Interset relationships between the Eight State Questionnaire and the Menstrual Distress Questionnaire

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Abstract

The interrelationships between emotional/mood states and related psychophysiological states was examined in terms of the measurement overlap (redundancy) across two multidimensional psychometric instruments. Subscale similarities and differences across the Eight State Questionnaire (8SQ) and the Menstrual Distress Questionnaire (MDQ) were studied using multiple regression procedures on a sample of 370 undergraduates. In addition, canonical-redundancy analyses were employed in order to estimate the quantitative overlap across the two self-report instruments. Although the two instruments were designed to measure somewhat different entities (mood states and psychophysiological symptoms), it was hypothesised that some interset commonalities would emerge in regard to the normal female monthly cycle. Indeed, the total redundancy of the 8SQ given the MDQ was found to be 0.46, while the redundancy for the MDQ given the 8SQ was 0.31. Clearly, some of the MDQ subscales measure psychological states, quite apart from those subscales which measure menstrual cycle symptoms. Only six of the eight MDQ subscales served as significant predictors for the 8SQ, while seven of the SSQ subscales were significant predictors of the MDQ subscale scores. Evidently, menstrual cycle symptomatology and associated mood states are inextricably connected.
Introduction

The measurement overlap of the Eight State Questionnaire or 8SQ (Curran & Cattell, 1976) and the Menstrual Distress Questionnaire or MDQ (Moos, 1968, 1977, 1985; Moos & Leiderman, 1978) was investigated as part of a study into multidimensional mood states across the menstrual cycle. Previous studies have often examined negative moods with respect to menstrual cycle phase and have concluded that proneness to such mood states is significantly greater at the premenstrual phase (e.g. Moos & Leiderman, 1978; Friedman, Hurt, Arnoff & Clarkin, 1980; Sampson & Prescott, 1981). The term 'Premenstrual Syndrome' or PMS has been somewhat popularised in the media, perhaps as a consequence of the development of self-report inventories designed to measure menstrual cycle symptoms and moods. However, the interactions between mood states and physiological symptoms have not yet been investigated thoroughly. The present study sought to elucidate such state-symptom interactions, as indexed via the 8SQ and MDQ instruments respectively. This study was undertaken in order to assess the extent to which the MDQ actually measures psychological moods, as opposed to physiological symptoms, intended by the test authors.

The 96-item 8SQ was designed to measure eight clinically important mood states labelled Anxiety, Stress, Depression, Regression, Fatigue, Guilt, Extraversion, and Arousal. Based on the hierarchical common factor model, the 8SQ is purported to index factor analytically discerned source states, which exhibit a degree of construct validity which is not so readily apparent with non-factored scales. The latter, classified as surface states in Cattellian terminology, are more at the superficial correlational/cluster analysis level, and appear to go together in 'the eye of the beholder', despite having no intrinsic unity, per se. Each of the 8SQ
subscales consists of 12 separate items presented in an order which avoids spurious contiguity effects. According to Curran and Cattell (1976, pp. 14-15), test-retest reliability coefficients (dependabilities) were found to range from 0.91 to 0.96 for the subscales in Form A of the instrument, with the mean reliability estimate being 0.94. With regard to validity of the 8SQ subscales, mean concept validities (correlations of the subscale scores with the corresponding factor analytic dimensions defining the constructs) ranged from 0.48 to 0.92, with the mean validity estimate being 0.72. The reliability and validity of the 8SQ subscales has received some support from studies by Boyle (1983a, b, 1984, 1985a, b, 1986a, c; Boyle & Cattell 1984; Boyle, Stanley & Start, 1985). However, as LaVoie (1985) pointed out, the 8SQ subscales exhibit considerable overlap, as evidenced by rather high intercorrelations between the various subscales. The 8SQ subscales have been shown to exhibit intercorrelations ranging from 0.48 to 0.83, with the mean subscale intercorrelation being 0.66 (cf. Boyle, 1988; Boyle et al., 1985). This raises the issue of possible multicollinearity with respect to the 8SQ subscale dimensions (cf. Pedhazur, 1982 - this problem may cause a reduction in the magnitude of the βs associated with the variables). However, it is likely that the moderate subscale intercorrelations can be accounted for to some degree by the effects of trait contamination (Cattell, 1979, p. 320), especially since there is evidence supporting the dimensionality of the primary subscale structure (e.g. Barton & Flocchini, 1985). According to a review of the mood-state literature by Kline (1979, p. 170), "These are the moods and states discovered by the proper application of multivariate analysis to the state sphere ... these are the fundamental dimensions of moods." To the extent that Kline's conclusion was correct, then to
that extent use of the 8SQ in the present study as the measure of psychological mood states is appropriate.

The MDQ (comprised of 47 items intended to index menstrual cycle symptoms such as anxiety, depression, tension, insomnia, etc.) was also developed using exploratory factor analytic procedures (albeit, constructed on the basis of the crude principal components plus Varimax or the 'Little Jiffy' method, which is known to yield only approximately correct factor solutions—see Boyle, 1988, pp. 742-745). According to Spalding and Oei (1991),

Prior to 1968 and the development of the MDQ (Moos, 1968), the major problem in premenstrual research was the diversity of assessment techniques used. Each experimenter defined and rated symptoms in an idiosyncratic way that made it difficult to compare results across studies. In recognition of this problem, Moos developed the MDQ in order to standardise the assessment of PMS and thus enable researchers to compare large numbers of women across studies.

The MDQ is perhaps the most frequently employed self-report instrument used for indexing symptoms associated with the menstrual cycle. In terms of its psychometric properties, the MDQ subscales (labelled Pain, Water Retention, Autonomic Reactions, Negative Affect, Impaired Concentration, Behaviour Change, Arousal and Control) were found to exhibit moderate to high KR20 item-homogeneities ranging from 0.53 to 0.89, with the mean estimate being 0.72 (Moos, 1985, p. 6). Likewise, Markum (1976) previously had reported split-half estimates of item homogeneity for the MDQ subscales ranging from 0.82 to 0.98. However, as Boyle (1985b) pointed out, item homogeneity coefficients of this
magnitude ( > 0.70) suggest also a degree of item redundancy within a given subscale, with several items overlapping excessively. This suggests that fewer items could provide more efficient measurement, with little if any reduction in subscale reliabilities, as demonstrated using LISREL congeneric factor analysis (cf. Jöreskog & Sörbom, 1989). With regard to test-retest reliability, Moos, Kopell, Melges, Yalon, Lunde, Clayton and Hamburg (1969) reported several stability estimates for the MDQ subscales across two successive menstrual cycles which were below 0.50, but this cannot be taken as indicative of low reliability because the symptoms measured by the MDQ instrument are known to fluctuate considerably across the normal menstrual cycle (presumably the MDQ subscales are situationally sensitive to changes in menstrual cycle symptomatology). Furthermore, both Lahmeyer, Miller and DeLeon- Janes (1982), and Markum (1976) have reported stability coefficients exceeding in magnitude those observed by Moos et al. (1969).

MDQ subscale intercorrelations were found to range from 0.18 to 0.63, with the mean estimate being 0.38, indicating significant overlap among the MDQ subscales. According to Moos (1985, p. 3).

The Pain scale is composed of symptoms usually associated with dysmenorrhoea, while the Water Retention and Negative Affect scales include symptoms that are generally associated with premenstrual syndromes. The Autonomic Reactions and Impaired Concentration scales are composed of symptoms that are not described quite as frequently in the literature, but that seem to make good sense. Behavior Change is made up of a familiar set of reactions that some women report in conjunction with their menstrual cycle. The Arousal scale taps the 'positive' reactions that several
investigators have noted in relation to the menstrual cycle: such reactions comprise a unique cluster of items. The Control scale is composed of items that are endorsed quite infrequently. A high score on this scale reflects a tendency to report varied symptoms, even though they are not usually associated with the menstrual cycle.

According to Moos (1985, p. 3), the MDQ was constructed using a large sample of 839 young, generally healthy women whose mean age was 25.2 years (SD = 3.9 yr), and whose mean education was 15.2 years (SD = 1.7 yrs). Hence, the profile of the standardisation sample was in many respects very similar in age and education to that used in the present study, so that its present use seems appropriate.

Given the 8SQ and MDQ subscale labels, significant measurement overlap was expected, particularly as there is evidence (Spalding & Oei, 1991) that the MDQ may measure some constructs which are more related to mood states rather than to menstrual cycle symptomatology, per se. Thus, both the 8SQ and MDQ have a subscale labelled 'Arousal', which in the case of the MDQ is a subscale pertaining to a general tendency to complain, rather than to purely psychophysiological symptoms. This subscale was not derived from the original factor analytic evidence obtained by Moos (1968), which served as the model for constructing the MDQ, but was added instead as a 'control' subscale in order to ensure that the responses to the other seven subscales related to actual menstrual cycle symptoms as opposed to feelings of general dysphoria (Spalding & Oei, 1990). According to them, the factor structure of the MDQ may be somewhat unstable. Part of the difficulty apparently resides in the less than adequate
conceptualisation of the 'premenstrual syndrome' (cf. Haskett & Abplanalp, 1983; Siegal, Myers & Dineen, 1987). However, the MDQ is not alone in being criticised on the grounds of inadequate construct validity, and indeed, of all the currently available measures, it may well be the best psychometric choice (cf. Abdel-Khalek, 1983; Parlee, 1974; Rouse, 1978; van den Boorgaard & Bijleveld, 1988). As Spalding and Oei (1991) pointed out,

*The area of premenstrual research has been plagued by the use of assessment devices that have not been validated. Further, a belief that a large proportion of women experience premenstrual changes has evolved out of research that has used these un-validated instruments ... more vigorous investigation into currently used assessment devices is therefore urgently needed.*

In order to delineate these instruments psychometrically, the interset redundancies were estimated using the canonical-redundancy procedure of Stewart and Love (1968). Only the significant canonical vectors were used in calculating the corresponding redundancy estimates. While quantitative interpretation of the measurement overlap (redundancy) across the two instruments was quite legitimate, qualitative interpretation of the interset canonical variates was not attempted because of the difficulties associated with interpreting canonical loadings (canonical vectors are similar to principal components, which may be psychologically meaningless, despite being mathematically elegant). To ascertain the qualitative relationships between the 8SQ and MDQ subscales, inter-inventory regression analyses were employed, wherein each subscale was regressed onto the subscales of the other instrument (cf. Boyle, 1987a). Campbell and Chun (1977),
and Goldberg (1977) have previously demonstrated the usefulness of using the stepwise multiple-regression approach. This approach enables elucidation of the pertinent prediction equations with scores for one instrument being estimated from the subscale scores of another psychometric instrument, and vice versa. The calculation of interset prediction equations therefore not only enables qualitative assessment of the psychometric similarity of the two instruments, but simultaneously identifies significant interset redundancies. This approach makes it possible to 'translate' the results from one study into those of another which has employed a different psychometric instrument, thereby enabling direct comparisons across different studies.

Use of the standardised regression coefficients enabled valid comparison of the two instruments, despite their having different psychometric scaling properties. Only significant predictors were included in the prediction equations, thereby showing which subscales contributed predominantly to the interset measurement variance. In assessing interset redundancy, a number of studies have successfully employed the Stewart and Love (1968) canonical-redundancy index (e.g. Boyle, 1986a, b, c, 1987a, b). This method of analysis has enabled quantification of the psychometric measurement overlap of different instruments. Moreover, according to Krug (1978, p. 201), this approach bypasses theoretical controversies pertaining to extraction and rotational techniques inherent in the use of factor analysis. The usefulness of the canonical-redundancy approach has been well supported (e.g. Gleason, 1976; van den Wollenberg, 1977; DeSarbo, 1981; Johansson, 1981; Muller, 1981). In the present study, the variance associated with each subscale was also estimated from the multiple $R^2$ value associated with the multiple regression analyses.
With regard to possible methodological limitations, it should be noted that canonical correlation analysis amounts to "double-barrelled principal components" according to Tatsuoka (cited in Cattell, 1978, pp. 390-396). Although this approach is mathematically elegant, the obtained canonical vectors may be psychologically meaningless. Rotation of the vectors is limited to the orthogonal variety (Cliff & Krus, 1976; Norušis, 1985, pp. 243-244), although there seems no a priori reason why the canonical vectors could not be rotated obliquely, using say the Cattell and Foster (1963) Rotoplot program (see Boyle & Stanley, 1986, for an examination of its effectiveness; and Brennan & Nitz, 1986, for an easy method of PC implementation). The problem with orthogonal rotational strategies such as Varimax is that such procedures artificially impose orthogonality onto the data, when typically the variables are correlated (cf. Loo, 1979). In the unlikely event that the factors (or canonical vectors) are actually independent, then an oblique rotational strategy will stop at the special orthogonal position, appropriate in that particular instance. In the present study, only the quantitative degree of measurement redundancy is estimated across the 8SQ and MDQ instruments, using the canonical-redundancy method, so that the issue of vector rotation is not problematic.

However, use of statistical analyses which are based on the general linear model (GLM) are likely to yield approximate results only (cf. Bibby, 1977; Rowe, 1989; Abernethy & Rowe, 1989). Dogmatic adherence to the linear-additive assumption which underlies traditional statistical procedures may result in significant 'misfit' of the salient variables, with respect to the particular heuristic model under investigation. Accordingly, the 'blind' use of GLM methods such as multiple regression analysis or canonical correlation analysis, can yield weights
with unspecified measurement bias (cf. Andrews, 1984). The present paper examines the psychometric interrelationships between the 8SQ and MDQ instruments on the assumption that the simple linear-additive model is applicable. It is however, important to understand that the results may need to be modified, to the extent that the GLM model does not fit the data. However, this caveat applies to all psychometric research, and not just to the present study alone.

**Method**

**Subjects and procedure**

The sample comprised 370 female undergraduates (mostly nursing students from various tertiary institutions located in the Melbourne metropolitan area). Students ranged in age from 18 to 48 years. Over 70% of the subjects were 20 years of age or younger. The mean age of the sample was 21.10 years (SD = 4.72 yrs). Hence it was not expected that clinical syndromes associated with menstrual cycle dysfunction would have much bearing on the outcome of the present study, since the sample consisted predominantly of young, healthy women. For the total sample, 34.9% were on the contraceptive pill at the time of data collection. Virtually all students were from middle-class socioeconomic backgrounds and most were born in Australia. Form T (Today Form) of the MDQ (a prospective version of the instrument, where women provide symptom ratings according to how they are feeling at that particular moment in time) and Form A of the 8SQ (the more reliable version of the 8SQ instrument) were administered during the students' regularly scheduled classes in order to facilitate their co-operation in responding to the questionnaires responsibly. It took only 30-40 min to complete both multidimensional self-report instruments. As a group, the students seemed
willing to participate in the study, and appeared to respond conscientiously to the MDQ and 8SQ items.

Table 1
Significant canonical vectors for 8SQ/MDQ instruments (N = 370)

<table>
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<th>Vector (root)</th>
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The three significant canonical vectors not only account for the overlap in measurement variance across the 8SQ and MDQ instruments, but also for possible trait contamination effects associated with the single-occasion of measurement.

Results and Discussion

Canonical-redundancy results

The canonical analysis was based on the subscale data for the 8SQ and MDQ instruments, using Program CANONA (Veldman, 1967). Results indicated three significant canonical vectors (see Table 1). The subsequent redundancy estimates (based on the Stewart & Love, 1968, method) are presented in Table 2. As is evident, the MDQ accounted for 46% of the variance measured by the 8SQ, while the 8SQ accounted for 31% of the MDQ measurement variance. Even though the MDQ was designed primarily to quantify physical menstrual cycle symptomatology, it clearly measures a considerable proportion of emotional or mood-state variance as well. It is possible that as Boyle (1987a, p. 440) has indicated,

These redundancy estimates may well be inflated due to trait-contamination variance inherent in the single-occasion ... scores on which the present analyses are based. In a comparison of single-occasion and change scores,
Boyle (1987b) has shown that trait contamination effects may artificially inflate redundancy estimates ...

Under these circumstances, the corresponding redundancy estimates (corrected for trait-contamination effects) would be about 37 and 25% respectively, still indicative of significant measurement overlap across the two multidimensional psychometric instruments. These redundancy estimates also indicate that each instrument is measuring a considerable proportion of discrete variance, as would be expected given the somewhat different focus of each measure.

**Correlational results**

The Pearson product-moment intercorrelation matrix for all 16 SQ/MDQ subscales (continuous variables) is presented in Table 3. As can be seen, many of the correlation coefficients are quite moderate in magnitude, indicating a degree of multicollinearity. Accordingly, somewhat attenuated $f_3$ weights in the subsequent interset multiple regression analyses were expected, in accord with Pedhazur (1982), as alluded to above.

Of the eight MDQ subscales, only Arousal failed to exhibit practically significant correlations with the other seven subscales. While all of the latter were moderately positively correlated, the Arousal subscale displayed only rather trivial negative correlations with the other MDQ subscales.

This finding is at odds with that reported by Moos (1985, p. 8), wherein all eight of the MDQ subscales were shown as having positive intercorrelations. However, given that the Arousal subscale was intended to measure 'positive'
menstrual cycle reactions (Moos, p. 3), it is evident that the present correlational
findings are indeed correct. On the basis of the present correlational evidence, it
appears likely that the Arousal dimension (which includes items pertaining to
affection, orderliness, excitement, feelings of well-being and bursts of energy/activity) is
not particularly related to negative menstrual cycle symptomatology.

**Multiple regression results**

For each of the separate MDQ and 8SQ subscales, forward stepwise multiple regression
analyses were carried out, with each subscale in turn serving as a dependent variable,
while the subscales from the other instrument served as the independent variables. The
best fitting linear prediction equations for the significant predictor variables, together
with the multiple $R^2$ (redundancy) estimates are presented in Table 4. Only the
standardised regression coefficients are reported for the interset prediction equations.
According to Pedhazur (1982, p. 247), standardised regression coefficients ($\beta$s) are
"scale-free indices and therefore can be compared across different variables." The mean
$R^2$ for the MDQ as accounted for in terms of the 8SQ subscales was 30%, while that for
the 8SQ in terms of the MDQ subscales was 46%, which is in accord with the canonical-
redundancy estimates above.
### Table 3. Intercorrelation matrix for the 8SQ/MDQ variables (N = 370)

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Notes.

1. All correlations are shown to two decimal places only. Decimal points are omitted. Correlations are Pearson product-moment since the 8SQ/MDQ subscale scores are continuous variables (cf. Jöreskog & Sörbom, 1988, pp. IQ--11).

2. Abbreviations: PA (Pain); WR (Water Retention); AT (Autonomic Reactions); NA (Negative Affect); IC (Impaired Concentration); BC (Behaviour Change); AR (MDQ·Arousal); CO (Control); Ax (Anxiety); St (Stress); De (Depression); Rg (Regression); Fa (Fatigue); Gi (Guilt); Ex (Extraversion); Ar (8SQ-Arousal).

Perusal of the interset prediction equations indicates that menstrual cycle symptoms can be predicted significantly from an individual's 8SQ subscale scores. Thus, Pain is predicted by a combination of Stress, Regression and Fatigue scores. It is possible that physical pain is actually exacerbated in women who have
heightened prevailing levels of stress and fatigue. However, Regression, Fatigue and Guilt appeared as the most frequent of the 8SQ predictors of MDQ symptoms. In particular, Guilt significantly predicted five of the eight symptom groups. On this evidence, individuals with a tendency towards neurotic psychological reactions would seem also more likely to experience an exacerbation of menstrual cycle symptomatology. Nevertheless, to disentangle the cause--effect relationships here is less readily achieved. Just as many of the 8SQ state scores serve as significant predictors of MDQ symptoms, so too, most of the MDQ subscale scores appear as significant predictors for 8SQ state scores. While the two sets of variables are clearly interrelated throughout the normal female menstrual cycle, these interrelationships are nevertheless, complex.

Conclusions

The present study demonstrates empirically that the 8SQ and MDQ instruments share some common measurement variance within the mood-state and psychophysiological spheres. As Spalding and Oei (1991) pointed out, "Moos' (1968) definition of PMS has dominated clinical and research activities for over a decade." To the extent that this vast body of accumulated research has been based on the conceptualisation of menstrual cycle moods and symptoms measured in the MDQ, then to that extent the general popularisation of PMS may tend to have a 'self-fulfilling prophecy effect' for many women. However, it is also apparent that the two instruments exhibit considerable unique measurement variance, especially when the possible influence of trait contamination variance is partialled out. Clearly, menstrual cycle symptoms and a multitude of concomitant mood states
are inextricably linked, throughout the course of the normal female monthly cycle. Previous research which has tended to focus almost exclusively on the delineation of only one or two negative states such as anxiety and depression with respect to the pre-menstruum, must be seen as quite deficient and inadequate in the light of the present multidimensional interactional findings. In the future, studies involving psychological states and the menstrual cycle obviously will need to address the multivariate nature of mood states, rather than the univariate approach to research which has tended to predominate in the literature to-date.

References


Goldberg, L. R. (1977). What if we administered the 'wrong' inventory? The prediction of scores on Personality Research Form scales from those on the California Psychological Inventory, and vice versa. Applied Psychological Measurement, 1, 339-354.

diagnostic criteria and selection of research subjects. Psychiatric Research,
9, 125-138.

Psychometrika, 46, 93-103.

screening and data summarization: a pre-processor for LISREL.
Mooresville, IN: Scientific Software Incorporated.

Mooresville, IN: Scientific Software Incorporated.


of the Cattell and Eysenck inventories. Multivariate Experimental Clinical
Research, 3, 195-204.

fluctuation during the normal menstrual cycle. Psychosomatic Medicine,
44, 183-194.

Sweetland, R. C. (Eds), Test critiques (Vol. 3). Kansas City, KS: Test
Corporation of America.

Loo, R. (1979). The orthogonal rotation of factors in clinical research: a critical

instructions on the symptom ratings on the Moos Menstrual Distress
Questionnaire. Psychosomatic Medicine, 38, 163-172.


