initially we verified if the three-factor model with marital satisfaction, negative communication and open communication as latent variables was acceptable for husbands and wives. To evaluate the models we used LISREL

8.52 (Jöreskog & Sörbom, 1996). We considered two goodness of fit indices (1) the root mean square error of approximation (RMSEA) and (2) the comparative fit index (CFI). Models with a RMSEA value lower than .05 and CFI values over .95 indicate an acceptable fit between model and data (Byrne, 1998; Hu & Bentler, 1999; Mueller, 1996). RMSEA values between .05 and .08, and CFI values of at least .90 are indicative of fair fit (Kline, 1998). The fit of the models was acceptable $(\chi^2 (249) = 712.65$, RMSEA = .056, CFI = .962 for husbands and $\chi^2 (249) = 747.19$, RMSEA = .056, CFI = .963 for wives. However, some factor loadings of items on their principal factor were rather low (< .40) and modification indices suggested several substantial cross loadings (loadings of items on other factors). We decided to examine and explore the factor structure in more detail by following the strategy of Gerbing and Hamilton (1996), see also Van Leeuwen and Vermulst (2004). They suggest using exploratory factor analysis (EFA) to avoid numerous analyses with LISREL.

Using iterative principal factor analyses (PFA) with oblique rotation (OBLIMIN) the underlying dimensional structure of the 24 items was further examined. The result of the factor analysis for the 24 items is given in Table 1.

As can be seen in this table, items 8 and 9 of marital satisfaction have low principal loadings and high cross loadings on negative communication. Items 7, 8 and 9 of negative communication have low principal loadings for wives, whereas items 4, 5 and 6 of open communication have low loadings for husbands and/or wives. Because our intention was to replicate the three-dimensional structure with identical items for both spouses, items with a factor loading of .40 or less on their principal factor and/or cross loadings of .25 or more were removed. This was done in several steps. In the first step, the most unacceptable item for both husbands and wives was removed. This process was repeated in subsequent factor analyses by removing one item in each step and by comparing factor solutions of husbands and wives. At the end, eight items were removed. These items appeared to be the same items as those being identified problematic in Table 1.

This procedure yielded a clear-cut factor pattern corresponding with the hypothesised constructs. The factor solution resulted in seven items loading on the factor 'marital satisfaction', six items on the factor 'negative communication' and three items on the factor 'open communication'. Cross-loadings vary from .00 to .20, with the exception of item 6 from the satisfaction scale with a cross-loading of .25 on negative communication. The results indicate that we reached a simple factor structure with high loadings on the principal factors and low loadings on the other factors. The total variance explained by the three factors was 40.4% (husbands) and 41.8% (wives).

The final evaluation of the factorial structure of men and women was done with LISREL. The purpose of this evaluation is to have the disposal of fac-

Table 1.
Pattern Matrix of Marital Satisfaction, Negative and Open Communication (Study 1).

	Marital Satisfaction		Negative communication		Open communication	
	Men	Women	Men	Women	Men	Women
Marital Satisfaction						
ms1 The way we treat each other now, I would like to stay with my partner forever.	.56	.56	.08	.19	.04	.28
ms2 Compared to the past I am now less satisfied with the way my partner and I treat each other.	.57	.61	-.33	-.16	-.10	-.01
ms3 I expected more from the relationship with my partner.	.55	.77	-.29	-.07	-.02	-.08
ms4 I think that the relationship with my partner is hardly a success.	.41	.61	-.17	-.07	-.05	-.00
ms5 If I could choose again, I would choose the same partner.	.62	.61	.06	.10	.04	.19
ms6 Actually, I think that the relationship with my partner should be better.	.47	.64	-.34	-.18	.04	.05
ms7 Generally, I am dissatisfied with the relationship with my partner.	.40	.52	-.18	-.11	-.04	-.04
ms8 Usually I am dissatisfied about the appreciation I get from my partner.	.32	.33	.50	.40	-.05	.01
ms9 Last year I did never regret the relation with my partner.	.27	.12	.05	.02	.10	.26
Negative Communication						
nc1 My partner often blames me when we are quarrelling.	-.11	.00	.75	.66	.05	-.03
nc2 When my partner and I don't agree, we often get angry at each other.	-.01	.04	.67	.70	.03	.02
nc3 My partner often pushes his/her own way.	-.02	-.04	.56	.60	.02	.05
nc4 My partner and I interrupt each other a lot when we are talking together.	-.06	.02	.58	.50	.02	.02
nc5 My partner often finds fault with me.	-.02	-.07	.72	.50	.05	-.12
nc6 When talking to me my partner sometimes uses a tone of voice I don't like.	.06	-.11	.61	.48	.01	-.01
nc7 Sometimes my partner behaves as if (s)he is listening while (s)he is not really listening.	.04	.00	.40	.35	.01	-.11
nc8 Frequently my partner says something else to me than (s)he factually means.	.07	-.16	.45	.34	.02	-.09
nc9 My partner seldom sulks at me.	-.15	.12	.37	.18	-.01	.16
Open Communication						
oc1 I often talk to my partner about personal problems.	-.06	.08	.07	-.02	.59	.56
oc2 I often talk to my partner about things in which we are both interested.	.05	-.08	-.18	.06	.53	.58
oc3 I often talk to my partner about the nice things that happened that day.	.08	-.01	-.03	-.01	.61	.56
oc4 My partner often shows his/her feelings to me.	.28	-.03	.08	.10	.21	.43
oc5 My partner often shows that (s)he understands me.	.28	-.04	-.15	.18	.25	.46
oc6 I seldom take advice of my partner when I want to solve my problems	-.02	.16	.14	-.05	.38	.20

Table 2.
Completely standardised factor loadings and reliabilities of the CFA's of Study 1, 2 and 3.

	Study 1		Study 2		Study 3	
	Men	Women	Men	Women	Men	Women
Marital Satisfaction						
ms1 The way we treat each other now, I would like to stay with my partner forever.	.41	.54	.64	.76	.53	.56
ms2 Compared to the past I am now less satisfied with the way my partner and I treat each other.	.75	.72	.71	.66	.76	.71
ms3 I expected more from the relationship with my partner.	.76	.75	.79	.82	.84	.87
ms4 I think that the relationship with my partner is hardly a success.	.47	.64	.57	.60	.69	.80
ms5 If I could choose again, I would choose the same partner.	.46	.59	.39	.49	.59	.57
ms6 Actually, I think that the relationship with my partner should be better.	.77	.82	.77	.80	.75	.82
ms7 Generally, I am dissatisfied with the relationship with my partner.	.49	.57	.48	.53	.47	.53
Cronbach's α	.80	.77	.81	.84	84	.86
Tucker's coefficient of congruence	.992	.993	.997	.997	.996	.997
Negative Communication						
nc1 My partner often blames me when we are quarrelling.	.72	.70	.76	.70	.80	.80
nc2 When my partner and I don't agree, we often get angry at each other.	.67	.65	.69	.62	.58	.65
nc3 My partner often pushes his/her own way.	.54	.62	.70	.67	.65	.62
nc4 My partner and I interrupt each other a lot when we are talking together.	.53	.44	.58	.56	.49	.46
nc5 My partner often finds fault with me.	.74	.60	.68	.67	.76	.67
nc6 When talking to me my partner sometimes uses a tone of voice I don't like.	.68	.57	.62	.68	.69	.59
Cronbach's α	.81	.86	.84	.82	.83	.80
Tucker's coefficient of congruence	.993		.998		.996	
Open Communication						
oc1 I often talk to my partner about personal problems.	.41	.47	.59	.60	.65	.64
oc2 I often talk to my partner about things in which we are both interested.	.69	.75	.69	.73	59	.63
oc3 I often talk to my partner about the nice things that happened that day.	.67	.54	.70	.68	.68	.81
Cronbach's α	.61	.62	.69	.70	.67	.71
Tucker's coefficient of congruence	.989		.999		.997	

tor loadings that can be compared with the results of the confirmatory factor analyses in the second and third study. The final factor solution is presented in Table 2. The factor correlations are presented in Table 5 and will be discussed later. The Dutch scale items are presented in the Appendix.

Internal consistency and factorial congruence

Reliability coefficients (Cronbach's alpha) are reported in Table 2. As can be seen the marital satisfaction and negative communication scales show acceptable internal consistencies (*alpha*) of .77 or higher for both men and women. The open communication scale is less reliable but this may be due to the fewer items of which it is composed.

To examine the correspondence between the factorial structure of men and women Tucker's coefficient of congruence was utilised (Gorsuch, 1974, p. 253). A coefficient of .80 to 1.00 represents good to perfect similarity of factors. As can be seen in Table 2 Tucker's coefficients are higher than .99 indicating strong similarity in factorial structure between men and women.

Construct Validity

Pearson correlations between the identified scales and the four criterion variables (1) parental depression, (2) parenting stress, (3) conflictual family climate and (4) parental role restriction are presented in Table 3. For both men and women negative associations were found between marital satisfaction and these four criterion variables. Moreover, parenting stress, parental depression, conflictual family climate and parental role restriction are positively associated with negative communication. From Table 3 it also becomes clear that parental depression and a conflictual family climate are negatively related to open communication for both spouses. Parental role restriction shows a significant negative correlation with open communication for women but not for men. Parenting stress appears to be unrelated to open communication.

Study 2

To examine whether the results of Study 1 can be replicated, a new independent sample of couples is used. The factorial structure is tested using CFA. Besides this, internal consistencies, factorial congruence and construct validity were established. With respect to the latter, correlations between the DMSCQ and the scales of parental depression, parenting stress, conflictual family climate, life satisfaction and well-being were examined.

Table 3.
Pearson Correlations between the DMSCQ-scales and the criterion variables.

Measures	Marital satisfaction		Negative commun		Open communication	
	Men	Women	Men	Women	Men	Women
Study 1						
Parental depression	-.46[a]	-.46[a]	.50[a]	.49[a]	-.14[a]	-.21[a]
Parenting stress	-.22[a]	-.17[a]	.29[a]	.22[a]	-.05	.02
Conflictual family climate	-.30[a]	-.30[a]	.37[a]	.31[a]	-.19[a]	-.13[b]
Parental Role Restriction	-.24[a]	-.27[a]	.29[a]	.28[a]	-.01	-.10[b]
Study 2						
Parental depression	-.32[a]	-.33[a]	.34[a]	.32[a]	-.17[a]	-.17[a]
Parenting stress	-.17[a]	-.20[a]	.16[a]	.19[a]	-.04	-.13[a]
Conflictual family climate	-.38[a]	-.40[a]	.44[a]	.44[a]	-.21[a]	-.23[a]
Parental Role Restriction	-.21[a]	-.19[a]	.21[a]	.20[a]	-.08[c]	-.06[c]
Life satisfaction	.42[a]	.54[a]	-.27[a]	-.30[a]	.24[a]	.34[a]
Well-being	.27[a]	.33[a]	-.24[a]	-.21[a]	.17[a]	.19[a]
Study 3						
Parental depression	-.39[a]	-.39[a]	.40[a]	.42[a]	-.28[a]	-.17[b]
Parenting stress	-.18[a]	-.10	.16[a]	.24[a]	-.06	-.06
Conflictual family climate	-.32[a]	-.41[a]	.35[a]	.40[a]	-.20[a]	-.20[a]
Parental Role Restriction	-.23[a]	-.33[a]	.26[a]	.30[a]	-.11[c]	-.11[c]

Note: [a] p < .001 [b] p < .01 [c] p < .05

Procedure and participants

The research sample consists of a Dutch representative sample of 1267 families (father and/or mother with one target child with ages between 0 and 18 years old) participating in the research project "Parenting in the Netherlands" (Rispens, Hermans, & Meeus, 1996; van Ammers et al., 1998). Families were recruited using a national family file controlled for representativeness with respect to SES, degree of urbanisation and family composition (one- and two-parent families). Because 7% of the sample consists of one-parent families, the final sample for our study consists of 1178 two-parental families. Data were gathered by means of structured interviews and questionnaires, completed by both the child and the parents. Mean age of mothers was 38.1 years ($SD = 6.2$) and of fathers 40.4 years ($SD = 6.0$).

Measures

The same criterion measures as in the first study were used. Additionally, a life satisfaction scale and well-being indicator were used.

Well-being was measured by means of one question. "We would like to know how you feel? You can indicate this below by circling the answer (between 1 and 10) that is most applicable. Answering "1" means that you

are doing badly and a "10" means that you are doing well.

The *life satisfaction* scales measures the global evaluation of how satisfied one is with life in general. The scale consists of five items with response categories ranging from "1" not at all applicable to "7" very applicable (e.g., "If I could have my life over again, I would change anything"). In this sample *alpha* is .86 (fathers) and .88 (mothers).

Results

Factorial structure

Using LISREL 8.5 (Jöreskog & Sörbom, 1996) two CFA's were conducted separately for men and women. For the analyses it was hypothesised that three prescribed factors underlie the sixteen manifest items with each item loading significantly on the target factor and having zero-loadings on the non-target factors. The factors were free to correlate and except for two items of the marital satisfaction (ms1 and ms5) scale and two items of the destructive communication scale (dc5 and dc6), the error terms of the items were kept uncorrelated. The completely standardised factor loadings are presented in Table 2. Except for one item with a factor loading of .39 all other loadings were above .40. As can be seen in Table 4, both the male and the female model show acceptable fit. For men $\chi^2(99) = 333.57$ with RMSEA = .045 and CFI = .982 and for women $\chi^2(99) = 323.65$ with RMSEA = .044 and CFI = .986.

Table 4.
Goodness of Fit Indices of CFA for men and women.

	χ^2	Df	RMSEA	CFI	Comparison χ^2	Δ df	P
Study 2 (N = 1187)							
Factorial structure							
Men							
Non invariant model	333.57	99	.045	.982			
Women							
Non invariant model	323.65	99	.044	.986			
Study 3 (N = 386)							
Both waves participants							
Men							
Non invariant model	835.54	447	.047	.973			
Λ invariant	853.33	460	.045	.973	17.79	13	n.s.
Women							
Non invariant model	897.58	447	.047	.974			
Λ invariant	914.82	460	.041	.974	17.24	13	n.s.

Internal consistency and factorial congruence

The DMSCQ-scales were evaluated for internal consistency. For both men and women, Cronbach's *alpha* showed a value of at least .81 for the marital satisfaction and destructive communication scales (see Table 2). The internal consistencies (Cronbach's *alpha*) of the open communication scale were .69 for men and .70 for women.

Tucker's coefficients of congruence are .993 or higher indicating almost perfect similarity between the factorial structure of men and women.

Construct validity

Table 3 shows the correlations between the DMSCQ-scales and parental depression, parenting stress, conflictual family climate, parental role restriction, life satisfaction and well-being. In accordance with the results from Study 1, the concepts 'parental depression' and 'conflictual family climate' are negatively related to marital satisfaction and open communication but show meaningful positive associations with negative communication. The reverse pattern of associations is found for 'life satisfaction' and 'well-being'. Regarding parenting, it becomes clear that for both men and women 'parenting stress' and 'parental role restriction' are linked with more negative communication and less marital satisfaction. Weak negative correlations exist between open communication and parental role restriction. Parenting stress is negatively related to women's open communication but unrelated to men's open communication.

Study 3

Using a longitudinal measurement model, the objective of this study is to examine the stability of the factor structure across time. This analysis is conducted for the respondents that participated both in 1990 (see Study 1) and in 1995. Internal consistencies of the DMSCQ scales and their correlations with the scales of parental depression, parenting stress, conflictual family climate and parental role restriction are demonstrated.

Procedure and Participants

Of the 646 couples participating in 1990 (Study 1), 386 first married couples also participated in 1995 (i.e. 60%). Their average marital duration is 22 years. Men are on average 47.5 years old and women 45.0 years old. To assess the selectivity of the panel attrition, socio-demographic and marital characteristics of the respondents who remained in the sample during the period under study (i.e. between 1990 and 1995) and those who dropped

from the study were compared using logistic regressions. The models were not significant, indicating that the panel drop out is not due to the socio-demographic ($\chi^2(14) = 21.47$, $p = .090$) or marital ($\chi^2(6) = 3.35$, $p = .764$) characteristics of the respondents.

Measures

The measures used in Study 1 were also used in this study. These concern the scales on parental depression, parenting stress, conflictual family climate and parental role restriction.

Results

Factorial structure and internal consistency

Before testing the stability of the factor model, the factor solution of the previous studies was examined within the sample of subjects who participated at Wave 1 and Wave 2. The results are given in Table 2. As can be seen, all factor loadings range between .46 and .87. Goodness of fit indices indicate an acceptable fit for both the male and the female model. RMSEA values are around .05 and CFI's are around .95.

The correspondence of the factorial structure for men and women was computed using Tucker's coefficient. From Table 2 it becomes clear that these coefficients are at least .99, indicating high similarity.

As in Study 1 and 2, the marital satisfaction and negative communication scales show acceptable internal consistencies of .80 or higher. The reliability coefficient of the open communication scale was .67 for men and .71 for women.

Stability of the factor solution over time

In a next step, the stability of the factor solution was examined across time. According to Steenkamp and Baumgartner (1998), and Vandenberg and Lance (2000), two conditions may be fulfilled when assessing this measurement invariance: (1) the same items load on the same underlying factor (configural invariance) and (2) the factor loadings are similar for the two groups (metric invariance). If the purpose is to explore the basic structure of a concept and to demonstrate whether items are similarly conceptualised by two groups or at two different points in time, establishing the same factor structure for these two groups (configural invariance) is sufficient. Although not strictly necessary for this objective, the factor loadings may also be expected to be equal across time (metric invariance). If these criteria are not met, it may be supposed that after a while the (same) group of respondents attached a different meaning to the same set of items.

To test the stability of the factor solution over time a longitudinal factor

model was constructed. Marital satisfaction, negative communication and open communication were identified as latent variables indicated by their respective items at Time 1 and Time 2. The same items load on the same underlying factors. Latent variables were allowed to correlate within Time 1 and Time 2 but also over time. Error terms between Time 1 and Time 2 were not correlated. The covariance matrix containing covariances between items at Time 1, Time 2 and between Time 1 and Time 2 was used as the input matrix. Fit indices show that the presumed factor model fits the longitudinal covariance matrix well: For men $\chi^2(447) = 835.54$ with RMSEA = .047 and CFI = .973 and for women $\chi^2(447) = 897.58$ with RMSEA = .047 and CFI = .974 (see Table 4). Moreover, the lambda coefficients are invariant across time. Imposing equality constraints on the factor loadings of T1 and T2, chi-square difference tests demonstrate that with respect to the male and female model, no significant differences are found between T1 and T2. For men $\Delta\chi^2(13) = 17.79$, n.s. and for women $\Delta\chi^2(13) = 17.24$, n.s.

In addition, correlations between concepts at Time 1 and Time 2 were computed. Stability of concepts over time requires a positive correlation between identical factors at Time 1 and Time 2. Table 5 presents the correlations between the factors in 1990 (wave 1) and 1995 (wave 2). These correlations have to be higher than correlations of that concept in Time 1 with other concepts in Time 2. The results support this assumption. For men, marital satisfaction ($r_{12} = .59$), negative communication ($r_{12} = .60$) and open communication ($r_{12} = .38$) were (much) more strongly correlated between T1 and T2 than that they were with any other construct at Time 2. This also applies for marital satisfaction ($r_{12} = .58$), negative communication ($r_{12} = .61$) and open communication ($r_{12} = .47$) among women.

Within-time correlations between marital satisfaction and negative communication were strong as well (see Table 5). For men, this correlation was -.52 in 1990 and -.57 in 1995. For women, these associations were -.52 and -.64. Marital satisfaction and open communication showed weaker correlations for both men and women, ranging from .30 to .44. The same is true for open and negative communication. In 1990, their correlation was -.22 for men and -.21 for women. In 1995 these coefficients were -.28 and -.31 respectively.

Mean level changes of the three concepts between Time 1 and Time 2 were examined using paired-sample *t*-tests. These analyses indicate that a significant difference exists between the mean satisfaction observed in 1990 and in 1995, respectively $t = 2.49$, $p < .05$ for men ($M_{90} = 6.13$, $SD = 0.93$; $M_{95} = 6.02$, $SD = 1.00$) and $t = 3.30$, $p < .01$ for women ($M_{90} = 6.09$, $SD = 1.01$; $M_{95} = 5.92$, $SD = 1.09$). It can therefore be concluded that partners became less satisfied with their marriage over time. This finding is in line with recent studies on the course of marital satisfaction, showing a gradually decline over the marital career (VanLanningham, Johnson, & Amato, 2001).

Table 5.
Pearson correlations between the three latent factors across time
[women beneath diagonal, men above diagonal].

	M. S. '90	O. C. '90	N. C. '90	M. S. '95	O.C. '95	N.C. '95
M.S. '90	—	.30	-.52	.59	.34	-.39
O.C. '90	.44	—	-.22	.25	.38	-.14
N.C. '90	-.52	-.21	—	-.36	-.29	.60
M.S. '95	.58	.29	-.40	—	.40	-.57
O.C. '95	.36	.47	-.26	.42	—	-.28
N.C. '95	-.46	-.20	.61	-.64	-.31	—

Note: M.S. = marital satisfaction, O.C. = open communication, N.C. = negative communication

Furthermore, the mean score on the open communication scale for women in 1990 is significantly lower than the score in 1995 (t = -2.07, $p < .05$; M_{90} = 5.53, SD = 1.09; M_{95} = 5.65, SD = 1.09). For men, no differences were found between their open communication over time. For both men (M_{90} = 2.73, SD = 1.09; M_{95} = 2.71, SD = 1.08) and women (M_{90} = 2.69, SD = 1.03; M_{95} = 2.70, SD = 1.05), the perception of negative communication did not change over time.

Discussion

The Dutch Marital Satisfaction and Communication Questionnaire is designed to assess partners' marital satisfaction and their open and negative communication behaviour. The latter two are specifically assessed because of their relevance in understanding marital success. This article addresses four properties of the DMSCQ: (a) the factorial validity of the instrument, (b) the factorial congruence between men and women, (c) the reliability of the identified scales and (d) their construct validity.

With respect to the factorial validity, the first study led us to conclude that the three hypothesised constructs were established but that some items not successfully discriminated between the different factors. Removing these items resulted in a 16-item version of the DMSCQ representing a solid three-factor structure. This factorial structure is replicated in a new and independent sample (Study 2) and across time (Study 3). Our findings show that marital satisfaction, open communication and negative communication operate in the same way for different samples and for both men and women. Measurement invariance over time was demonstrated in Study 3 for the longitudinal sample. As expected marital satisfaction slightly decreased across

the five years time interval. Except for women's open communication, no mean level changes for the other concepts were found. High agreement in factor structure between men and women was demonstrated by high levels of Tucker's coefficient of congruence.

Cronbach's alphas demonstrate that the internal consistency of the marital satisfaction and negative communication scales is good. The open communication scale, however, has a somewhat lower reliability, probably due to the smaller number of items. Initially, this scale consisted of six items but was reduced to three items because of the retention criteria.

The three studies reported above, provide support for the construct validity of the DMSCQ. Most results confirmed our hypotheses with respect to the relation between the DMSCQ-subscales and related variables of interest. Evidence was obtained for the hypothesised negative relationship between parental depression and marital outcomes in terms of the three identified scales. The same finding holds with respect to the association with conflictual family climate. The reverse results were obtained regarding life satisfaction and well-being. In line with the spillover effect of satisfaction with different areas of life, individuals who are more satisfied with life in general also tend to be more satisfied with their relationship (Andrews & Whitney, 1976). Apparently, they also communicate more openly and are less likely to perceive the communication in negative terms. Spouses who feel restricted by their parental role or experience parenting stress tend to be less satisfied with their partnership and to perceive the marital communication as more negative. However, these parents do not necessarily communicate more or less openly. We contend that this lack of association may be due to the unit of analysis. Both the marital satisfaction and negative communication scale refer to the marital relationship whereas the open communication scale is formulated from the perspective of the respondent him/herself. It can be speculated that the parental and marital system are more closely tied up to each other than are the parental system and individual communication.

In sum, an encouraging effort was made in designing a short, reliable and valid instrument to assess partners' satisfaction and communication in the Dutch-speaking region. Nonetheless, we see three important avenues for future research. First, to increase the reliability of the open communication scale of the DMSCQ, it could be extended with new items. Recent research of Caughlin (2003) on family communication standards may be a source of inspiration for this adaptation. His scale of *openness* also consists of items such as "openly discussing topics like sex" or "freely deal with issues that may be upsetting". Second, the three identified scales of the DMSCQ need to be further validated with observational studies and other assessment methods. Because respondents reported their subjective evaluation of the marital communication processes, standardised procedures to observe marital inter-

action may indicate the degree to which our measures reflect "real-life" communication. This opinion may be validated for example, by asking partners to fill in the questionnaires for their own communication behaviour as well as for the partner. In this way, own and partner's perceptions can be compared. Third, although our instrument was primarily designed for research purposes, it may also be a useful diagnostic tool. To this end, however, more research is needed on the discriminant validity of the DMSCQ.

Despite these limitations and recommendations, our findings suggest that the DMSCQ provides a psychometrically sound tool for assessing relationship satisfaction and communication. Based on theoretical insights in couples' behaviour to develop and sustain a satisfying relationship, three related but empirically distinct concepts are measured. The DMSCQ offers an important alternative to researchers who need a brief but valid and reliable measure of marital satisfaction and communication.

References

Abidin, R.R. (1983). *Parenting stress index: Manual.* Charlottesville: Pediatric Psychology Press.

Andrews, F.M., & Whitney, S.B. (1976). *Social indicators of well-being.* Plenum: New York.

Beach, S.R., Katz, J., Sooyeon, K., & Brody, G.H. (2003). Prospective effects of marital satisfaction on depressive symptoms in established marriages: a dyadic model. *Journal of Social and Personal Relationships*, *20*, 355-372.

Beck, U., & Beck-Gernsheim, E. (1995). *The normal chaos of love*. Cambridge: Polity Press.

Becvar, D.S., & Becvar, R.J. (1996). *Family therapy. A systemic integration*. Boston: Allyn and Bacon.

Bienvenu, M.J. (1970). Measurement of marital communication. *Family Coordinator*, 1, 26-31.

Brown, J.R., & Rogers, L.E. (1991). Openness, uncertainty and intimacy: An epistemological reformulation. In N. Coupland, H. Giles, & J.M. Wiemann (Eds.), *"Miscommunication" and problematic talk* (pp. 146-165). Newbury, CA: Sage Publications.

Buunk, B., & Nijskens, J. (1980). Communicatie en satisfactie in intieme relaties [Communication and satisfaction in intimate relationships]. *Gedrag*, *8*, 240-260.

Byrne, M.B. (1998). *Structural equation modeling with LISREL, PRELIS and SIMPLIS: basic concepts, applications and programming.* London: Lawrence Erlbaum Associates Publishers.

Canary, D.J., & Stafford, L. (1992). Relational maintenance strategies and equity in marriage. *Communication Monographs*, *59*, 243-267.

Canary, D.J., Stafford, L., & Semic, B.A. (2002). A panel study of the associations between maintenance strategies and relational characteristics. *Journal of Marriage and the Family, 64*, 395-406.

Caughlin, J.P. (2003). Family Communication Standards. *Human Communication Research*, *29*, 5-40.

De Brock, A.J.L.L., Vermulst, A.A., & Gerris, J.R.M. (1990). De Nijmeegse Ouderlijke Stress Index [Parental Stress Index]. *Gezin. Tijdschrift voor primaire leefvormen, 2*, 57-75.

Fincham, F.D., & Bradbury, T.N. (1987). The assessment of marital quality: a re-evaluation. *Journal of Marriage and the Family*, *49*, 797-809.

Fitzpatrick, M.A., & Ritchie, L.D. (1994). Communication schemata within the family. *Human Communication research, 20*, 275-301.

Gerbing, D.W., & Hamilton, J.G. (1996). Viability of exploratory factor analysis as a precursor to confirmatory factor analysis. *Structural Equation Modeling, 3,* 62-72.

Gerris, J.R.M., Houtmans, M.J.M., Kwaaitaal-Roosen, E.M.G., Schipper, J.C., Vermulst, A.A., & Janssens, J.M.A.M. (1998). *Parents, adolescents and young adults in Dutch families. A longitudinal study.* Nijmegen: Institute of Family Studies, University of Nijmegen.

Gerris, J.R.M., Van Boxtel, D.A.A.M., Vermulst, A.A., Janssens, J.M.A.M., Van Zutphen, R.A.H., & Felling, A.J.A. (1992). *Child-rearing, family relations and family processes in 1990.* Nijmegen: Institute of Family Studies, University of Nijmegen.

Gerris, J.R.M., Vermulst, A.A., Van Boxtel, D.A.A.M., Janssens, J.M.A.M., Van Zutphen, R.A.H., & Felling, A.J.A. (1993). *Parenting in Dutch families.* Nijmegen: Institute of Family Studies, University of Nijmegen.

Gorsuch, R.L. (1974). *Factor Analysis.* Philadelphia: W.B. Saunders Company

Gottman, J.M. (1991). Predicting the longitudinal course of marriage. *Journal of Marital and Family Therapy, 17*, 3-7.

Gottman, J.M. (1993). A theory of marital dissolution and stability. *Journal of Family Psychology*, *7*, 57-75.

Gottman, J.M. (1994). *What predicts divorce? The relationship between marital processes and marital outcomes.* New York: Erlbaum Hillsdale.

Gottman, J. M., & Krokoff, L.J. (1989). Marital interaction and satisfaction: a longitudinal view. *Journal of Consulting and Clinical Psychology*, *57*, 47-52.

Honeycutt, J.M., & Wiemann, J.M. (1999). Analysis of functions of talk and reports of imagined interactions during engagement and marriage. *Human Communication Research*, *25*, 399-419.

Hu, L., & Bentler, P.M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: conventional criteria versus new alternatives. *Structural Equation Modeling*, *6*, 1-55.

Jöreskog, K.G., & Sörbom, D. (1996). *LISREL 8. user's reference guide*. Chicago, Ill: Scientific Software, Inc.

Karney, B.R., & Bradbury, T.N. (1995). The longitudinal course of marital quality and stability: a review of theory, method and research, *Psychological Bulletin*, *118*, 3-34.

Kerkstra, A. (1985). *Conflicthantering bij echtparen*. Amsterdam: VU Uitgeverij.

Kline, R.B. (1998). *Principles and practice of Structural equation modeling*. New York: The Guilford Press.

Lavee, Y., & Sharlin, S. (1996). The effect of parenting stress on marital quality. *Journal of Family Issues*, *17*, 114-136.

Meeks, B.S., Hendrick, S.S., & Hendrick, C. (1998). Communication, love and rela-
tionship satisfaction. *Journal of Social and Personal Relationships*, *15*, 755-773.

Moos, R.H., & Moos, B.S. (1976). A typology of family social environment. *Family
Process, 15*, 357-371.

Mueller, R.O. (1996). *Basic principles of structural equation modeling. An introduc-
tion to LISREL and EQS*. New York: Springer-Verlag.

Navran, L. (1967). Communication and adjustment in marriage. *Family Process, 6*,
173-184.

Noller, P., & Fitzpatrick, M.A. (1990). Marital communication in the eighties.
Journal of Marriage & the Family, *52,* 832-843.

Norton, R. (1983). Measuring marital quality: a critical look at the dependent vari-
able. *Journal of Marriage and the Family*, *45*, 141-151.

Olson, D.H., McCubbin, H.I., Barnes, H., & Hill, R. (1983). *Families: what makes
them work*? California: Sage Beverly Hills.

Rispens, J., Hermans, J.M.A., & Meeus, W.H.J. (Eds.) (1996). *Opvoeden in
Nederland* [*Child Rearing in the Netherlands*]*.* Assen: Van Gorcum.

Rogers, S.J., & White, L.K. (1998). Satisfaction with parenting: the role of marital
happiness, family structure and parent's gender. *Journal of Marriage and the
Family, 60*, 293-309.

Sabatelli, R. (1988). Measurement issues in marital research: a review and critique of
contemporary survey instruments. *Journal of Marriage and the Family*, *50,* 891-
915.

Schumm, W.R., Paff-Bergen, R.C., Hatch, F.C.O., Copeland, J.M., Meens, L.D., &
Bugaighis, M.A. (1986). Concurrent and discriminant validity of the Kansas
Marital Satisfaction Scale. *Journal of Marriage and the Family*, *48,* 381-387.

Spanier, G.B. (1976). Measuring dyadic adjustment: new scales for assessing the
quality of marriages and similar dyads. *Journal of Marriage and the Family*, *42*,
15-27.

Steenkamp, J.B.E.M., & Baumgartner, H. (1998). Assessing measurement invariance
in cross-national consumer research. *Journal of Consumer Research*, *25,* 78-89.

Van Ammers, E., Dekovic, M., Gerrits, L.A.W., Groenendaal, J.H.A., Hermanns,
J.M.A., Meeus, W.H.J., Noom, M.J., Rispens, J., & Vergeer, M.M. (1998).
Opvoeden in Nederland:Schalenboek [*Child rearing in the Netherlands: mea-
sures book*]*.* Utrecht: University of Utrecht

Vandenberg, R. J., & Lance, C. E. (2000). A review and synthesis of the measurement
invariance literature: suggestions, practices and recommendations for organiza-
tional research. *Organizational Research Methods, 3*(1), 4-70.

Van den Troost, A. (2005). *Marriage in motion. A study on the social context and
processes of marital satisfaction.* Leuven: University Press.

VanLanningham, J., Johnson, D.R., & Amato, P. (2001). Marital happiness, marital
duration, and the U-shaped curve: evidence from a five-wave panel study. *Social
Forces, 78*, 1313-1341.

Van Leeuwen, K.G., & Vermulst, A.A. (2004). The Ghent Parental Behavior Scale:
some Psychometric Properties. *European Journal of Psychological Assessment,
20*, 283-298.

Weigel, D.J., & Ballard-Reisch, D.S. (1999). How couples maintain marriages: A
closer look at self and spouse influences upon the use of maintenance behaviors

in marriages. *Family Relations*, *48*, 263-269.

Weigel, D.J., & Ballard-Reisch, D.S. (2001). The impact of relational maintenance behaviors on marital satisfaction: A longitudinal analysis. *The Journal of Family Communication*, *1*, 265-279.

Wise, S. (2003). *Family structure, child outcomes and environmental mediators. An overview of the Development in Diverse Families study*. Melbourne: Australian Institute of Family Studies.

Wood, J.T. (1993). Engendered relations: interaction, caring, power and responsibility in intimacy. In S. Duck (Ed.), *Social context and social relationships* (pp. 26-54). Newbury Park/London: Sage Publications.

Appendix: Dutch items of the DMSCQ

Huwelijkssatisfactie

Zoals we nu met elkaar omgaan, zou ik altijd wel bij mijn partner willen blijven

Ik ben nu minder tevreden over hoe mijn partner en ik met elkaar omgaan dan vroeger

Ik had meer van de relatie met mijn partner verwacht

De relatie met mijn partner vind ik weinig opzichten geslaagd

Als ik opnieuw zou mogen kiezen, zou ik dezelfde partner kiezen

Ik vind eigenlijk dat de relatie met mijn partner beter zou moeten zijn

Ik ben in het algemeen ontevreden over de relatie met mijn partner

Negatieve communicatie

Mijn partner geeft mij vaak de schuld als we ruzie hebben met elkaar

Als mijn partner en ik het niet eens zijn, worden we vaak kwaad op elkaar

Mijn partner drijft vaak zijn/haar zin door

Mijn partner en ik vallen elkaar vaak in de rede als we met elkaar praten

Mijn partner zit vaak op me te vitten

Mijn partner praat wel eens op een toon die mij niet aanstaat

Open communicatie

Ik praat vaak met mijn partner over persoonlijke problemen

Ik praat vaak met mijn partner over dingen waarin we beiden geïnteresseerd zijn

Ik praat vaak met mijn partner over leuke dingen die er die dag gebeurd zijn.