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Structural Equation Modeling of the Restructured Clinical Scales of the MMPI-2

by

Michael K. Cheng

A Dissertation
Submitted to the Faculty of Graduate Studies and Research
through Psychology
in Partial Fulfillment of the Requirements for
the Degree of Doctor of Philosophy at the
University of Windsor

Windsor, Ontario, Canada
2006

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ABSTRACT

The Restructured Clinical scales of the MMPI-2 represent a major revision of the Clinical Scales. In deriving the new scales, Tellegen et al. (2003) adopted an exploratory approach to test construction utilizing flexible criteria and clinical judgment to augment empirical data.

Although such an approach is wholly appropriate for test construction, it raises questions that should be resolved in order to help clinicians and researchers in interpreting the new scales. For example, in assigning items to the scales, Tellegen et al. (2003) adopted low minimum item-scale correlation criteria that represent threats to the internal consistency of the scales. Additionally, although they sought to remove a general factor of psychopathology from the Clinical Scales that they believe is responsible for scale correlations, their validation research shows that meaningful correlations persist in the Restructured Clinical scales.

The aim of this investigation is to further validate the Restructured Clinical scales by assessing the fit of items to their respective scales, identifying items that do not fit well, and illuminating the nature of the scale correlations by identifying latent factors in the scales. This information will assist users in interpreting the new scales and provide information that will potentially aid others in the refinement of the scales.

The item-scale analyses were performed using confirmatory factor analysis. RCd Demoralization, RC1 Somatic Complaints, RC3 Cynicism, RC6 Ideas of Persecution, RC7 Dysfunctional Negative Emotions, and RC8 Aberrant Experiences show good fit with the sample data while RC2 Low Positive Emotions, RC4 Antisocial Behavior, and
RC9 Hypomanic Activation show poor fit with the sample data. Specific items that do not fit well with their respective scales are identified.

Inter-scale analyses were performed using confirmatory factor analysis and structural regression modeling. A hierarchical model in which shared variance from Demoralization accounts for correlations between Somatic Complaints, Low Positive Emotions, and Dysfunctional Negative Emotions and shared variance from Dysfunctional Negative Emotions account for many of the correlations between the other scales produces the best overall fit with the sample data. Evidence for hostility-dyscontrol and psychotic factors in some of the scales are also presented. Implications and limitations are also presented.
ACKNOWLEDGEMENTS

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CHAPTER 1: STATEMENT OF THE PROBLEM

The Clinical Scales of the MMPI (Hathaway & McKinley, 1940) were developed using a technique called empirical keying. Generally, this technique involves administration of a large pool of test items to normal and psychiatric samples. Items that reliably differentiate between the samples are retained and keyed in the direction endorsed by the psychiatric sample.

Although the Clinical Scales of the MMPI, and its successor, the MMPI-2 (Butcher, Dahlstrom, Graham, Tellegen, and Kaemmer, 1989) have gained wide acceptance, significant concerns regarding the validity of the Scales have been offered (see ‘Literature Review of the MMPI / MMPI-2’ in Chapter 2). Among these concerns is the issue of scale correlations which are the co-occurrence of elevations in the Scales.

Tellegen et al. (2003) suggest that the empirical basis of the Clinical Scales did lead to the identification of meaningful constructs, even if these constructs had been imperfectly captured. They suggest that the Scales could be made clinically and conceptually informative if a common, overarching general factor of psychopathology hypothesized to be responsible for the scale correlations was to be removed and the cores of the Scales clarified and elaborated upon. (For a description of the theoretical basis, developmental process, and validation research of the Restructured Clinical scales, see ‘Development of the Restructured Clinical Scales’ in Chapter 2). Using a hybrid technique of test construction, they derived a set of Restructured Clinical scales. These scales include a Demoralization scale, reflecting the overall general factor of psychopathology factor believed to have permeated the Clinical Scales, and counterparts to the Clinical Scales.
Although research by Tellegen et al. (2003) provide good evidence for the validity of the Restructured Clinical scales, important issues remain to be addressed. In deriving the Seed Scales used as the nuclei for the full set of scales, Tellegen et al. (2003) accepted a low threshold for item-scale correlations (0.20). They also adopted flexible minimum convergent criteria in the development of the final set of scales with the aim of including the largest number of items judged to contribute important content to the scales. Although they show a balanced and thoughtful approach to test construction, the low minimum item-scale correlations and flexible minimum convergent criteria represent threats to the internal consistency of the scales. Additionally, their validation research shows meaningful correlations between many of the scales, their aim of removing an overarching general Demoralization factor notwithstanding. Some of these correlations, specifically, those between RCd Demoralization and the scales with strong affective content (RC2 Low Positive Emotions and RC7 Dysfunctional Negative Emotions) are expected and congruent with the theoretical basis used by Tellegen et al. (2003) to derive the scales (see ‘Development of the Restructured Clinical Scales’ in Chapter 2). Other correlations, however, are not easily explained, complicating interpretation of the scales. These correlations suggest that some scales may contain other latent factors in addition to the intended construct of interest.

For the purposes of clarity and brevity, in this investigation, the Restructured Clinical scales which have counterparts in the Clinical Scales are referred to as the syndrome Restructured Clinical scales (i.e. all of the Restructured Clinical scales except RCd Demoralization). The Restructured Clinical scales excluding RCd Demoralization and the scales with strong affective content (RC2 Low Positive Emotions and RC7...
Dysfunctional Negative Emotions) are referred to as the Lower Order Syndrome (LOS) scales. The inter-scale analyses in this investigation are primarily designed to model and explain the correlations between the LOS scales and the other scales and the correlations within the LOS scales.

Purpose of the Study

The purpose of this investigation is to contribute to the validation research of the Restructured Clinical scales by testing them using rigorous statistical methods and new sample data. Specifically, this investigation assesses the fit of items to their respective scales, identifies items that may not fit well, and illuminates the nature of the correlations between the scales by identifying latent factors in the scales.

Relevance of the Study

The item-scale analyses provide information regarding the overall fit of the modeled relations in each Restructured Clinical scale with sample data. These analyses show that some scales fit well with the sample data, suggesting that those scales' items reflect a cohesive factor, while other scales fit poorly with the sample data, suggesting those scales' items reflect multiple diffuse factors. With a model that fits well with the sample data, clinicians and researchers can have confidence that elevations in the scale reflect increased presence of one factor. With a model that fits poorly with the sample data, clinicians and researchers cannot be sure whether elevations in the scale reflect high levels of one factor or are the cumulative result of the presence of different factors. The item-scale analyses also identify items that do not fit well with their respective scales. If subsequent research replicates the findings in this investigation, it will suggest that the internal consistency of the scales can be improved by deleting these problematic items.
The inter-scale analyses provide information regarding the latent factors behind the scales. A priori explanations for the correlations tested in this investigation include un-extracted Demoralization factor in the LOS scales and positive emotionality and negative emotionality in the LOS scales. Evidence is presented that negative emotionality in the LOS scales accounts for many of the scale correlations.

In some cases, negative emotionality in the LOS scales may reflect genuine comorbidity between a more general construct of psychopathology and its specific manifestations. For example, it is not difficult to accept that the general anxiety and worry characteristic of elevations in RC7 Dysfunctional Negative Emotions may find expression in the cynical views of others characteristic of elevations in RC3 Cynicism or in the interpersonal mistrust characteristic of elevations in RC6 Ideas of Persecution.

In other cases, negative emotionality may be conceptually separate from the constructs of interest in the LOS scales. For example, the anxiety and worry characteristic of elevations in RC7 Dysfunctional Negative Emotions may co-occur but do not seem centrally related to the antisocial history characteristic of elevations in RC4 Antisocial Behavior, odd perceptual and cognitive experiences characteristic of elevations in RC8 Aberrant Experiences, or elevated mood, impulsiveness, and interpersonal hostility characteristic of elevations in RC9 Hypomanic Activation. In these cases it is plausible that content reflecting negative emotionality contributes to those scales' correlations with RC7 Dysfunctional Negative Emotions and that removal of such items would improve the specificity of the scales.

The presence of negative emotionality in the LOS scales has important implications for clinicians and researchers interested in the domains of interest assessed.
by the LOS scales. It suggests that researchers and clinicians should not simply accept
that subjects that produce elevations in these scales are manifesting the domain of
interest. Instead researchers and clinicians should evaluate whether elevations in RC7
Dysfunctional Negative Emotions may be contributing to the elevations in the LOS
scales. For example, a clinician who suspects that their client has a history of antisocial
behavior should not simply accept elevations in RC4 Antisocial Behavior as
confirmation of their hypothesis. Instead, the clinician should assess whether the client’s
score on the scale is elevated in part by a high score on RC7 Dysfunctional Negative
Emotions. This assessment would involve careful examination of the endorsement of the
items in RC4 Antisocial Behavior.

This investigation also presents evidence that some correlations between the LOS
scales are related to their assessment of different parts of more general latent factors.
Specifically, post hoc exploratory analyses provide evidence that correlations between
RC4 Antisocial Behavior and RC9 Hypomanic Activation are explained in part by the
presence of a general hostility-dyscontrol factor in these scales and that correlations
between RC6 Ideas of Persecution and RC8 Aberrant Experiences are explained in part
by the presence of a general psychotic factor in these scales.

The presence of other latent factors in the LOS scales also has important
implications for clinicians and researchers interested in the parts of the domain of interest
measured by the LOS scales. It suggests that factors that affect one of the parts of the
domain of interest are likely to affect another part of the same domain of interest. For
example, a clinician who is interested in reducing a client’s antisocial behavior as
assessed by RC4 Antisocial Behavior may choose to implement interventions known to be effective in the treatment of hypomania, as assessed by RC9 Hypomanic Activation.
CHAPTER 2: REVIEW OF THE LITERATURE AND STATEMENT OF 
HYPOTHESES

Literature Review of the MMPI / MMPI-2

Predecessors to the MMPI

The earliest personality inventories were developed using a rational methodology. Items for these measures were selected solely on the authors’ belief that they reflected psychopathology and were not empirically refined or validated. The first personality inventory, the Personal Data Sheet (Woodworth, 1918), arose out of a need to screen large numbers of individuals for suitability for military service (Anastasi & Urbina, 1997). Although little evidence of its validity was provided, the Personal Data Sheet was generally well accepted (Nunnally, 1978). This led to the development of further personality inventories that were constructed using the same rational methodology, including the Bernreuter Personality Inventory (Bernreuter, 1993). Unlike the Personal Data Sheet, however, the Bernreuter Personality Inventory did not escape close scrutiny. Landis, Aubin, and Katz (1935) were strongly critical of the rational methodology in general and of the Bernreuter Personality Inventory in particular. They found that the Bernreuter Personality Inventory could not reliably differentiate between individuals from normative samples and individuals from abnormal samples who were matched across age, intelligence, occupation, and other variables. They also found that individuals from normative samples were more likely to endorse some items that contributed to the neuroticism scale (e.g., “I daydream often”) in the direction deemed pathological with greater frequency than individuals from abnormal samples. These findings represented significant challenges to the rational method of test construction.
Development of the MMPI

In response to the lack of correlation between the results of early personality inventories and external criteria, Hathaway and McKinley sought to develop a new personality inventory using a method rooted in empiricism. They began by bringing together a large pool of items relevant to psychiatric classification. They then began to construct various scales reflecting specific psychopathology using a method that they called "empirical keying" (Hathaway & McKinley, 1940). Generally, this approach involves administration of an item pool to two groups: a criterion sample (typically composed of psychiatric patients diagnosed with the disorder of interest) and a normative sample representing the general population. Items that reliably differentiate between the two groups are retained and keyed in the direction endorsed by the psychiatric sample. In contrast to rational methods of test construction, items are selected solely on their ability to differentiate between the criterion and normative samples and not on the basis of prior theoretical or clinical knowledge.

Hathaway and McKinley's work gained great acceptance. By the 1960s, the MMPI had become one of the most widely used personality inventories (Anastasi & Urbina, 1997). Although it was originally designed to aid in psychiatric evaluation (Hathaway & McKinley, 1940), use of the MMPI quickly expanded to include counselling (Parker, 1961), medical (Sines & Silvers, 1960), military (Fulkerson & Sells, 1958), and forensic (Cooke, 1969) settings.

Development of the MMPI-2

By the 1980s, there was growing concern that a new version of the MMPI was required. Limitations with the original normative sample, demographic changes in the
general population, changes in colloquial speech, and widespread use of the MMPI in diverse settings all contributed to this need (Nichols, 2000).

To address these concerns, the Restandardization Committee was charged with developing contemporary norms using a large, nationally-representative sample, providing appropriate representation of ethnic minorities, and updating the language of items where necessary (Nichols, 2000). Because of the large body of personality research that had been conducted with the MMPI, continuity between the MMPI and the MMPI-2 was emphasized. The Restandardization Committee elected to retain the vast majority of items, all of the Clinical and Validity scales, and many of the Supplementary scales (Greene, 2000). Major changes were restricted to establishing new normative data, developing uniform T-scores for some scales, revising and deleting outdated or offensive items, and creating additional Validity, Content, and Supplementary scales (Anastasi & Urbina, 1997). New criterion groups and item development procedures were not used (Anastasi & Urbina, 1997).

Inventory Description

The MMPI-2 (Butcher, Dahlstrom, Graham, Tellegen, and Kaemmer, 1989) is an individually-administered, self-report measure of personality and psychopathology. It consists of 567 statements to which the subject answers "True" or "False." The first 370 items are virtually identical to those in the MMPI except for editorial changes and reordering (Greene, 2000).

MMPI-2 items cover a wide range of content including general health, emotional, and neurological symptoms; social and political attitudes; beliefs about education, occupation, and family; and neurotic and psychotic symptoms, such as sadistic and
masochistic behaviours and hallucinations and delusions.

The MMPI-2 contains 10 Clinical Scales: Scale 1 Hs (Hypochondriasis), Scale 2 D (Depression), Scale 3 Hy (Hysteria), Scale 4 Pd (Psychopathic Deviate), Scale 5 MF (Masculinity-Femininity), Scale 6 Pa (Paranoia), Scale 7 Pt (Psychasthenia), Scale 8 Sc (Schizophrenia), Scale 9 Ma (Hypomania), and Scale 0 Si (Social Introversion).

Scale 1 Hs (Hypochondriasis) is designed to assess neurotic concerns over bodily functioning that persist despite reassurances and contradicting medical tests (Greene, 2000). Scale 2 D (Depression) is designed to assess symptomatic depression, which is characterized by depressed mood, lack of hope, and dissatisfaction with one's own status (Hathaway & McKinley, 1942). Scale 3 Hy (Hysteria) is designed to assess two general categories of symptoms: specific somatic complaints in the head, arms, and legs; and beliefs about the self as well adjusted and socialized (Greene, 2000). Scale 4 Pd (Psychopathic Deviate) is designed to assess general social maladjustment and the absence of strong, pleasant experiences (Greene, 2000). Scale 5 MF (Masculinity-Femininity) is designed to assess masculine and feminine traits (Greene, 2000). Scale 6 Pa (Paranoia) is designed to assess interpersonal sensitivity, suspiciousness, and moral self-righteousness (Greene, 2000). Scale 7 Pt (Psychasthenia) is designed to assess a subject's inability to resist specific thoughts or behaviours, even when they are maladaptive (Greene, 2000). Scale 8 Sc (Schizophrenia) is designed to assess a wide range of content areas, including bizarre thoughts and perceptions, impulsiveness, poor family relationships, and troubling doubts of self-worth and self-identity (Greene, 2000). Scale 9 Ma (Hypomania) is designed to assess elated, but unstable mood, psychomotor excitement, and flight of ideas (Greene, 2000). Scale 0 Si (Social Introversion) is
designed to assess the social introversion-extroversion dimension. Introversion is characterized by withdrawal from social situations. Extroversion is characterized by gregarious, social-seeking behaviour.

*The Role of Theory in Test Construction*

At first glance, the empirical keying method of test construction appears to offer a straightforward way of measuring personality. Nunnally (1978), however, argues that this method relies on implicit assumptions that the test items are representative of the domain of interest (in the case of the MMPI-2, the syndromes represented by each of the Clinical Scales), that the criterion groups differ only across the domain of interest, and that variations in responses on test items reflect only differences in the domain of interest. Nunnally (1978) states that these assumptions represent a serious challenge to content and construct validity.

*Content Validity*

According to Nunnally (1978), the empirical keying method cannot evaluate whether the test items are an adequate and representative sample of the domain of interest because the domain of interest is not specified by a theory (p. 267). On the one hand, important aspects of the domain of interest may not be adequately represented. For example, a scale for schizophrenia constructed using empirical keying could adequately sample positive symptoms but neglect negative symptoms if the test items reflect symptoms of hallucination and delusion but not avolition or alogia. On the other hand, items unrelated to the domain of interest could inadvertently be included into a scale. Jackson (1970) notes that some items could become associated with a scale simply because by chance but would not be similarly associated in other situations. For
example, individuals with schizophrenia could at one time or in specific setting endorse items related to negative mood because of maltreatment in psychiatric settings. Endorsement of these mood items would then reflect the specific context rather than schizophrenia itself. Equally problematic, some items could become associated with a scale, not because of their relation to the domain of interest, but because of their relation to another construct related to the domain of interest. For example, if a number of psychiatric categories are characterized by a pervasive general distress of psychopathology, items reflecting this general factor could inadvertently be captured in each specific psychopathology scale, thereby reducing the specificity of each scale. Many MMPI researchers believe that the Clinical Scales have this problem and separation of an overarching factor is the rationale behind the development of the Restructured Clinical scales. This issue is discussed more fully below. Without a theory specifying the domain of interest, empirical keying offers no way to assess content validity. At times, this method of test construction may ignore important aspects of the domain of interest. At other times, items reflecting context-specific factors or factors not specific to the domain of interest may be inadvertently included.

Nunnally (1978) also argues that the empirical method of test construction is difficult to evaluate against external criteria because the criterion groups used to construct the test often themselves reflect the best available external criteria (p. 267). For example, if psychiatric interviews are used to identify individuals with schizophrenia and these individuals are then used a criterion group to develop a schizophrenia scale, agreement between the scale and psychiatric interviews would hardly guarantee that schizophrenia was well defined by the scale. Rather, the scale would simply reflect an alternate way of
recreating the groups identified by the psychiatric interview, valid or otherwise.

*Construct Validity*

In addition to problems with content validity, Nunnally (1978) also states that the empirical keying method of test construction does not address issues of construct validity. Recall that a construct is a hypothesis that specific variables will correlate with each other in systematic ways. Construct validity refers to the extent to which a test can be said to measure what it is intended to measure. A test with good construct validity should be well defined by its variables, have good internal consistency, correlate with other variables of interest, but *not* correlate with variables with which it should be unrelated. For example, a test for depression with good construct validity should have items that measure cognitive, affective, and physiological symptoms, show high correlations between test items, correlate with familial patterns of depression and responsivity to effective treatments, and not correlate with tests for other psychological problems, such as antisocial behaviour. Because the empirical keying method of test construction does not involve an explicit theory of how variables are related to the construct or how the construct is likely to be affected by other correlates, the validity of the underlying constructs can be difficult to ascertain. As will be discussed more fully in the next section, the large number of overlapping items between the Clinical Scales, the finding that many of the Clinical Scales contain more than one factor, and the tendency for scores across the Clinical Scales to be correlated all suggest that the Clinical Scales do not measure specific constructs and therefore do not possess a high degree of construct validity.

Because of these challenges to content and construct validity, Nunnally (1978)
states that one can never be sure of what is being measured in tests constructed using empirical keying (p. 268). Instead, he suggests that the development of psychological measures should involve explicit and testable theories about relations between test items and hypothesized constructs.

Hathaway and McKinley’s reliance on the empirical keying method of test construction has contributed to one of the most challenging and persistent issues in its clinical and research use: the existence of a large and broad first factor that accounts for much of the variance in subjects’ responses and saturates most specific clinical scales, making them highly correlated and diminishing their specificity. A moment’s reflection on this method of test construction shows how such a general, pervasive factor could have been inadvertently captured. If a number of psychiatric categories are characterized by a single, pervasive construct of general distress or psychopathology, or if subjects’ responses to items are characterized by a specific style of responding, the empirical keying method could not identify this factor. Instead, the pervasive common factor would be incorporated unseen into each specific psychopathology scale, artificially increasing scale correlations and reducing scale specificity.

**The First Factor**

Factor analyses of the MMPI and the MMPI-2 with diverse populations have repeatedly confirmed the existence of this broad, overarching first factor of the Clinical Scales (e.g., Butcher et al., 1989; Welsh, 1956) (see Table 1 from Welsh, 1956). Although significant research has been done to clarify the nature of this first factor, there have been no definitive findings, leaving unanswered the question, “What exactly does
Table 1

Item Overlap of A Scale with MMPI Clinical Scales and Rounded Averages for Representative Samples

<table>
<thead>
<tr>
<th>Scale</th>
<th>Overlap with A Scale (items scored in opposite direction in parentheses)</th>
<th>Rounded Averages</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Hs (.30)</td>
<td>.30</td>
</tr>
<tr>
<td>2</td>
<td>D (6)</td>
<td>.60</td>
</tr>
<tr>
<td>3</td>
<td>Hy (2)</td>
<td>.20</td>
</tr>
<tr>
<td>4</td>
<td>Pd (1)</td>
<td>.40</td>
</tr>
<tr>
<td>5</td>
<td>MF (M)</td>
<td>.30</td>
</tr>
<tr>
<td>5</td>
<td>MF (F) (-.10)</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Pa (1)</td>
<td>.50</td>
</tr>
<tr>
<td>7</td>
<td>Pt (13)</td>
<td>.75</td>
</tr>
<tr>
<td>8</td>
<td>Sc (8)</td>
<td>.60</td>
</tr>
<tr>
<td>9</td>
<td>Ma (1)</td>
<td>.35</td>
</tr>
<tr>
<td>0</td>
<td>Si (10)</td>
<td>.60</td>
</tr>
</tbody>
</table>

*Note.* Hs = Hypochondriasis, D = Depression, Hy = Hysteria, Pd = Psychopathic Deviate, MF (M) = Masculinity-Femininity Male, MF (F) Masculinity-Femininity Female, Pa = Paranoia, Pt = Psychasthenia, Sc = Schizophrenia, Ma = Hypomania, Si = Social Introversion.
the MMPI measure?" and underscoring Nunnally’s criticism of the empirical keying method.

There has been considerable debate regarding the nature of this first factor. Messick and Jackson (1961, 1961a, 1972) suggest that the first factor is simply a measure of subjects’ acquiescence, or willingness to agree with statements presented to them. In contrast, Edwards (1965, 1977) suggests that the first factor reflects subjects’ efforts to project a favorable impression of themselves by endorsing socially desirable items and not endorsing socially undesirable items. Block (1965, 1977) disagrees with both of these positions and maintains that the first factor reflects a genuine and important measure of general psychopathology.

Messick and Jackson (1961, 1961a, 1972) suggest that the first factor does not reflect the content of test items but is simply a measure of subjects’ tendency to agree with items presented to them. To investigate this hypothesis, they constructed all-True and all-False subscales from various MMPI scales. Using factor analyses, they found that they could almost completely separate all-True and all-False responses after one factor rotation. Block (1965) argues that their approach is flawed and attributes their findings to the high degree of item overlap between the unbalanced items from various scales. Block found that the abbreviated scales did not change radically in factor structure or in relation to external correlates, suggesting that MMPI scales do measure content and do not simply reflect subjects’ acquiescence.

Like Messick and Jackson, Edwards (1965, 1977) suggests that the first factor is a measure of a response set. Unlike Messick and Jackson, however, Edwards believes that this response set does involve item content and reflects subjects’ tendencies to endorse
socially desirable statements and to reject socially undesirable statements. To test his hypothesis, Edwards created a Social Desirability (SD) scale by asking judges to rank MMPI items one at a time purely on the basis of the items' perceived social desirability. He found that there was a high correlation between the SD scale, various MMPI scales, and the first factor of the MMPI with various samples. Because psychopathology is still stigmatized, however (Link & Cullen, 1990), it is likely that items with psychopathological content would be ranked as socially undesirable. Herein lays the difficulty in separating social desirability from general psychopathology. Block (1965) agrees with Edwards that there are high correlations between the SD scale, MMPI scales, and the first factor of the MMPI but states that this is the result of the SD scale being a measure of general anxiety rather than social desirability. Block argues that subjects' tendencies to answer 'no' to these items reflects honest reporting rather than attempts to project a favorable impression of themselves. While items that separate neurotic from non-neurotic groups may also reflect socially-desirable content, Block says that this does not mean that an interpretation of social desirability should be favored. To challenge Edwards's interpretation, Block sought to modify an MMPI scale that correlated highly with the first factor so that it would be neutral in terms of social desirability. He developed the Ego-Resiliency (Subtle) (ER-S) scale by retaining from his Ego Resiliency scale only those items that had been ranked as neutral in Edwards' social desirability studies. Furthermore, he ensured that there were an equal number of 'True' and 'False' items on this ER-S scale to control for acquiescence. Block found that the modified ER-S scale still correlated highly with both the first factor and Edwards's SD scale, suggesting that the SD scale is misnamed and that both the SD and modified ER-S scales

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are measures of the first factor.

In contrast with the acquiescence theory put forth by Messick and Jackson (1961, 1961a, 1972) and the social desirability theory put forth by Edwards (1965), Block (1965) suggests that the first factor is a genuine measure of general psychopathology. Block speculates that the first factor is likely a measure of what he has termed 'ego resiliency'. Individuals high in ego resiliency are resourceful, adaptive, and engaged, and for these reasons are less likely to develop general psychopathology. Individuals low in ego resiliency are less adaptable and more rigid and are therefore more likely to experience anxiety when they are not in a safe, predictable environment.

Despite the efforts of Messick and Jackson (1961, 1961a, 1972), Edwards (1965), and Block (1965), the debate regarding the nature of the first factor of the MMPI and the MMPI-2 has not been resolved. In an effort to illuminate the issue, Tellegen et al. (2003) have developed the Restructured Clinical Scales. To separate the first factor from the 'syndrome' Restructured Clinical Scales (i.e. those assumed to measure distinct problems of clinical interest and which have Clinical Scale counterparts), they created a separate Demoralization Restructured Clinical Scale by adopting an orientation consistent with Block's perspective that the first factor represents a genuine measure of psychopathology, even if it may also incidentally reflect a social desirability response set. Validation of the Restructured Clinical Scales would therefore represent support for Block's perspective.

Problems with the Clinical Scales

In addition to the problem of the first factor, the method of empirical keying has been pinpointed as the source of other difficulties with the Clinical Scales. These problems include the validity of subtle items, suspect criteria, heterogeneous scale
content, scale overlap, and high correlations between scales.

**Subtle Items**

The method of empirical keying resulted in the inclusion in most scales of items that lack high face or content validity. These items subsequently became known as 'subtle' items. Because no cross validation or replication studies were conducted, however, it is possible that these items became associated with their respective scales by chance but would not be similarly associated in other situations. Jackson (1970) suggests that this high contextual specificity is an inherent limitation of the empirical keying method.

Research by Weed, Pen-Porath, and Butcher (1990) has shown some support for this argument. They demonstrated that the subtle items lower the validity of the more obvious items, suggesting that the association between subtle items and criterion groups used to develop the Clinical Scales may simply have been an artifact of chance. Because their research, however, was based on the use of different criterion groups primarily formed using structured interviews lacking in subtle items and high in face validity, this method may simply beg the question as to whether the subtle items constitute part of the constructs in question. Stated in another manner, it should not be a surprise that the Clinical Scales do not reproduce the criterion groups (selected using interviews with high face validity) with as much fidelity as similar methods used to construct the criterion groups in the first place (items with high face validity).

**Suspect Criteria**

Although items for the Clinical Scales were not developed in response to specific theories of the relevant disorders of the times, neither do they represent solely empirical
observations that are purely descriptive of mental and emotional disorders generally. Instead, an effort was made to systematically generate items thought at the time to be characteristic of important categories of psychopathology. Item selection and principles of scale coherence for the resulting scales reflect the application of the best thinking in the field of psychopathology at the time (Greene, 2000). Diagnostic categories have, however, changed since then. Because these diagnostic practices have evolved, the construct validity of the Clinical Scales has come into question (Helmes & Reddon, 1993). For example, Scale 1 Hs (Hypochondriasis) measures abnormal, neurotic concerns over bodily functioning and includes items that assess pain and weakness. The current DSM-IV-TR (American Psychiatric Association, 2000) however, defines hypochondriasis as fear of having a serious disease (emphasis added) (example from Helmes & Reddon, 1993). Similarily, Scale 7 Pt (Psychasthenia) measures a diagnosis that is no longer used but translates imperfectly to current definitions of generalized anxiety disorder and obsessive-compulsiveness. While individuals who engage in obsessional thinking are likely to elevate Scale 7 Pt (Psychasthenia), highly compulsive individuals may not because their intellectual defenses may be adequate to contain their anxiety (Greene, 2000). Although the Clinical Scales’ basis in empirical keying would appear to place it on a sound empirical footing, its dependence on outdated diagnostic categories and practices creates significant problems with the construct validity of interpretations.

**Homogeneous Scale Content**

Factor analyses of the Clinical Scales have repeatedly found them to be heterogeneous and overlapping in content. Comrey’s research (e.g., 1957a, 1957b,
1957c, 1958a, 1958b, 1958c) has been seminal and notable in this area.

Scale 1 Hs (Hypochondriasis) appears to contain two general factors: poor physical health and gastrointestinal difficulties (Comrey, 1957a; O'Connor & Stefic, 1959). Scale 2 D (Depression) also appears to contain two general factors: neuroticism and poor physical health (Comrey 1957b). Scale 3 Hy (Hysteria) has been factor analyzed into five components by Comrey (1957c): poor physical health, shyness, cynicism, headaches, and neuroticism (Comrey 1957c). Scale 4 Pd (Psychopathic Deviate) appears to contain five general factors: shyness, hypersensitivity, delinquency, impulse control, and neuroticism (Astin 1959, 1961; Comrey, 1958a). Scale 6 Pa (Paranoia) has been factor analyzed into five components by Comrey (1958b): paranoia-actual persecution, imagined persecution, delusion, hopelessness, guilt-ridden; and into three components by Ward, Kersh, and Waxmonsky (1998): paranoia, low morale, and naiveté. Scale 7 Pt (Psychasthenia) appears to contain eight factors: neuroticism, anxiety, withdrawal, poor concentration, agitation, psychotic tendencies, poor physical health (Comrey 1958c). Comrey and Marggraff (1958) analyzed 58 items and omitted 17 in Scale 8 Sc (Schizophrenia) because of computer limitations that existed at the time. They discovered seven factors: paranoia, poor concentration, poor physical health, psychotic tendencies, rejection, withdrawal, and sex concern. Scale 9 Ma (Mania) appears to contain 11 factors: shyness, bitterness, acceptance of taboos, poor reality contact, thrill seeking, social dependency, psychopathic personality, high water consumption, hypomania, agitation, and defensiveness. Finally, Scale 0 Si (Social Introversion) has been factor analyzed by Ward and Perry (1998) into three components: insecurity, low assertion, and social inhibition. Scale heterogeneity represents a serious problem to
theoretical and clinical use of the Clinical Scales because elevations can be caused by a single component only peripherally related to the scale construct. This problem may be especially significant when the MMPI-2 is applied outside of traditional psychiatric settings (Helmes & Reddon, 1993). For example, clients with cerebrovascular disease (Gass, 1996) or multiple sclerosis (Meyerink, Reitan, & Selz, 1988; Mueller & Grace, 1988) may elevate Scale 1 (Hypochondriasis) and Scale 3 (Hysteria) because of ‘real’ physical symptoms and not because of hypochondriasis or hysteria.

Some (e.g., Mezzich, Kleinman, Fabrega, & Parron, 1986) suggest that a classification system for psychopathology should have homogeneous and distinct groups. Others (e.g., Tellegen et al., 2003) believe that psychopathology may exist as a heterogeneous constellation of symptoms. In either case, problems with the Clinical Scales are not restricted to the heterogeneous nature of the Scales. Instead, low consistency among the factors in each scale and the presence of many ‘small’ factors with few items which account for small amounts of variance in each scale suggest that the Clinical Scales fail to measure the disorders that they are intended to measure.

Scale Overlap

The common item pool used to develop the Clinical Scales has also led to problems with construct validity in the form of high item overlap. Scale 1 Hs (Hypochondriasis) contains only (21.0%) unique items not found on other Clinical or Validity scales (Greene, 2000). Similarly, Scale 2 D (Depression) contains only 13 (22.8%) unique items; Scale 3 Hy (Hysteria) contains 13 (21.7%) unique items; Scale 4 Pd (Psychopathic Deviate) contains 15 (30.0%) unique items; Scale 5 Mf (Masculinity-Femininity) contains 33 (58.9%) unique items; Scale 6 Pa (Paranoia) contains 12 (30.0%)
unique items; Scale 7 Pt (Psychasthenia) contains 10 (20.8%) unique items; Scale 8 Sc (Schizophrenia) contains 26 (33.3%) unique items, Scale 9 Ma (Hypomania) contains 16 (34.8%) unique items, and Scale 0 Si (Social Introversion) contains 27 (39.1%) unique items (Greene, 2000). Item overlap is exacerbated by the K-correction when it is applied to five of the Clinical Scales (Helmes & Reddon, 1993). Item overlap reduces specificity of the scales and represents a problem to the clinical and theoretical utility of the Clinical scales.

High Correlations Between Scales

A related, but separate problem from item overlap involves the high degree of correlations between the Clinical Scales (Greene, 2000). High correlations between scales mean that an individual’s score on one scale is correlated with their score on another scale, a problematic situation if each scale purports to measure a different construct. High correlations between scales are not simply a function of the number of overlapping items in the scales. For example, Scale 1 Hs (Hypochondriasis) and Scale 3 Hy (Hysteria) have a correlation of 0.795 and share 20 items while Scale 1 Hs (Hypochondriasis) and Scale 7 Pt (Psychasthenia) have a correlation of .770 but share only 2 items (Greene, 2000). Correlations between the Clinical Scales with the Caldwell Clinical Dataset are presented below in Table 2 (from Greene, 2000, p.176).

These scale correlations represent a challenge to the construct validity of the Clinical Scales because it is not clear whether there exists a high degree of comorbidity between psychiatric disorders or whether there is a common factor that characterizes different psychiatric disorders and which has been inadvertently ‘built into’ the Clinical
<table>
<thead>
<tr>
<th></th>
<th>1 Hs</th>
<th>2 D</th>
<th>3 Hy</th>
<th>4 Pd</th>
<th>5 MF(F)</th>
<th>5 MF(M)</th>
<th>6 Pa</th>
<th>7 Pt</th>
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<td>4 Pd</td>
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<td>.587</td>
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<td>.237</td>
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<tr>
<td>5 MF(M)</td>
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<td>.259</td>
<td>.196</td>
<td>.935</td>
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<td>6 Pa</td>
<td>.586</td>
<td>.594</td>
<td>.479</td>
<td>.663</td>
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<td>7 Pt</td>
<td>.770</td>
<td>.804</td>
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<td>.725</td>
<td>.146</td>
<td>.277</td>
<td>.696</td>
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</tr>
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<td>8 Sc</td>
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<td>.731</td>
<td>.481</td>
<td>.763</td>
<td>.049</td>
<td>.202</td>
<td>.749</td>
<td>.925</td>
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<td>9 Ma</td>
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<td>.125</td>
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<td>.469</td>
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<td>.731</td>
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<td>.539</td>
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<td>.207</td>
<td>.511</td>
<td>.798</td>
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</table>

*Note.* Hs = Hypochondriasis, D = Depression, Hy = Hysteria, Pd = Psychopathic Deviate, MF (M) = Masculinity-Femininity Male, MF (F) Masculinity-Femininity Female, Pa = Paranoia, Pt = Psychasthenia, Sc = Schizophrenia, Ma = Hypomania, Si = Social Introversion.
Scales. It is the latter explanation that the Restructured Clinical Scales were designed to address.

*Alternative Strategies*

Several strategies have been proposed to address the problems of suspect criteria, heterogeneous scale content, item overlap, and high scale correlations within the Clinical Scales. Some of these approaches have involved the construction of new scales from the item pool of the MMPI/MMPI-2 while others have focused on creating interpretation profiles of relative Clinical Scale elevations rather than relying on simple, single-scale interpretations.

*Harris-Lingoes Subscales*

Harris and Lingoes (1955; 1968) grouped together items that they believed reflected similar content to create subscales within the Clinical Scales with the aim of providing clearer criteria for interpretation and improving homogeneity. Their approach, however, results in several problems with reliability and validity and reflects many of the same shortcomings that were seen in precursors to the MMPI. Like these earlier approaches, Harris and Lingoes used a rational approach to bring together items that they believed reflected similar content. Critics of their approach found that other clinicians failed to replicate their groupings, suggesting a lack of consensus regarding the clinical content of the items (Miller & Streiner, 1985). Additionally, factor analyses by Foerstner (1986) found that some of the Harris-Lingoes subscales, such as D2 (Psychomotor Retardation) and D3 (Physical Malfunction) did not load onto a higher depression factor, suggesting that these subscales may not relate to their respective construct in the manner assumed by Harris and Lingoes. Harris and Lingoes also did not attempt to correlate
their Subscales with external criteria. One study by Calvin (1975) failed to link the Subscales with behavioural correlates. Finally, the short length of the Subscales and their related sensitivity to changes in single responses has been criticized by Friedman, Lewak, Nichols, and Webb (2001).

**Content Scales**

The Content Scales (Butcher, Graham, Williams, & Ben-Porath, 1990) represent another rationally derived response to the problems of heterogeneous scale content and scale overlap with the Clinical Scales. The Content Scales are designed to have a high degree of face validity to encourage the development of a collaborative relationship between assessor and subject by facilitating self-reporting and ranking of concerns. Regardless of the accuracy of the self-reported symptoms, the authors believe that it is significant in-and-of-itself that subjects are willing to report them.

Although the obviousness of the Content Scales can be an asset, it can also represent a challenge to assessment (Friedman, Lewak, Nichols, & Webb, 2001). Subjects that wish to falsify, obscure, or manipulate presentation of their symptoms can easily do so because of the obvious nature of the items. Additionally, conscious presentation of problems can lead to the inaccurate presentation of problems outside of conscious awareness, complicating interpretation (Friedman, Lewak, Nichols, & Webb, 2001). As a consequence of the high face validity of the Content Scales, extremely high and low scores are often seen and absolute thresholds insensitive to reporting style have been difficult to establish (Friedman, Lewak, Nichols, & Webb, 2001).

Because of these limitations, some (e.g., Friedman, Lewak, Nichols, & Webb, 2001) suggest that the Content Scales are best used in conjunction with the Clinical
Scales rather than in place of them. Furthermore, it has been suggested that the Content Scales are most helpful in understanding the relative elevations of one scale over another rather than as an absolute measure of personality and psychopathology (Friedman, Lewak, Nichols, & Webb, 2001). Even then, the significant shared variance between the Content Scales requires that interpretation focus on more than T scores. For example, a male patient with a score of T = 92 on both the Anxiety and Depression Scales means that all Anxiety items were endorsed while five Depression items were not. This suggests that interpretation should focus on anxiety symptoms. In contrast, a male patient with a score of T = 69 on the Anxiety Scale and a score of T = 83 on the Depression Scale suggests that a truly equal weighting be given to both anxiety and depression symptoms because eight items remain unendorsed from both Scales (examples from Friedman, Lewak, Nichols, & Webb, 2001).

**Code Type Interpretations**

A third alternative to simple single scale interpretation of the Clinical Scales is the use of clinical code types. Although there are many competing methods used to define code types (e.g., Gilberstadt & Duker, 1965; Lachar, 1974; Marks & Seeman, 1963; etc.), generally, a code type is identified by writing the number of the highest elevated Clinical Scale followed by the number of the next highest elevated Scale. For example, if a subject’s highest elevations are on Scale 2 D (Depression) (T = 75) and Scale 7 Pt (Psychasthenia) (T = 70), the corresponding code type would be 2-7. In well-defined code types, both of the highest elevations must be above T = 65 and the third highest Scale must have a T score at least five points lower than the second score in the code type (Greene, 2003).
Code types are useful in reducing the effects of heterogeneous scale content and scale overlap because they produce greater specificity in interpretation. For example, a subject may elevate Scale 4 Pd (Psychopathic Deviate) because of antisocial behaviours or because of Demoralization and alienation. A 4-9 code type, with attendant hypomanic symptoms captured by Scale 9 Ma (Hypomania), would indicate that interpretation should focus on acting-out behaviours. In contrast, a 2-4 code type, with attendant depressive symptoms captured by Scale 2 D (Depression) would suggest that interpretation should focus on emotional dysfunction (example from Tellegen et al., 2003).

Although use of code type interpretations offers greater specificity than single scale elevation interpretations, their use represents an attempt to compensate, rather redress the problems inherent with the Clinical Scales. Additionally, the diverse and discrepant methods available for identifying code types can represent a challenge to the clinical and research utility of this technique (McGrath, Rashid, & Hayman, 2002).

The Restructured Clinical Scales

Rationale for the Development of the Restructured Clinical Scales

To address the problems of the Clinical Scales, including the pervasive first factor, suspect criteria, heterogeneous scale content, scale overlap, and scale correlations, Tellegen et al. (2003) adopted a hybrid technique of test construction that retains a strong empirical basis but also includes the use of overt theoretical content. Tellegen et al. (2003) suggest that the empirical basis of the Clinical Scales did lead to the identification of meaningful constructs, even if they had been imperfectly captured or named. They suggest that these constructs could be made clinically and
conceptually informative if a common, overarching general factor of psychopathology was to be removed and the cores of the scales could be clarified and elaborated upon. Like Block (1965), Tellegen et al. (2003) believe that this common factor represents a general factor of psychopathology rather than reflecting a response set of acquiescence or social desirability. To identify this common, overarching factor and to separate it from the Clinical Scales, they utilized a model of affect described more fully below. The result would be a set of Restructured Clinical scales: eight ‘syndrome’ scales reflecting the categories of psychopathology in the Clinical Scales and one Demoralization scale reflecting the overarching factor in the Clinical Scales.

It should be noted that their approach differs from those who argue that test construction should begin with theories of specific constructs and their relation to test items (e.g., Jackson, 1970). Tellegen et al. (2003) suggest that such methods are best at selecting items that are associated with the construct but may not adequately evaluate alternative models that better fit the data. Additionally, they state that such methods rely on assumptions that the underlying constructs are valid to begin with. Given an incomplete understanding of personality and psychopathology, Tellegen et al. (2003) suggest that an open and exploratory approach which integrates a strong empirical basis is preferred.

The Dimensional and Hierarchical Model of Affect

The theory behind the development of the Restructured Clinical scales is based on a dimensional and hierarchical model of affect described in Watson and Tellegen (1985) and Tellegen, Watson, and Clark (1999) (see Figure 1, simplified from Tellegen, Watson, and Clark, 1999, p. 298). This model suggests that there are two relatively independent
Figure 1.

The dimensional and hierarchical model of affect
dimensions of activation: Positive Activation (PA) and Negative Activation (NA).

PA is conjectured to be part of an evolutionarily adaptive appetitive system that facilitates goal-directed behaviour (Watson, Wiese, Vaidya, and Tellegen, 1999). High PA is characterized by such feelings as elation, enthusiasm, and excitement and low PA is characterized by such feelings as dullness and drowsiness. In contrast, NA is conjectured to be part of an evolutionarily adaptive withdrawal system that facilitates retreating behavior (Watson et al., 1999). High NA is characterized by such feelings as fear and distress while low NA is characterized by such feelings as calmness and placidness.

While PA and NA represent separate activation systems, Tellegen, Watson, and Clark (1999) propose an overarching general factor that focuses on hedonic valence. This Pleasantness-Unpleasantness dimension is characterized by feelings such as happiness and contentment at the Pleasant pole and feelings such as sadness and blueness at the Unpleasant pole. Tellegen (1985) suggests that it is this general hedonic factor that is responsible for the commonly found correlations between measures of depression (characterized primarily by low PA) and anxiety (characterized primarily by high NA).

Demoralization

In developing the Restructured Clinical scales, Tellegen et al. (2003) hypothesized that the PU dimension, which they rename Demoralization, can account for the problems associated with the first factor of the Clinical Scales, including item overlap, scale correlations, and heterogeneous scale content. They suggest that removal of Demoralization items from each of the Clinical Scales (which had inadvertently been captured through the use of empirical keying) and clarification of the core constructs of
the Clinical Scales could lead to a new set of scales that would be clinically and conceptually useful.

*Development of the Restructured Clinical Scales*

Development of the Restructured Clinical scales involved four general steps: 1) extraction of the general complaint factor from each of the Clinical Scales to create a Demoralization scale; 2) identification of the core component of each Clinical Scale; 3) creation of Seed scales consisting of Clinical Scale items, and; 4) creation of the full Restructured Clinical scales from all MMPI-2 items.

*Creation of the Demoralization Scale*

Tellegen et al. (2003) identified Demoralization items by first hypothesizing that low PA is the distinctive core component of depression and that high NA is the distinctive core component of anxiety (Tellegen, 1985). Using four samples of clinical patients, they selected Demoralization items in a five-step process. First, they selected 14 items that had a loading of at least \( |.50| \) on the principal factor of Clinical Scale 2 (Depression) and Clinical Scale 7 (Psychasthenia). Next, they created brief measures of PA (renamed Positive Emotionality to reflect the trait nature of the construct) and NA (renamed Negative Emotionality) by using factor analysis. They then examined items that had correlations of at least \( |.25| \) with both measures (in opposite directions). Factor analysis of these items identified 12 items with loadings of at least \( |.50| \) with principal factor 1 from Clinical Scale 2 (Depression) and Clinical Scale 7 (Psychasthenia). There was a significant amount of overlap in the 14 items identified using the first method and the 12 items identified using the second method. Of the 11 overlapping items, 10 were retained for the final Demoralization scale. Content of this preliminary scale was found...
to be congruent with the Pleasantness/Unpleasantness dimension (e.g., items that assess feeling 'blue' or happy). Additional Demoralization items were selected by correlating other MMPI-2 items with the brief PEM and NEM measures to produce 23 Demoralization items.

**Identification of Clinical Scale Core Components**

After identification of Demoralization items, factor analyses were conducted on the Clinical Scales to identify their distinctive cores. Solutions were selected that best identified a Demoralization component and an additional, distinct, meaningful component. For each Clinical Scale, a number of items (ranging from 3-32) were identified that were primarily associated with Demoralization, producing a loading of >.26 with at least two of the samples. These items were not considered to reflect the core construct of their respective Clinical Scale.

For Clinical Scale 1 Hs (Hypochondriasis), the two-factor solution produced a Demoralization factor and a somatic factor in all four samples. Consequently, this core component was labeled Somatic Complaints.

For Clinical Scale 2 D (Depression), a two-factor solution produced a Demoralization factor and another factor loading on a variety of items, but with the highest consistency across the four samples on items related to positive emotional content. This factor was labeled Low Positive Emotionality and keyed negatively. The correction items on Clinical Scale 2 were not considered relevant and omitted from factor analyses.

For Clinical Scale 3 Hy (Hysteria), the two-factor solution produced a Demoralization factor and another factor that varied across samples, but included a
number of somatic concern items that were selected as core components of Clinical Scale 1 (Hypochondriasis) and/or several that involved cynical or negative views of human nature. When both cynical and somatic complaints items appeared in the same factor (as occurred in the female psychiatric sample), their loadings had the same sign. In Clinical Scale 3 Hy (Hysteria) however, somatic items are keyed True and cynical items are keyed False, presenting a challenge to construct validity. In all four samples, a three-factor solution produced a Demoralization component, a somatic component very similar to the Somatic Complaints component in Clinical Scale 1 Hs (Hypochondriasis), and a third factor with cynical content. This last factor was identified as the distinctive core of Clinical Scale 3 Hy (Hysteria) and labeled Cynicism.

For Clinical Scale 4 Pd (Psychopathic Deviate), the two-factor solution produced a Demoralization factor and a second factor involving items related to antisocial behaviour, family content, suspiciousness, aberrant experiences, and hypomanic activation in all four samples. Some of these items were identified as core components of Clinical Scale 6 Pa (Paranoid), Clinical Scale 8 Sc (Schizophrenia), and Clinical Scale 9 Ma (Hypomania) scales. The three-factor solution produced a Demoralization component and separated the second factor into one factor containing suspiciousness, aberrant experiences, and hypomanic activation items and another factor containing antisocial behaviour and family content in all four samples. This last factor was identified as the distinctive core component of Clinical Scale 4 Pd (Psychopathic Deviate) and labeled Antisocial Behavior.

For Clinical Scale 6 Pa (Paranoia), the two-factor solution produced a Demoralization factor and a second factor containing self-referential persecutory ideas
and non-self-referential mistrust of human nature items in all four samples. Both types of items produced positive loadings on their common factor but persecutory items are keyed True and cynical items are keyed False. Additionally, items with cynical content were already chosen as the core component of Clinical Scale 3 Hy (Hysteria). The three-factor solution produced a Demoralization factor and separated the persecutory and cynical items into separate factors. Self-referential persecutory items were selected as the distinctive core component of Clinical Scale 6 Pa (Paranoia) and labeled Ideas of Persecution.

For Clinical Scale 7 Pt (Psychasthenia), the two-factor solution produced a Demoralization factor and a second factor involving items related to negative emotions in all four samples. This second factor was selected as the distinctive core component of Clinical Scale 7 Pt (Psychasthenia) and labeled Dysfunctional Negative Emotions.

For Clinical Scale 8 Sc (Schizophrenia), the two-factor solution produced a Demoralization factor and a second factor labeled Aberrant Experiences in all four samples. This second factor was selected as the core component of Clinical Scale 8 Sc (Schizophrenia).

For Clinical Scale 9 Ma (Hypomania), the two-factor solution produced a Demoralization factor and a second factor labeled Hypomanic Activation in all four samples. This second factor was selected as the core component of Clinical Scale 9 Ma (Hypomania).

For Clinical Scale 0 Si (Social Introversion), the two-factor solution produced a Demoralization factor and a second factor involving unassertiveness, social avoidance,
and discomfort in social situations. This second factor was selected as the core component of Clinical Scale 0 Si (Social Introversion) and labeled Low Sociability.

Creation of Seed Scales

After identification of the core components of the Clinical scales, Tellegen et al. (2003) created Seed scales based on items from the Clinical Scales. Each Seed scale was to form the nucleus of one of the Restructured Clinical scales. In developing the Seed Scales, Tellegen et al. (2003) sought to achieve a balance between statistical consistency, distinctiveness, and content representativeness of the core construct. Seed Scales were constructed using an iterative selection process involving three steps: 1) selecting provisional items based on relevancy to their respective Clinical Scale and lacking a significant Demoralization component; 2) creating a provisional Seed Scale set to maximize homogeneity; 3) creating a provisional Seed Scale set to maximize distinctiveness; and 4) selecting a final set of Seed Scale items.

From the 321 items of the Clinical Scales, 158 items were selected that had their highest loading on their respective Clinical Scale factor and had a loading of >.26 on that factor. Additionally, candidate items could not have “salient” Demoralization loadings (Tellegen et al., 2003, p. 18). To maximize distinctiveness, overlapping items (appearing on more than one Seed Scale) were also deleted with the exception of those that appeared on both the Depression and Social Introversion Seed Scales. These items were retained for the Depression Seed Scale because sociability was conceptualized as a facet of (low) PEM, the core component of Depression.

134 items that met initial criteria were used to form the first set of 11 provisional Seed Scales. Item-scale correlations were calculated for all four samples. To enhance

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homogeneity, 25 items with <.20 item-scale correlations with two or more samples were removed.

The remaining 109 items were used to form the second set of 11 provisional Seed Scales. Again, item-scale correlations were calculated for all four samples. To enhance distinctiveness, items that did not on average correlate highest with their respective provisional Seed Scale were deleted except for provisional Seed Scale 9 (Hypomanic Activation) since doing so would have eliminated all items. For this scale, distinctiveness was enhanced by adding two items that had belonged to provisional Seed Scale 2 (Depression) in the first provisional set but correlated more highly with provisional Seed Scale 9 (Hypomanic Activation). Tellegen et al. (2003) justified transferring these items on the basis that they appear to have hypomanic content.

The remaining 99 items were used to form the final Seed Scales. Tellegen et al. (2003) believe that the iterative process produced a set of Seed Scales that balanced distinctiveness and coherence and retained item diversity within scales. A final Demoralization Seed Scale was constructed by removing four items that did not correlate strongly with their provisional scale or were judged redundant.

Creation of the Full Restructured Clinical Scales

To develop the final set of Restructured Clinical scales from the full set of MMPI-2 items, Tellegen et al. (2003) followed a process parallel to that used to construct the Seed Scales. Three general steps were involved: 1) convergent correlation; 2) minimum convergent correlation, and; 3) discriminant correlation.

First, all 567 MMPI-2 items were correlated with all Seed Scales in all four samples to establish convergent correlations. Items were tentatively assigned to a scale
based solely on its highest item-scale correlation. Next, items were also required to meet a minimum correlation value for that scale to establish minimum convergent correlations. Finally, discriminant correlations were calculated for each item-scale pair. Correlations between an item and scales other than the one of intended membership were calculated for the four samples. Proportions of correlations with values <.30 were required to exceed a threshold that varied from scale to scale.

Convergence and discrimination values were allowed to vary between scales with the aim of employing values that resulted in 1) inclusion of the largest number of items judged desirable, and; 2) exclusion of the largest number of items judged undesirable. To these ends, items meeting two of the three criteria above (convergent correlations, minimum convergent correlations, and discriminant correlations) were accepted in some cases, and items meeting all three criteria were rejected to reduce redundancy.

Tellegen et al. (2003) state that additional, unspecified analyses were conducted with RC7 DNE (Dysfunctional Negative Emotions) and RC9 HPM (Hypomanic Activation) leading to the removal of some items.

Internal consistency of the Restructured Clinical Scales was checked and items with scale correlations that lowered or only weekly contributed to alpha coefficients in the four samples were removed.

Correlations of items in RC1 Somatic Complaints, RC2 Low Positive Emotions, RC4 Antisocial Behavior, RC6 Ideas of Persecution, and RC8 Aberrant Experiences were also compared with unspecified external criterion measures (Tellegen et al., 2003, p. 21) leading to a small number of item assignment changes for RC2 Low Positive Emotions,
RC6 Ideas of Persecution, and RC8 Aberrant Experiences. No appropriate criterion measures were found by the authors for RC3 Cynicism and RC9 Hypomanic Activation.

Reliability and Validity Research to Date

To evaluate the reliability and validity of the Restructured Clinical scales, Tellegen et al. (2003) conducted several analyses using four groups: 1) the MMPI-2 Normative Sample (Butcher, Dahlstrom, Graham, Tellegen, & Kaemmer, 1989), consisting of 1,138 men and 1,462 women; 2) the Portage Path sample (Graham, Ben-Porath, & McNulty, 1999), consisting of 410 men and 610 women who completed the MMPI-2 on intake at a community mental health center; 3) the Hennepin County Medical Center (HCMC) psychiatric sample, consisting of 722 men and 501 women who completed the MMPI-2 while receiving inpatient services at an urban community hospital; and, 4) the Veteran’s Administration Medical Center (VAMC) sample, consisting of 1,229 men who completed the MMPI-2 while receiving inpatient services at a Veterans Administration hospital. Collateral data from the Portage Path sample were collected from therapists approximately one month from commencement of therapy. Therapists were asked to complete the Patient Description Form (PDF) (Graham, Ben-Porath, & McNulty, 1999).

Reliability

Internal consistency was calculated using data from all four samples. Although Hathaway and McKinley did not consider this issue, there is a significant amount of internal consistency in the Clinical Scales. This consistency, however, does not necessarily mean that the Scales are well constructed. Two factors may inflate the levels of internal consistency in the Clinical Scales: saturation with first factor variance and the
Tellegen et al. (2003) found that the Restructured Scales generally showed comparable or improved internal consistency, despite their shorter length and removal of the Demoralization factor.

Test-retest reliability was calculated using a subset of the MMPI-2 Normative Sample, consisting of 82 men and 111 women who completed the MMPI-2 twice over an average interval of nine days. With the exception of RC6 Ideas of Persecution, Tellegen et al. (2003) found that the test-retest reliability of all the new scales exceed 0.70. Tellegen et al. (2003) speculated that the test-retest reliability of RC6 Ideas of Persecution (0.62) was attributable to its restricted variance.

Internal Validity

Within-MMPI-2 analyses were used by Tellegen et al. (2003) to assess correlations between the Clinical Scales and the Restructured Clinical scales, the effects of removal of the Demoralization component from the Restructured Clinical scales, and to compare correlations between the Restructured Clinical scales with correlations between the Clinical Scales.

Correlations between the Clinical Scales and the Restructured Clinical scales was found to be significant, with the exception of Clinical Scale 3 (Hypochondriasis) and RC3 Cynicism (= 0.25). Correlations for this pair were expected to be lower in part because of the heterogeneous nature of Clinical Scale 3 (Hypochondriasis) and the narrower content of RC3 Cynicism (Tellegen et al., 2003). This suggests that the constructs measured by the Restructured Clinical scales retain some relation to those measured by the Clinical Scales. The continuity between the two systems represents an asset to those accustomed to the Clinical Scales.
To assess the effect of removal of Demoralization from the Clinical Scales to form the Restructured Clinical scales, Tellegen et al. (2003) also assessed the correlations between RCd Demoralization and the Clinical Scales and the other Restructured Clinical scales. Overall, they found that the correlations between RCd Demoralization and the other Restructured Clinical scales was significantly lower than between RCd Demoralization and the Clinical Scales with the exception of RC 9 Hypomanic Activation, which showed a modest correlational increase. Tellegen et al. (2003) speculate that this was due to the increased specific measurement of hypomania, an affective state, in RC9 Hypomanic Activation. Tellegen et al. (2003) note that the correlations between RC2 Low Positive Emotions and RC7 Dysfunctional Negative Emotions with RCd Demoralization remained high, but were lower than with their Clinical Scale counterparts. They attribute this correlation to the affective core of these Restructured Clinical Scales. This suggests that the Restructured Clinical scales generally contain less Demoralization content compared with their Clinical Scale counterparts.

Tellegen et al. (2003) also generally found that the Restructured Clinical scales showed lowered correlations between themselves, in comparison with the Clinical Scales. Exceptions included correlations between RC4 Antisocial Behavior and RC9 Hypomanic Activation and between RC7 Dysfunctional Negative Emotions and RC9 Hypomanic Activation. They reason that the increased correlation between RC4 Antisocial Behavior and RC9 Hypomanic Activation reflects real-world comorbidity between antisocial behavior and hypomanic activation and suggest that Demoralization diluted this correlation in the original Clinical Scales. They further speculate that comorbidity may
also be responsible for the increased correlation between RC7 Dysfunctional Negative Emotions and RC9 Hypomanic Activation. This suggests that the Restructured Clinical scales are better at discriminating between the constructs that they measure compared with their Clinical Scale counterparts.

In summary, internal validity analyses show that the Restructured Clinical scales resemble their Clinical Scale counterparts, are generally less correlated with Demoralization, and are generally less correlated with each other. It should be noted, however, that there remain significant correlations between the Restructured Clinical scales, despite the efforts of Tellegen et al. (2003) to create distinctive scales (see Tables 3, 4 from Tellegen et al., 2003, pp. 36-37). Tellegen et al. (2003) speculate that some of these correlations may represent genuine comorbidity (see above paragraph) but the precise natures of these remaining correlations remain unknown. Possible causes for these correlations include un-extracted Demoralization content, overarching factors not Demoralization, or relations between PEM (measured by RC2 Low Positive Emotions and the syndrome Restructured Clinical scales and between NEM (measured by RC7 Dysfunctional Negative Emotions) and the syndrome Restructured Clinical scales. This investigation is designed to illuminate this issue by testing these competing explanations against each other.

External Validity

In addition to internal validity analyses, Tellegen et al. (2003) also examined the ability of the Restructured Clinical scales to predict external phenomena. They used zero-correlational analyses to compare Patient Description Forms (PDF) profiles sorted to correspond with the Restructured Clinical scales and the traditional Clinical Scales.
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Note. DEM = Demoralization, SOM = Somatic Complaints, LPE = Low Positive Emotions, CYN = Cynicism, ASB = Antisocial Behavior, PER = Ideas of Persecution, DNE = Dysfunctional Negative Emotions, ABX = Aberrant Experiences, HPM = Hypomanic Activation.
Table 4

*Correlations in the Restructured Clinical Scales, Female Sample*

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*Note.* DEM = Demoralization, SOM = Somatic Complaints, LPE = Low Positive Emotions, CYN = Cynicism, ASB = Antisocial Behavior, PER = Ideas of Persecution, DNE = Dysfunctional Negative Emotions, ABX = Aberrant Experiences, HPM = Hypomanic Activation.

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Using a forward entry, multiple regression method, each external criterion was regressed on its three best Restructured Clinical scale and Clinical Scale predictors. Tellegen et al. (2003) found that the Restructured Clinical scales achieved similar or significant improvement in their ability to predict a broad range of psychopathology and personality characteristics as measured by the PDF in comparison with the Clinical Scales. Generally, Tellegen et al. (2003) found that the Restructured Clinical scales and Clinical Scales were comparable in their ability to predict internalizing symptomatology and that the Restructured Clinical scales showed an increased ability to predict externalizing and psychotic symptomatology in comparison with the Clinical Scales.

Finally, Tellegen et al. (2003) compared each individual Restructured Clinical scale with its respective Clinical Scale to assess: 1) whether the new scales showed an increase in discriminant validity, and; 2) if so, whether this was purchased at the expense of convergent validity. Their analyses showed that the Restructured Clinical scales demonstrated improvement in discriminant validity and similar or better improvement in convergent validity, compared with the Clinical Scales.

In summary, external validity analyses show that the increased distinctiveness of the Restructured Clinical scales was not gained at the expense of the scales’ ability to predict external phenomena.

Although research by Tellegen et al. (2003) provides good evidence for the validity of the Restructured Clinical scales, further research is required. In deriving the Seed Scales used as the nuclei for the full set of scales and in selecting items for the full set of scales, Tellegen et al. (2003) accepted a low threshold for item-scale correlations (< 0.20) and adopted flexible minimum convergent criteria with the aim of including the
largest number of items judged to contribute important content to the scales. Although they showed a balanced and thoughtful approach to test construction, the low minimum item-scale correlations and flexible minimum convergent criteria represent threats to the internal consistency of the scales. Additionally, their research shows moderate to large correlations between many of the scales, their aim of removing an overarching general Demoralization notwithstanding. Some of these correlations, specifically, those between RCd Demoralization and the scales with strong affective content (RC2 Low Positive Emotions and RC7 Dysfunctional Negative Emotions) are expected and congruent with the theoretical basis used by Tellegen et al. (2003) to derive the scales (see ‘Development of the Restructured Clinical Scales’ in Chapter 2). Other correlations, however, are not easily explained, complicating interpretation of the scales.

For the purposes of clarity and brevity, in this investigation, the Restructured Clinical scales which have counterparts in the Clinical Scales are referred to as the syndrome Restructured Clinical scales (i.e. all of the Restructured Clinical scales except RCd Demoralization). The Restructured Clinical scales excluding RCd Demoralization and scales with strong affective content (RC2 Low Positive Emotions and RC7 Dysfunctional Negative Emotions) are referred to as the Lower Order Syndrome (LOS) scales. The inter-scale analyses in this investigation are primarily designed to model and explain the correlations between the LOS scales and the other scales and the correlations within the LOS scales.

Confirmatory factor analyses (CFA) is used to assess the fit of items to their respective Restructured Clinical scales. CFA and structural regression (SR) analyses is
used to test competing theoretical explanations for the scale correlations. Both of these
techniques fall under the general category of structural equation modeling (SEM).

Introduction to Structural Equation Modeling

Structural equation modeling (SEM) allows researchers to describe a model based on theoretical knowledge. This model specifies the relations between observed variables (known as indicators) and latent factors and the relations between latent factors. The model can then be statistically tested against sample data to evaluate how well the model describes the data. A model that shows good overall fit with the sample data means that the relations in the model are consistent with the relations in the sample data. A model that shows poor overall fit with the sample data means that the relations in the model do not accurately reflect the relations in the sample data. A model that fits well with the sample data is not, however, proof that the relations in the model are correct. Rather, such a model is one possible explanation for the relations in the data. It is for this reason that models should be constructed and refined using a sound theoretical framework and not solely on the basis of empirical data. Two types of SEM analyses are used in this investigation: confirmatory factor analysis (CFA) and structural regression (SR) modeling.

Confirmatory Factor Analysis

The primary aim of confirmatory factor analysis (CFA) is to assess whether the modeled relations between latent factors and the indicators that are hypothesized to be manifestations of those factors fits well with the sample data (see Figure 2). Each indicator (represented graphically by rectangles X₁ - X₆) is assumed to have two underlying causes; the underlying factor that the indicator is supposed to measure
Figure 2.

Confirmatory Factor Analysis Model Example
(represented graphically by ovals A and B) and error terms that encompass all other unique sources of causation (represented graphically by circles $E_1$ - $E_6$). Factor loadings of the statistical estimates of the direct effects of factor on their indicator are represented graphically by single-headed arrows from a factor to its indicator. Single headed arrows are also drawn from error terms to indicators but these factor loadings are typically not estimated in unstandardized analyses so that other parts of the model can be estimated. Whereas single headed arrows are used to connect a factor to its indicators, double headed covariance arrows are used to connect factors if more than one factor is present. This means that no predictions are made regarding the relations between factors. Whether Factor A causes Factor B or vice versa or whether both factors are affected by a common cause are questions not commonly answered by CFA because factors are assumed to have exogenous causes not represented in the model.

**Structural Regression Modeling**

In contrast with CFA, the primary aim of SR modeling is to assess whether the hypothesized relations between factors fits well with the sample data (see Figure 3). The good fit of factors and their indicators is a prerequisite for this kind of analysis. For this reason, SR modeling is typically performed after CFA modeling involving the same indicators and factors. In SR modeling, independence between factors can be modeled by restricting their relations to zero. Alternatively, factors can be allowed to covary with one another or one factor can be modeled to be the direct cause of another factor (as is Figure 3). In models with direct effects between factors, endogenous factors (those directly affected by other factors in the model) also have disturbance terms (modeled $D_1$) analogous to the error terms for indicators in CFA.
Figure 3.

Structural Regression Model Example

![Diagram of Structural Regression Model Example]
**Fit statistics**

In structural equation modeling, the overall fit of a model with the sample data is assessed through the use of fit statistics. Statistics that will be reported in this investigation are the Comparative Fit Index (CFI), the Tucker-Lewis Index (TLI), Root Mean Square Error of Approximation (RMSEA), Standardized Root Mean square Residual (SRMR), model chi-square ($\chi^2$), and the Akaike Information Criterion (AIC).

The Comparative Fit Index (CFI) compares the covariance matrices of the theoretical model to the observed model and the observed model and a null model where all latent variables are assumed to be uncorrelated. This comparison allows for the evaluation of the improvement in fit realized from going from the null model to the theoretical model. Hu and Bentler (1999) have suggested that CFI values > 0.95 represent good-fitting models (i.e. > 0.95 of the covariance in the data can be accounted for by the model).

Like the CFI, the Tucker-Lewis index (TLI) compares the covariance matrices of the theoretical model to the observed model and the observed model and a null model where all latent variables are assumed to be uncorrelated to evaluate the improvement in fit from going from the null model to the theoretical model. Unlike CFI, however, TLI penalizes for lack of model parsimony. Hu and Bentler (1999) have suggested that TLI values > 0.95 represent good-fitting models (i.e. > 0.95 of the covariance in the data can be accounted for by the model).

The Root Mean Square Error of Approximation (RMSEA) statistic measures the discrepancy between predicted and observed covariances, divided by degrees of freedom. RMSEA is favored among researchers because it penalizes a model for lack of
parsimony. Hu and Bentler (1999) have suggested that RMSEA values < 0.06 represent good-fitting models (i.e. < 0.06 discrepancy between predicted and observed covariances).

The Standardized Root Mean square Residual (SRMR) statistic is a measure of the overall difference between predicted and observed correlations. Hu and Bentler (1999) have suggested that SRMR values < 0.08 represent good-fitting models (i.e. < 0.08 discrepancy between predicted and observed correlations). Yu (2002), however, has noted that use of SRMR may not be appropriate with binary data. Consequently, the SRMR statistic will be reported, but not used to test hypotheses in the item-scale analyses.

The model chi-square ($\chi^2_m$) statistic is one of the most common fit statistics. Like the RMSEA and SRMR statistics, $\chi^2_m$ is a 'badness of fit index' that measures the discrepancy between predicted and observed covariances. A significant $\chi^2_m$ statistic ($p < 0.05$) indicates that the hypothesized model does not fit with the sample data and should be rejected. Kline (2005), however, reports several problems with $\chi^2_m$, including its sensitivity to large samples and non-normal sample data. For these reasons, $\chi^2_m$ will be reported, but not used to test hypotheses in either item-scale or inter-scale analyses.

The Akaike information criterion (AIC) index assesses model fit based on hypothetical replication samples drawn from original sample data. AIC is most often used to select between competing non-hierarchical models. The model with the lowest AIC value is the one most likely to be validated upon replication.

Because each fit statistic employs a different methodology it should be expected that they will at times produce differing results. That is, for the same model, one fit
statistic may meet cutoff criteria while another fit statistic will not. In this investigation, it was decided that it would not be an accurate interpretation of the results to insist that all fit statistics meet cutoff criteria in order for a model to be judged to fit well with the sample data. Instead, a balanced approach was adopted in which the fit of a model would be assessed by looking at 'the big picture'. For example, a model in which two of the three fit statistics meet cutoff criteria but the third does not, but comes reasonably close, should still be considered to fit well with the sample data. Marked disagreement between the fit statistics, however, would be accepted as evidence of poor fit with the sample data.

*Model Details*

A model that produces good overall fit statistics may still have parts that don’t fit well with the sample data. Conversely, a model with poor overall fit may still have parts that fit well with the sample data. In both cases, careful inspection of the details of the model is required to properly assess the model. These details include parameter estimates, which describe the effect of a factor on its indicators or the effect of factors on other factors; observed R-square values, which describe the proportion of variance in an indicator or another factor accounted for by a factor; residual covariances, which are the discrepancies between indicator covariances predicted by the model and those in the sample data; and modification indices, which are statistical estimates of improvement in $\chi^2_m$ that may be realized by freeing a parameter to be estimated that has been restricted by the researcher to zero.

Parameter estimates describe the effect of a factor on its indicators or on other factors. Parameter estimates for direct effects are called factor loadings (i.e. Factor A causes Indicators B and C or Factor A causes Factor B). Parameter estimates for mutual
effects are called covariances (Factor A and Factor B covary with one another). Unstandardized parameter estimates (either factor loadings or covariances) are the amount of change in the dependent variable caused by a one unit change in the independent variable. Unstandardized parameters are analogous to B-weights in multiple regression analysis. Different measures, however, can have different scales, complicating comparisons of the strengths of these effects. For this reason, unstandardized parameter estimates are reported in the tables of this investigation, but standardized parameter estimates are favored in description and interpretation of the data. Standardized parameter estimates (either factor loadings or covariances) are the amount of change in the dependent variable in standard deviation units caused by a one standard deviation change in the independent variable. Standardized parameter estimates are analogous to Beta weights in multiple regression analysis. There are two methods of standardization. The first method employs the factor’s variance and is referred to as the standardized parameter estimate. This method is the one used primarily in this investigation in descriptions and interpretations of the data. The second method employs the indicators’ variance and is referred to as the standardized XY parameter estimate. For the item-scale analyses, which involve only a single factor, both methods produce identical results. For the inter-scale analyses, standardized XY parameter estimates are reported in the tables for interested readers.

In the item-scale analyses, parameter estimates reflect only the factor loadings of single factors on their indicators. In the inter-scale analyses, however, there are parameter estimates for both the factor loadings of factors on their indicators and the effects (either factor loadings or covariances) of factors on other factors. Although all
data will be presented, description and interpretation will focus on the latter. This is because the inter-scale analyses are designed to illuminate the nature of the scale correlations and because the subscales used in the item-scale analyses were constructed and are used exclusively in this investigation. Information regarding their relations with the factors may therefore be of secondary interest to readers.

Dividing unstandardized parameter estimates (either factor loadings or covariances) by their standard error allows for testing of the statistical significance of an effect. Parameter estimate / standard error ratios ≥ 1.96 are statistically significant at alpha = 0.05. Parameter estimate / standard error ratios < 1.96 are not statistically significant at alpha = 0.05 and should be omitted from the model.

The large sample sizes commonly used in SEM can lead to the identification of statistically significant parameter estimates that may be of relatively small importance. Additionally, parameter estimates (unstandardized or standardized) are not intuitively interpretable to some readers. For these reasons, R-square values are also commonly reported.

R-square values are calculated by squaring standardized parameter estimates. They describe the proportion of variance explained by the independent variable and therefore always have values ranging from 0.00 to 1.00. In this investigation, R-square values ≤ 0.30 are considered small and suggest potential areas of model misfit.

Residual covariances are the discrepancy between indicator covariances predicted by the model and those in the sample data. For the item-scale analyses, large residual covariances or patterns of residual covariances where one indicator consistently fails to fit well with others represent potential areas of model misfit. For the inter-scale analyses,
the consistency of discrepancies between the indicators of factors is emphasized over the absolute magnitude of single residual covariances. Whereas single residual covariances may reflect idiosyncrasies in the sample data resulting from use of randomly-assigned items to subscales, consistent discrepancies between indicators of one factor and the indicators of another factor are believed to reflect genuine relations between the factors.

Finally, modification indices are statistical estimates of improvement in $\chi^2_m$ that may be realized by freeing an estimate that has been restricted by the researcher to zero. Although it may be tempting to re-specify a model that does not fit the data well based on these indices, modifications should not be done without a sound theoretical basis for doing so. Because modification indices are based solely on empirical data, re-specification of a model based only on modification indices may result in a model that does not make conceptual sense or is not replicated in other samples. As a rule of thumb, modification indices with values $\geq 100$ are reported in this investigation.

Research Questions

This investigation focuses on two general questions: 1) Do the assignment of items to their respective Restructured Clinical scales fit well with the sample data? 2) What is the nature of the correlations between the Restructured Clinical scales? Out of these general questions, specific hypotheses are presented below.

*Item-Scale Analyses*

To investigate whether the items fit well with their respective scales, separate CFAs were performed for each Restructured Clinical scale. Separate CFAs for each scale are required because the large number of indicators and factors would otherwise exceed computational resources. Because each analysis focuses on only one scale, only the
relations between the factors and their indicators are examined – the relations between the factors of the Restructured Clinical scales are not considered. Separate analyses for male and female samples are also required because the dichotomous nature of the indicators (i.e. True or False responses) do not allow for the centering of data to account for differences in responses between male and female samples.

**Inter-Scale Analyses**

To investigate the nature of the correlations between the Restructured Clinical scales, a series of CFA and SR analyses were performed on the full set of Restructured Clinical scales. To not exceed computational resources, three subscales (comprised of randomly assigned scale items) are used instead of the scales' individual items.

The dimensional and hierarchical model of affect used by Tellegen et al. (2003) to develop the Restructured Clinical scales suggests that a general pleasantness-unpleasantness construct overlaps positive emotionality and negative emotionality (Tellegen, Watson, and Clark, 1999). This model further suggests that positive emotionality and negative emotionality are relatively independent of one another. Based on this model, it was expected that a significant amount of the variances in Low Positive Emotions and Dysfunctional Negative Emotions should be explained by variance in Demoralization.

Whereas the relations between Demoralization, Low Positive Emotions, and Dysfunctional Negative Emotions are described in the dimensional and hierarchical model of affect, how the other factors of the Restructured Clinical scales fit into the picture was not clear. Recall that this investigation refers to the set of Restructured Clinical scales excluding RCd Demoralization, RC2 Low Positive Emotions, and RC7
Dysfunctional Negative Emotions as the Lower Order Syndrome (LOS) scales. Are the correlations between the LOS scales spurious and explained by residual Demoralization? Or, are the correlations better explained by latent positive emotionality or negative emotionality in the LOS scales? Are there persistent correlations between the LOS scales best explained by factors other than Demoralization, positive emotionality or negative emotionality? If so, what can be said about these factors? These are the questions that this investigation addresses.

*Model 1*

To illuminate the nature of the correlations between the Restructured Clinical scales, the first model that was tested involves CFA and allows each factor of the Restructured Clinical scales to covary with every other factor (Model 1) (see Figure 4).

This ‘measurement model’ is the least restrictive of the scale factor models to be tested and carries the least explanatory weight. Model 1 does, however, evaluate how well the subscale indicators fit with their respective factors. Failure of Model 1 to show good overall fit with the sample data means that more restrictive models with greater explanatory weight will not fit well with the sample data.
Figure 4.

Model 1

Note. Indicators and error terms omitted for clarity.
Model 2

The second model that was tested is an SR model in which all the covariances between Restructured Clinical scale factors are restricted to zero (Model 2) (see Figure 5). This model represents a psychometric ideal in which each scale measures one distinct factor and is unrelated to any other factor.

It should be noted that Tellegen et al. (2003) have not claimed that the Restructured Clinical scales should be unrelated with one another. Such a model is incongruent with the theoretical basis of the scales and the existing validation research by Tellegen et al. (2003) which shows correlations between the scales.
Model 2

Note. Indicators and error terms omitted for clarity.
Model 3

The third model that was tested is an SR model in which Low Positive Emotions and Dysfunctional Negative Emotions are regressed on Demoralization (Model 3) (see Figure 6). Model 3 tests whether Demoralization has direct effect on Low Positive Emotions and Dysfunctional Negative Emotions. Model 3 arises from the dimensional and hierarchical model of affect used by Tellegen et al. (2003) to derive the Restructured Clinical scales; specifically, that a general pleasantness-unpleasantness factor overlays relatively independent positive emotionality and negative emotionality factors.

Because Tellegen et al. (2003) do not explicitly state that there should be any other relations between the scales, all other relations between factors (direct effects and covariances) are restricted to zero. It should be noted, however, that Tellegen et al. (2003) do not claim that any of the Restructured Clinical scales should be unrelated. Instead, they are silent as to the hypothesized relations between the LOS scales and Demoralization, Low Positive Emotions, and Dysfunctional Negative Emotions and the relations within the LOS scales. Model 3 can therefore be considered a very stringent test of the Restructured Clinical scales.
Figure 6.

Model 3

Note. Indicators and error terms omitted for clarity.
Model 4

The fourth model to be tested is an SR model in which the factors of the syndrome Restructured Clinical scales are regressed on Demoralization (Model 4) (see Figure 7). This model tests whether residual Demoralization in the syndrome Restructured Clinical scales can by itself account for the correlations in the scales.

Because Tellegen et al. (2003) focused their work on removing Demoralization from the syndrome Restructured Clinical scales, good fit between Model 4 and the sample data would be evidence that Tellegen et al. (2003) missed in their aim.
Figure 7.

Model 4

Note. Indicators and error terms omitted for clarity.
Exploratory Analyses

In the event that Models 1 – 4 produced poor fit with the sample data, an exploratory approach was proposed that would allow for further investigation of the correlations in the Restructured Clinical scales. This approach would involve a series of regression analyses with the aim of determining whether Demoralization, Low Positive Emotions, or Dysfunctional Negative Emotions account for the most variance in each LOS scale factor. Recall that whereas the relations between Demoralization, Low Positive Emotions, and Dysfunctional Negative Emotions are described in the dimensional and hierarchical model of affect, how the other factors of the Restructured Clinical scales fit into the picture is not clear. From the regression analyses, a hierarchical model (Model 5) would be constructed with each LOS scale factor regressed on Demoralization, Low Positive Emotions, or Dysfunctional Negative Emotions. This model would test whether the correlations between the LOS scales can be accounted for by shared direct effects from Demoralization, Low Positive Emotions, or Dysfunctional Negative Emotions.

In the event that Model 5 failed to fit well with the sample data, additional analyses were proposed with the aim of illuminating the correlations between the LOS scales. First, a set of residualized LOS scales would be formed with the aim of removing variance related to Demoralization, Low Positive Emotions, and Dysfunctional Negative Emotions that could otherwise obfuscate other factors. This would be done by regressing each LOS scale on RCd Demoralization, RC2 Low Positive Emotions, and RC7 Dysfunctional Negative Emotions using the enter method and saving the resulting residual scores. These scores would then be analyzed using principal factor analysis.
Factors identified in this analysis would then be correlated with external scales measuring diverse content. These external scales include Repression (R) (Welsh, 1956), Bizarre Mentation (BIZ) and Cynicism (CYN) from the Content Scales (Butcher et al., 1989), and Aggression (PSY5AGG), Psychoticism (PSY5PSY), and Constraint (PSY5CON) from the Personality Psychopathology Five (PSY-5) scales (Harkness & McNulty, 1994).

Hypotheses

Item-Scale Analyses

Because of the preliminary nature of validation research of the Restructured Clinical scales, no hypotheses were offered as to which item-scale analyses will show good fit with the sample data. Rather an exploratory approach was adopted with the aim of describing the overall fit of items with their respective scales and identifying areas of potential model misfit.

Notable differences between the results of analyses of the male sample and analyses of the female sample are described briefly but attention was focused on results that are congruent with both samples because it is the invariant aspects of personality factors that are explored in this investigation. This is not to detract or to minimize from the importance of other factors, including gender. It is simply to state that these other factors are not within the scope of this investigation.

Inter-Scale Analyses

Whether the individual item-scale analyses show good fit with the sample data, it was decided that the inter-scale analyses should still be performed on the scales as a whole without modification of item-scale membership. This decision was made because support for modification of the scales from replication studies would not be available and
because it was deemed valuable to understand the relations between the scales as published by Tellegen et al. (2003).

Based on existing validation research by Tellegen et al. (2003) that show correlations between the Restructured Clinical scales (see Tables 3 and 4), it was hypothesized that Model 1, which allows covariances between all the scale factors, would show good overall fit with the sample data.

On the same basis, it was expected that Model 2, which restricts all relations (direct effects and covariances) between scale factors to zero, would show poor overall fit with the sample data.

On the same basis, it was expected that Model 3, which models direct effects from Demoralization to Low Positive Emotions and Dysfunctional Negative Emotions, but which restricts all other relations (direct effects and covariances) between scale factors to zero, would show poor overall fit with the sample data.

Because Tellegen et al. (2003) focused their work on removing Demoralization from the Clinical Scales, it was expected that the effects of Demoralization alone would not explain the correlations in the scales. It was therefore hypothesized that Model 4 would show poor overall fit with the sample data and that an exploratory approach would have to be adopted and a hierarchical model developed. This model would regress Low Positive Emotions and Dysfunctional Negative Emotions on Demoralization and regress the LOS scale factors on either Demoralization, Low Positive Emotions, or Dysfunctional Negative Emotions, depending on the results of individual regression analyses.

Additionally, it was expected that other exploratory methods would have to be used in
order to identify conceptually-related factors among the LOS scales that also contribute to their correlation.
CHAPTER 3: METHODOLOGY

Sample

To test these hypotheses, raw MMPI-2 profiles (True and False responses) from 999 men and 1,000 women were randomly selected from the Caldwell Clinical Dataset (Greene, 2000). The Caldwell Clinical Dataset is a large sample (n = 52,543) collection of MMPI-2 responses from psychiatric in- and outpatient populations that were collected from clinicians seeking assistance and consultation with the measure’s interpretation. The data consists only of “1” and “2” responses reflecting true and false answers to MMPI-2 items and does not include identifying information aside from subjects’ gender.

Profiles were excluded if; 1) subjects had missing data that did not allow for scoring of the F scale; 2) subjects had non-K-corrected F scale T scores below 36 or above 110; or 3) subjects had missing data that did not allow for the scoring of the complete set of Restructured Clinical scales. After these exclusion criteria were applied, profiles from 698 men and 673 women were retained for analyses.

Data Preparation

From the raw data, individual responses were recoded to reflect True- or False-coding of items such that a True response would increase a subject’s raw score on a scale by one and a False response would not increase his or her raw score on True-coded items and vice versa on False-coded items.

In addition to total scale scores, subscale scores were also calculated to aid in identification of SEM models by randomly assigning a scale’s items to one of three subscales.

Standardized scores were not used because of concerns regarding estimation...
procedures and models that are not scale-free (i.e. those with restrictions on observed variables) (personal communication, L. K. Muthén, January 12, 2006). Instead, gender differences were accounted for in two ways: For analyses with binary data (item-scale analyses), separate analyses were performed for male and female samples. For analyses with continuous data (inter-scale analyses), male and female differences in scale or subscale means were addressed by centering data. This involved subtracting individual subjects' scores from either male or female mean scores on each scale or subscale to produce a derivative score.

For the centered data, independent samples t-tests showed no significant differences in variance between male and female samples for the centered data on any scale (t = 0.05). Statistical analysis and visual inspection of centered data showed no outliers but significant skewness and kurtosis in many of the scales and subscales.

Analyses

Because of non-normality in the data, it was decided that statistical estimation procedures robust to violations of normality should be used. Weighted least square parameter estimation (WLSMV) was selected for analyses of models with binary data (item-scale analyses). WLSMV estimation uses a diagonal weight matrix and a mean- and variance-adjusted chi-square test statistic. Maximum likelihood parameter estimation (MLMV) estimation was selected for analyses of models with continuous data (inter-scale analyses). MLMV estimation uses a mean- and variance-adjusted chi-square test statistic.

When required to scale a model, unit loading identification (ULI) constraints were used. This involved fixing the measurement error term of the first item or subscale in
each analysis to 1.0. To address the possibility that the constrained item or subscale would have otherwise had a significant effect on the results, models were reanalyzed with the first measurement error term freed and the second one instead constrained to 1.0. No discrepancies in fit statistics were noted between these analyses.

For structural equation models, modification indices which would likely reflect significant improvement in $\chi^2_m$ were requested ($\geq 100$).

Statistical Analysis Programs

Data preparation, principal components analyses, and multiple regression analyses were performed using SPSS Version 13.0 (SPSS, Chicago, IL). Structural equation modeling was performed using Mplus Version 3.0 (Muthén & Muthén, Los Angeles, CA).
CHAPTER 4: RESULTS

Missing Data

Data from 301 male and 327 female profiles were excluded because: 1) subjects had missing data that did not allow for scoring of the F scale; 2) subjects had non-K-corrected F scale T scores below 36 or above 110; or 3) subjects had missing data that did not allow for the scoring of the complete set of Restructured Clinical scales (see Table 5). Note that totals do not sum to 301 men and 327 women because many excluded subjects meet several exclusion criteria.

Item-Scale Analyses

No specific hypotheses were offered as to which item-scale analyses would show good overall fit with the data. Instead, the aim of this investigation is to describe the overall fit of items with their respective scales and to illuminate areas of model misfit.

In general, RCd Demoralization, RC1 Somatic Complaints, RC3 Cynicism, RC6 Ideas of Persecution, RC7 Dysfunctional Negative Emotions, and RC8 Aberrant Experiences show good overall fit with the sample data while RC2 Low Positive Emotions, RC4 Antisocial Behavior, and RC9 Hypomanic Activation show poor overall fit with the sample data. Detailed descriptions for each scale are presented below.
Table 5

Missing Data

<table>
<thead>
<tr>
<th></th>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>Missing F Scale Data</td>
<td>106</td>
<td>120</td>
</tr>
<tr>
<td>F Scale T score &lt; 36</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>F Scale T score &gt; 110</td>
<td>9</td>
<td>4</td>
</tr>
<tr>
<td>Missing RCd DEM Data</td>
<td>68</td>
<td>88</td>
</tr>
<tr>
<td>Missing RC1 SOM Data</td>
<td>56</td>
<td>57</td>
</tr>
<tr>
<td>Missing RC2 LPE Data</td>
<td>54</td>
<td>56</td>
</tr>
<tr>
<td>Missing RC3 CYN Data</td>
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<td>52</td>
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<tr>
<td>Missing RC4 ASB Data</td>
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<tr>
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</tr>
<tr>
<td>Missing RC7 DNE Data</td>
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</tr>
<tr>
<td>Missing RC8 ABX Data</td>
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<td>48</td>
</tr>
<tr>
<td>Missing RC9 HPM Data</td>
<td>60</td>
<td>59</td>
</tr>
</tbody>
</table>

Note. DEM = Demoralization, SOM = Somatic Complaints, LPE = Low Positive Emotions, CYN = Cynicism, ASB = Antisocial Behavior, PER = Ideas of Persecution, DNE = Dysfunctional Negative Emotions, ABX = Aberrant Experiences, HPM = Hypomanic Activation.
Table 6

Item-Scale Analyses (Part 1)

<table>
<thead>
<tr>
<th>RC Scale</th>
<th>CFI</th>
<th>TLI</th>
<th>RMSEA</th>
<th>SRMR</th>
</tr>
</thead>
<tbody>
<tr>
<td>RCD DEM male</td>
<td>0.977</td>
<td>0.994</td>
<td>0.046</td>
<td>0.046</td>
</tr>
<tr>
<td>RCD DEM female</td>
<td>0.965</td>
<td>0.989</td>
<td>0.049</td>
<td>0.058</td>
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<tr>
<td>RC1 SOM male</td>
<td>0.936</td>
<td>0.971</td>
<td>0.055</td>
<td>0.079</td>
</tr>
<tr>
<td>RC1 SOM female</td>
<td>0.922</td>
<td>0.964</td>
<td>0.059</td>
<td>0.078</td>
</tr>
<tr>
<td>RC2 LPE male</td>
<td>0.896</td>
<td>0.939</td>
<td>0.057</td>
<td>0.080</td>
</tr>
<tr>
<td>RC2 LPE female</td>
<td>0.860</td>
<td>0.904</td>
<td>0.069</td>
<td>0.097</td>
</tr>
<tr>
<td>RC3 CYN male</td>
<td>0.928</td>
<td>0.960</td>
<td>0.070</td>
<td>0.072</td>
</tr>
<tr>
<td>RC3 CYN female</td>
<td>0.934</td>
<td>0.958</td>
<td>0.056</td>
<td>0.071</td>
</tr>
<tr>
<td>RC4 ASB male</td>
<td>0.867</td>
<td>0.922</td>
<td>0.059</td>
<td>0.092</td>
</tr>
<tr>
<td>RC4ASB female</td>
<td>0.802</td>
<td>0.870</td>
<td>0.058</td>
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<td>RC6 PER male</td>
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<tr>
<td>RC6 PER female</td>
<td>0.944</td>
<td>0.955</td>
<td>0.042</td>
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<td>RC7 DNE male</td>
<td>0.966</td>
<td>0.986</td>
<td>0.040</td>
<td>0.059</td>
</tr>
<tr>
<td>RC7 DNE female</td>
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<td>0.968</td>
<td>0.046</td>
<td>0.078</td>
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<tr>
<td>RC8 ABX male</td>
<td>0.961</td>
<td>0.980</td>
<td>0.035</td>
<td>0.071</td>
</tr>
<tr>
<td>RC8 ABX female</td>
<td>0.925</td>
<td>0.947</td>
<td>0.040</td>
<td>0.097</td>
</tr>
<tr>
<td>RC9 HPM male</td>
<td>0.772</td>
<td>0.851</td>
<td>0.067</td>
<td>0.096</td>
</tr>
<tr>
<td>RC9 HPM female</td>
<td>0.739</td>
<td>0.787</td>
<td>0.059</td>
<td>0.104</td>
</tr>
</tbody>
</table>

Note. WLSMV estimation. DEM = Demoralization, SOM = Somatic Complaints, LPE = Low Positive Emotions, CYN = Cynicism, ASB = Antisocial Behavior, PER = Ideas of Persecution, DNE = Dysfunctional Negative Emotions, ABX = Aberrant Experiences, HPM = Hypomanic Activation.
Table 7

**Item-Scale Analyses (Part 2)**

<table>
<thead>
<tr>
<th>RC Scale</th>
<th>Chi-Square Test of Model Fit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Chi-Square</td>
</tr>
<tr>
<td>RCD DEM male</td>
<td>335.711</td>
</tr>
<tr>
<td>RCD DEM female</td>
<td>378.016</td>
</tr>
<tr>
<td>RC1 SOM male</td>
<td>345.347</td>
</tr>
<tr>
<td>RC1 SOM female</td>
<td>578.670</td>
</tr>
<tr>
<td>RC2 LPE male</td>
<td>304.124</td>
</tr>
<tr>
<td>RC2 LPE female</td>
<td>391.937</td>
</tr>
<tr>
<td>RC3 CYN male</td>
<td>316.920</td>
</tr>
<tr>
<td>RC3 CYN Female</td>
<td>239.466</td>
</tr>
<tr>
<td>RC4 ASB male</td>
<td>432.433</td>
</tr>
<tr>
<td>RC4 ASB female</td>
<td>361.055</td>
</tr>
<tr>
<td>RC6 PER male</td>
<td>83.332</td>
</tr>
<tr>
<td>RC6 PER female</td>
<td>78.195</td>
</tr>
<tr>
<td>RC7 DNE male</td>
<td>295.676</td>
</tr>
<tr>
<td>RC7 DNE female</td>
<td>351.452</td>
</tr>
<tr>
<td>RC8 ABX male</td>
<td>149.140</td>
</tr>
<tr>
<td>RC8 ABX female</td>
<td>147.140</td>
</tr>
<tr>
<td>RC9 HPM male</td>
<td>858.064</td>
</tr>
<tr>
<td>RC9 HPM female</td>
<td>647.642</td>
</tr>
</tbody>
</table>

*Note.* WLSMV estimation. DEM = Demoralization, SOM = Somatic Complaints, LPE = Low Positive Emotions, CYN = Cynicism, ASB = Antisocial Behavior, PER = Ideas of Persecution, DNE = Dysfunctional Negative Emotions, ABX = Aberrant Experiences, HPM = Hypomanic Activation.
RCd Demoralization

Male Sample

Fit statistics assess how well the model as a whole fits with the sample data. All fit statistics for the male sample meet cutoff criteria showing good overall fit between the model and the sample data (CFI = 0.977, TLI = 0.994, RMSEA = 0.046) (see Table 6). Statistics not used in evaluating model fit are SRMR = 0.046 and $\chi^2_m = 335.711$ (estimated df = 125, p < 0.0001) (see Tables 6 and 7).

A detailed inspection of the results provides further evidence of good fit between the scale and its items. Unstandardized factor loading estimate / standard error ratios represent statistical tests of the direct effects of the factor on its indicators. All unstandardized factor loading estimate / standard error ratios are $\geq +1.96$ demonstrating that the factor explains a statistically significant amount of variance in all of its indicators (see Table 8).

Standardized factor loading estimates are the amount of change in the indicator in standard deviation units caused by a one standard deviation change in the factor. Standardized factor loadings range from 0.700 (DEM5 and DEM9) to 0.925 (DEM3) (see Table 8).

R-square values are the proportion of the variance in each indicator explained by the factor. Indictors with small associated R-square values represent a potential source of model misfit. R-square values in this analysis range from 0.490 (DEM5 and DEM9) to 0.856 (DEM3) (see Table 8). This shows that the factor explains at least a moderate proportion of variance (> 0.30) in all of its indicators.
Residual covariances are the discrepancy between indicator covariances predicted by the model and observed values. Large residual covariances or patterns of residual covariances where one indicator fails to fit well with many others also represent potential sources of model misfit. The five largest residual covariances in this sample are between items DEM14 and DEM22 (= 0.115), DEM5 and DEM23 (= -0.127), DEM20 and DEM23 (= -0.134), DEM18 and DEM20 (= 0.141), and DEM5 and DEM6 (= 0.182) (see Appendix A).
Table 8

*Model Results for RCd Demoralization, Male Sample*

<table>
<thead>
<tr>
<th>Factor or Item (MMPI-2 item)</th>
<th>Factor Variance</th>
<th>Estimate</th>
<th>Standard Error</th>
<th>Estimate / Standard Error</th>
<th>Standardized Estimate</th>
<th>Residual Variance</th>
<th>R-Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEM1 (031)*</td>
<td>0.650</td>
<td>1.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.806</td>
<td>0.350</td>
<td>0.650</td>
</tr>
<tr>
<td>DEM 2 (056)</td>
<td>0.039</td>
<td>2.024</td>
<td>0.039</td>
<td>26.601</td>
<td>0.826</td>
<td>0.318</td>
<td>0.682</td>
</tr>
<tr>
<td>DEM 3 (065)</td>
<td>0.038</td>
<td>1.147</td>
<td>0.038</td>
<td>30.424</td>
<td>0.925</td>
<td>0.144</td>
<td>0.856</td>
</tr>
<tr>
<td>DEM 4 (073)</td>
<td>0.038</td>
<td>1.047</td>
<td>0.038</td>
<td>27.300</td>
<td>0.844</td>
<td>0.288</td>
<td>0.712</td>
</tr>
<tr>
<td>DEM 5 (082)</td>
<td>0.049</td>
<td>0.868</td>
<td>0.049</td>
<td>17.705</td>
<td>0.700</td>
<td>0.510</td>
<td>0.490</td>
</tr>
<tr>
<td>DEM 6 (094)</td>
<td>0.049</td>
<td>0.965</td>
<td>0.049</td>
<td>19.877</td>
<td>0.778</td>
<td>0.394</td>
<td>0.606</td>
</tr>
<tr>
<td>DEM 7 (130)</td>
<td>0.038</td>
<td>1.077</td>
<td>0.038</td>
<td>27.997</td>
<td>0.868</td>
<td>0.246</td>
<td>0.754</td>
</tr>
<tr>
<td>DEM 8 (180)</td>
<td>0.039</td>
<td>1.062</td>
<td>0.039</td>
<td>27.250</td>
<td>0.857</td>
<td>0.266</td>
<td>0.734</td>
</tr>
<tr>
<td>DEM 9 (215)</td>
<td>0.048</td>
<td>0.868</td>
<td>0.048</td>
<td>17.959</td>
<td>0.700</td>
<td>0.510</td>
<td>0.490</td>
</tr>
<tr>
<td>DEM 10 (233)</td>
<td>0.041</td>
<td>0.951</td>
<td>0.041</td>
<td>23.094</td>
<td>0.767</td>
<td>0.412</td>
<td>0.588</td>
</tr>
<tr>
<td>DEM 11 (273)</td>
<td>0.039</td>
<td>1.114</td>
<td>0.039</td>
<td>28.380</td>
<td>0.898</td>
<td>0.194</td>
<td>0.806</td>
</tr>
<tr>
<td>DEM 12 (277)</td>
<td>0.042</td>
<td>1.018</td>
<td>0.042</td>
<td>24.431</td>
<td>0.821</td>
<td>0.326</td>
<td>0.674</td>
</tr>
<tr>
<td>DEM 13 (339)</td>
<td>0.042</td>
<td>1.010</td>
<td>0.042</td>
<td>24.268</td>
<td>0.814</td>
<td>0.337</td>
<td>0.663</td>
</tr>
<tr>
<td>DEM 14 (400)</td>
<td>0.044</td>
<td>1.003</td>
<td>0.044</td>
<td>22.894</td>
<td>0.809</td>
<td>0.346</td>
<td>0.654</td>
</tr>
<tr>
<td>DEM 15 (411)</td>
<td>0.039</td>
<td>1.116</td>
<td>0.039</td>
<td>28.833</td>
<td>0.900</td>
<td>0.190</td>
<td>0.810</td>
</tr>
<tr>
<td>DEM</td>
<td>Value 1</td>
<td>Value 2</td>
<td>Value 3</td>
<td>Value 4</td>
<td>Value 5</td>
<td>Value 6</td>
<td></td>
</tr>
<tr>
<td>-------</td>
<td>---------</td>
<td>---------</td>
<td>---------</td>
<td>---------</td>
<td>---------</td>
<td>---------</td>
<td></td>
</tr>
<tr>
<td>16 (464)</td>
<td>1.022</td>
<td>0.041</td>
<td>25.225</td>
<td>0.824</td>
<td>0.322</td>
<td>0.678</td>
<td></td>
</tr>
<tr>
<td>17 (469)</td>
<td>1.019</td>
<td>0.039</td>
<td>26.012</td>
<td>0.822</td>
<td>0.325</td>
<td>0.675</td>
<td></td>
</tr>
<tr>
<td>18 (482)</td>
<td>1.048</td>
<td>0.038</td>
<td>27.384</td>
<td>0.845</td>
<td>0.286</td>
<td>0.714</td>
<td></td>
</tr>
<tr>
<td>19 (485)</td>
<td>0.997</td>
<td>0.042</td>
<td>23.637</td>
<td>0.804</td>
<td>0.354</td>
<td>0.646</td>
<td></td>
</tr>
<tr>
<td>20 (491)</td>
<td>0.989</td>
<td>0.041</td>
<td>24.101</td>
<td>0.797</td>
<td>0.364</td>
<td>0.636</td>
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</tr>
<tr>
<td>21 (505)</td>
<td>1.003</td>
<td>0.042</td>
<td>23.951</td>
<td>0.808</td>
<td>0.347</td>
<td>0.653</td>
<td></td>
</tr>
<tr>
<td>22 (554)</td>
<td>1.089</td>
<td>0.039</td>
<td>28.075</td>
<td>0.878</td>
<td>0.229</td>
<td>0.771</td>
<td></td>
</tr>
<tr>
<td>23 (095)</td>
<td>1.075</td>
<td>0.038</td>
<td>28.156</td>
<td>0.866</td>
<td>0.249</td>
<td>0.751</td>
<td></td>
</tr>
<tr>
<td>24 (388)</td>
<td>1.010</td>
<td>0.039</td>
<td>25.812</td>
<td>0.814</td>
<td>0.338</td>
<td>0.662</td>
<td></td>
</tr>
</tbody>
</table>

*Note.* WLSMV estimation. DEM = Demoralization.
Female Sample

As with the men’s sample, all fit statistics for the female sample meet cutoff criteria showing good overall fit between the model and the sample data (CFI = 0.965, TLI = 0.989, RMSEA = 0.058) (see Table 6). Statistics not used in evaluating model fit are SRMR = 0.058 and $\chi^2_m = 378.016$ (estimated df = 133, p < 0.0001) (see Tables 6 and 7).

A detailed inspection of the results provides further evidence of good fit between the scale and its items. Unstandardized factor loading estimate / standard error ratios represent statistical tests of the direct effects of the factor on its indicators. All unstandardized factor loading estimate / standard error ratios are $\geq + 1.96$ demonstrating that the factor explains a statistically significant amount of variance in all of its indicators (see Table 9).

Standardized factor loading estimates are the amount of change in the indicator in standard deviation units caused by a one standard deviation change in the factor. Standardized factor loadings range from 0.593 (DEM9) to 0.886 (DEM23) (see Table 9).

R-square values are the proportion of the variance in each indicator explained by the factor. Indictors with small associated R-square values represent a potential source of model misfit. R-square values in this analysis range from 0.351 (DEM9) to 0.785 (DEM23) (see Table 9). This shows that the factor explains at least a moderate proportion of variance ($> 0.30$) in all of its indicators.

Residual covariances are the discrepancy between indicator covariances predicted by the model and observed values. Large residual covariances or patterns of residual covariances where one indicator fails to fit well with many others also represent potential
sources of model misfit. The five largest residual covariances in this sample are between items DEM5 and DEM24 (= -0.154), DEM3 and DEM19 (= -0.157), DEM1 and DEM15 (= -0.166), DEM18 and DEM20 (= 0.162), and DEM5 and DEM6 (= 0.251) (see Appendix B).
Table 9

Model Results for RCd Demoralization, Female Sample

<table>
<thead>
<tr>
<th>Factor or Item (MMPI-2 Item)</th>
<th>Estimate</th>
<th>Standard Error</th>
<th>Estimate / Standard Error</th>
<th>Standardized Estimate Variance</th>
<th>Residual Variance</th>
<th>R-Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factor Variance</td>
<td>0.564</td>
<td>0.041</td>
<td>13.782</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEM1 (031)*</td>
<td>1.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.751</td>
<td>0.436</td>
<td>0.564</td>
</tr>
<tr>
<td>DEM 2 (056)</td>
<td>1.081</td>
<td>0.047</td>
<td>22.938</td>
<td>0.812</td>
<td>0.340</td>
<td>0.660</td>
</tr>
<tr>
<td>DEM 3 (065)</td>
<td>1.177</td>
<td>0.047</td>
<td>25.210</td>
<td>0.884</td>
<td>0.219</td>
<td>0.781</td>
</tr>
<tr>
<td>DEM 4 (073)</td>
<td>1.001</td>
<td>0.047</td>
<td>21.079</td>
<td>0.752</td>
<td>0.435</td>
<td>0.565</td>
</tr>
<tr>
<td>DEM 5 (082)</td>
<td>0.800</td>
<td>0.060</td>
<td>13.377</td>
<td>0.601</td>
<td>0.639</td>
<td>0.361</td>
</tr>
<tr>
<td>DEM 6 (094)</td>
<td>0.976</td>
<td>0.062</td>
<td>15.696</td>
<td>0.733</td>
<td>0.463</td>
<td>0.537</td>
</tr>
<tr>
<td>DEM 7 (130)</td>
<td>1.105</td>
<td>0.046</td>
<td>24.132</td>
<td>0.830</td>
<td>0.311</td>
<td>0.689</td>
</tr>
<tr>
<td>DEM 8 (180)</td>
<td>0.974</td>
<td>0.052</td>
<td>18.757</td>
<td>0.732</td>
<td>0.465</td>
<td>0.535</td>
</tr>
<tr>
<td>DEM 9 (215)</td>
<td>0.789</td>
<td>0.064</td>
<td>12.233</td>
<td>0.593</td>
<td>0.649</td>
<td>0.351</td>
</tr>
<tr>
<td>DEM 10 (233)</td>
<td>0.970</td>
<td>0.047</td>
<td>20.525</td>
<td>0.728</td>
<td>0.469</td>
<td>0.531</td>
</tr>
<tr>
<td>DEM 11 (273)</td>
<td>1.109</td>
<td>0.050</td>
<td>22.242</td>
<td>0.833</td>
<td>0.306</td>
<td>0.694</td>
</tr>
<tr>
<td>DEM 12 (277)</td>
<td>1.139</td>
<td>0.047</td>
<td>24.224</td>
<td>0.855</td>
<td>0.268</td>
<td>0.732</td>
</tr>
<tr>
<td>DEM 13 (339)</td>
<td>0.981</td>
<td>0.049</td>
<td>20.042</td>
<td>0.737</td>
<td>0.457</td>
<td>0.543</td>
</tr>
<tr>
<td>DEM 14 (400)</td>
<td>1.094</td>
<td>0.049</td>
<td>22.354</td>
<td>0.822</td>
<td>0.324</td>
<td>0.676</td>
</tr>
<tr>
<td>DEM 15 (411)</td>
<td>1.078</td>
<td>0.049</td>
<td>21.972</td>
<td>0.809</td>
<td>0.345</td>
<td>0.655</td>
</tr>
<tr>
<td>DEM</td>
<td>0.980</td>
<td>0.045</td>
<td>21.639</td>
<td>0.736</td>
<td>0.458</td>
<td>0.542</td>
</tr>
<tr>
<td>-----------</td>
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<td>-------</td>
<td>-------</td>
</tr>
<tr>
<td>DEM 17 (469)</td>
<td>1.119</td>
<td>0.046</td>
<td>24.332</td>
<td>0.841</td>
<td>0.293</td>
<td>0.707</td>
</tr>
<tr>
<td>DEM 18 (482)</td>
<td>0.960</td>
<td>0.048</td>
<td>19.854</td>
<td>0.721</td>
<td>0.481</td>
<td>0.519</td>
</tr>
<tr>
<td>DEM 19 (485)</td>
<td>1.012</td>
<td>0.053</td>
<td>19.240</td>
<td>0.760</td>
<td>0.422</td>
<td>0.578</td>
</tr>
<tr>
<td>DEM 20 (491)</td>
<td>0.979</td>
<td>0.052</td>
<td>18.681</td>
<td>0.735</td>
<td>0.459</td>
<td>0.541</td>
</tr>
<tr>
<td>DEM 21 (505)</td>
<td>0.940</td>
<td>0.056</td>
<td>16.683</td>
<td>0.706</td>
<td>0.502</td>
<td>0.498</td>
</tr>
<tr>
<td>DEM 22 (554)</td>
<td>1.047</td>
<td>0.053</td>
<td>19.778</td>
<td>0.787</td>
<td>0.381</td>
<td>0.619</td>
</tr>
<tr>
<td>DEM 23 (095)</td>
<td>1.180</td>
<td>0.046</td>
<td>25.784</td>
<td>0.886</td>
<td>0.215</td>
<td>0.785</td>
</tr>
<tr>
<td>DEM 24 (388)</td>
<td>1.055</td>
<td>0.048</td>
<td>21.876</td>
<td>0.793</td>
<td>0.372</td>
<td>0.628</td>
</tr>
</tbody>
</table>

Note. WLSMV estimation. DEM = Demoralization.
Male Sample

With the male sample, TLI and RMSEA fit statistics meet cutoff criteria but the CFI fit statistic does not, but comes close (CFI = 0.936, TLI = 0.971, RMSEA = 0.055) (see Table 6). This shows generally good fit between the model and the sample data. Statistics not used in evaluating model fit are SRMR = 0.079 and $\chi^2_m = 345.347$ (estimated df = 129, $p < 0.0001$) (see Tables 6 and 7).

A detailed inspection of the results provides further evidence of good fit between the scale and its items and identifies potential areas of model misfit. Unstandardized factor loading estimate / standard error ratios represent statistical tests of the direct effects of the factor on its indicators. All unstandardized factor loading estimate / standard error ratios are $\geq +1.96$ demonstrating that the factor explains a statistically significant amount of variance in all of its indicators (see Table 10).

Standardized factor loading estimates are the amount of change in the indicator in standard deviation units caused by a one standard deviation change in the factor. Standardized factor loadings range from 0.414 (SOM14) to 0.876 (SOM4) (see Table 10).

R-square values are the proportion of the variance in each indicator explained by the factor. Indicators with small associated R-square values represent a potential source of model misfit. R-square values in this analysis range from 0.171 (SOM14) to 0.767 (SOM4) (see Table 10). This shows that the factor explains only a modest proportion of variance in some of its indicators. Indicators with small R-square values ($\leq 0.30$) include...
SOM13 (= 0.230), SOM14 (= 0.171), SOM18 (= 0.212), and SOM26 (= 0.203). These indicators represent potential sources of model misfit.

Residual covariances are the discrepancy between indicator covariances predicted by the model and observed values. Large residual covariances or patterns of residual covariances where one indicator fails to fit well with many others also represent potential sources of model misfit. The five largest residual covariances in this sample are between items SOM1 and SOM27 (= -0.209), SOM3 and SOM7 (= 0.211), SOM11 and SOM18 (= -0.214), SOM6 and SOM13 (= -0.223), and SOM2 and SOM11 (= -0.268) (see Appendix C).
### Table 10

*Model Results for RC1 Somatic Complaints, Male Sample*

<table>
<thead>
<tr>
<th>Factor or Item (MMPI-2 Item)</th>
<th>Estimate</th>
<th>Standard Error</th>
<th>Estimate / Standard Error</th>
<th>Standardized Estimate</th>
<th>Residual Variance</th>
<th>R-Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factor Variance</td>
<td>0.559</td>
<td>0.064</td>
<td>8.784</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SOM1 (011)*</td>
<td>1.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.747</td>
<td>0.441</td>
<td>0.559</td>
</tr>
<tr>
<td>SOM 2 (018)</td>
<td>0.890</td>
<td>0.080</td>
<td>11.109</td>
<td>0.665</td>
<td>0.557</td>
<td>0.443</td>
</tr>
<tr>
<td>SOM 3 (028)</td>
<td>1.060</td>
<td>0.070</td>
<td>15.178</td>
<td>0.792</td>
<td>0.372</td>
<td>0.628</td>
</tr>
<tr>
<td>SOM 4 (040)</td>
<td>1.172</td>
<td>0.070</td>
<td>16.680</td>
<td>0.876</td>
<td>0.233</td>
<td>0.767</td>
</tr>
<tr>
<td>SOM 5 (097)</td>
<td>0.905</td>
<td>0.070</td>
<td>12.896</td>
<td>0.676</td>
<td>0.543</td>
<td>0.457</td>
</tr>
<tr>
<td>SOM 6 (101)</td>
<td>1.122</td>
<td>0.070</td>
<td>16.094</td>
<td>0.838</td>
<td>0.297</td>
<td>0.703</td>
</tr>
<tr>
<td>SOM 7 (111)</td>
<td>1.080</td>
<td>0.072</td>
<td>15.095</td>
<td>0.807</td>
<td>0.348</td>
<td>0.652</td>
</tr>
<tr>
<td>SOM 8 (149)</td>
<td>1.105</td>
<td>0.073</td>
<td>15.232</td>
<td>0.826</td>
<td>0.318</td>
<td>0.682</td>
</tr>
<tr>
<td>SOM 9 (172)</td>
<td>0.937</td>
<td>0.069</td>
<td>13.519</td>
<td>0.701</td>
<td>0.509</td>
<td>0.491</td>
</tr>
<tr>
<td>SOM 10 (247)</td>
<td>0.918</td>
<td>0.074</td>
<td>12.443</td>
<td>0.686</td>
<td>0.530</td>
<td>0.470</td>
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<tr>
<td>SOM 11 (536)</td>
<td>0.904</td>
<td>0.072</td>
<td>12.479</td>
<td>0.676</td>
<td>0.543</td>
<td>0.457</td>
</tr>
<tr>
<td>SOM 12 (002)</td>
<td>0.877</td>
<td>0.077</td>
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<td>0.656</td>
<td>0.570</td>
<td>0.430</td>
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<tr>
<td>SOM 13 (008)</td>
<td>0.641</td>
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<td>7.782</td>
<td>0.479</td>
<td>0.770</td>
<td>0.230</td>
</tr>
<tr>
<td>SOM 14 (020)</td>
<td>0.554</td>
<td>0.077</td>
<td>7.176</td>
<td>0.414</td>
<td>0.829</td>
<td>0.171</td>
</tr>
<tr>
<td>SOM 15 (047)</td>
<td>0.819</td>
<td>0.070</td>
<td>11.731</td>
<td>0.612</td>
<td>0.626</td>
<td>0.374</td>
</tr>
<tr>
<td>SOM 16 (057)</td>
<td>0.904</td>
<td>0.068</td>
<td>13.373</td>
<td>0.676</td>
<td>0.544</td>
<td>0.456</td>
</tr>
<tr>
<td>SOM</td>
<td>N</td>
<td>A1</td>
<td>A2</td>
<td>A3</td>
<td>A4</td>
<td>A5</td>
</tr>
<tr>
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<td>------</td>
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</tr>
<tr>
<td>17</td>
<td>091</td>
<td>1.004</td>
<td>0.071</td>
<td>14.079</td>
<td>0.750</td>
<td>0.437</td>
</tr>
<tr>
<td>18</td>
<td>106</td>
<td>0.616</td>
<td>0.078</td>
<td>7.870</td>
<td>0.460</td>
<td>0.788</td>
</tr>
<tr>
<td>19</td>
<td>141</td>
<td>0.889</td>
<td>0.072</td>
<td>12.272</td>
<td>0.665</td>
<td>0.558</td>
</tr>
<tr>
<td>20</td>
<td>164</td>
<td>0.972</td>
<td>0.071</td>
<td>13.714</td>
<td>0.726</td>
<td>0.472</td>
</tr>
<tr>
<td>21</td>
<td>176</td>
<td>1.123</td>
<td>0.069</td>
<td>16.185</td>
<td>0.839</td>
<td>0.296</td>
</tr>
<tr>
<td>22</td>
<td>177</td>
<td>0.831</td>
<td>0.075</td>
<td>11.122</td>
<td>0.821</td>
<td>0.614</td>
</tr>
<tr>
<td>23</td>
<td>179</td>
<td>0.981</td>
<td>0.072</td>
<td>13.604</td>
<td>0.733</td>
<td>0.462</td>
</tr>
<tr>
<td>24</td>
<td>208</td>
<td>0.768</td>
<td>0.072</td>
<td>10.676</td>
<td>0.574</td>
<td>0.671</td>
</tr>
<tr>
<td>25</td>
<td>224</td>
<td>1.080</td>
<td>0.071</td>
<td>15.225</td>
<td>0.807</td>
<td>0.348</td>
</tr>
<tr>
<td>26</td>
<td>255</td>
<td>0.603</td>
<td>0.078</td>
<td>7.727</td>
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<td>0.797</td>
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<tr>
<td>27</td>
<td>295</td>
<td>0.796</td>
<td>0.079</td>
<td>10.028</td>
<td>0.595</td>
<td>0.647</td>
</tr>
</tbody>
</table>

*Note.* WLSMV estimation. SOM = Somatic Complaints.
Female Sample

With the female sample, TLI and RMSEA fit statistics meet cutoff criteria but the CFI statistic does not, but comes close (CFI = 0.922, TLI = 0.964, RMSEA = 0.059) (see Table 6). This shows generally good overall fit between the model and the sample data. Statistics not used in evaluating model fit are SRMR = 0.078 and \( \chi^2_m = 578.670 \) (estimated df = 153, p < 0.0001) (see Tables 6 and 7).

A detailed inspection of the results provides further evidence of good fit between the scale and its items and identifies potential areas of model misfit. Unstandardized factor loading estimate / standard error ratios represent statistical tests of the direct effects of the factor on its indicators. All unstandardized factor loading estimate / standard error ratios are \( \geq +1.96 \) demonstrating that the factor explains a statistically significant amount of variance in all of its indicators (see Table 11).

Standardized factor loading estimates are the amount of change in the indicator in standard deviation units caused by a one standard deviation change in the factor. Standardized factor loadings range from 0.349 (SOM13) to 0.842 (SOM7) (see Table 11).

R-square values are the proportion of the variance in each indicator explained by the factor. Indicators with small associated R-square values represent a potential source of model misfit. R-square values in this analysis range from 0.122 (SOM13) to 0.708 (SOM25) (see Table 11). This shows that the factor explains only a modest proportion of variance in some of its indicators. Indicators with small R-square values (\( \leq 0.30 \)) include SOM12 (= 0.181), SOM13 (= 0.122), SOM14 (= 0.183), SOM18 (= 0.262), and SOM26 (= 0.261). These indicators represent potential sources of model misfit.
Residual covariances are the discrepancy between indicator covariances predicted by the model and observed values. Large residual covariances or patterns of residual covariances where one indicator fails to fit well with many others also represent potential sources of model misfit. The five largest residual covariances in this sample are between SOM12 and SOM25 (= -0.207), SOM6 and SOM27 (= -0.208), SOM11 and SOM21 (= 0.198), SOM23 and SOM27 (= 0.212), and SOM10 and SOM12 (= -0.227) (see Appendix D).
Table 11

*Model Results for RC1 Somatic Complaints, Female Sample*

<table>
<thead>
<tr>
<th>Factor or Item (MMPI-2 Item)</th>
<th>Estimate</th>
<th>Standard Error</th>
<th>Estimate / Standard Error</th>
<th>Standardized Estimate</th>
<th>Residual Variance</th>
<th>R-Square</th>
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</thead>
<tbody>
<tr>
<td>Factor</td>
<td>0.375</td>
<td>0.049</td>
<td>7.605</td>
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<tr>
<td>SOM1 (011)*</td>
<td>1.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.612</td>
<td>0.625</td>
<td>0.375</td>
</tr>
<tr>
<td>SOM 2 (018)</td>
<td>1.013</td>
<td>0.091</td>
<td>11.098</td>
<td>0.620</td>
<td>0.615</td>
<td>0.385</td>
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<tr>
<td>SOM 3 (028)</td>
<td>1.306</td>
<td>0.089</td>
<td>14.676</td>
<td>0.800</td>
<td>0.360</td>
<td>0.640</td>
</tr>
<tr>
<td>SOM 4 (040)</td>
<td>1.371</td>
<td>0.097</td>
<td>14.063</td>
<td>0.839</td>
<td>0.295</td>
<td>0.705</td>
</tr>
<tr>
<td>SOM 5 (097)</td>
<td>1.135</td>
<td>0.090</td>
<td>12.537</td>
<td>0.695</td>
<td>0.517</td>
<td>0.483</td>
</tr>
<tr>
<td>SOM 6 (101)</td>
<td>1.343</td>
<td>0.093</td>
<td>14.373</td>
<td>0.822</td>
<td>0.324</td>
<td>0.676</td>
</tr>
<tr>
<td>SOM 7 (111)</td>
<td>1.375</td>
<td>0.093</td>
<td>14.845</td>
<td>0.842</td>
<td>0.292</td>
<td>0.708</td>
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<tr>
<td>SOM 8 (149)</td>
<td>1.192</td>
<td>0.092</td>
<td>13.014</td>
<td>0.730</td>
<td>0.467</td>
<td>0.533</td>
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<tr>
<td>SOM 9 (172)</td>
<td>1.145</td>
<td>0.093</td>
<td>12.312</td>
<td>0.701</td>
<td>0.509</td>
<td>0.491</td>
</tr>
<tr>
<td>SOM 10 (247)</td>
<td>1.169</td>
<td>0.090</td>
<td>12.936</td>
<td>0.716</td>
<td>0.488</td>
<td>0.512</td>
</tr>
<tr>
<td>SOM 11 (536)</td>
<td>1.047</td>
<td>0.087</td>
<td>12.046</td>
<td>0.641</td>
<td>0.589</td>
<td>0.411</td>
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<tr>
<td>SOM 12 (002)</td>
<td>0.695</td>
<td>0.112</td>
<td>6.181</td>
<td>0.425</td>
<td>0.819</td>
<td>0.181</td>
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<tr>
<td>SOM 13 (008)</td>
<td>0.571</td>
<td>0.082</td>
<td>6.940</td>
<td>0.349</td>
<td>0.878</td>
<td>0.122</td>
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<tr>
<td>SOM 14 (020)</td>
<td>0.698</td>
<td>0.082</td>
<td>8.563</td>
<td>0.428</td>
<td>0.817</td>
<td>0.183</td>
</tr>
<tr>
<td>SOM 15 (047)</td>
<td>1.121</td>
<td>0.086</td>
<td>13.087</td>
<td>0.686</td>
<td>0.529</td>
<td>0.471</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>SOM</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>Mean</th>
<th>SD</th>
<th>Mean</th>
<th>SD</th>
<th>Mean</th>
<th>SD</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOM 16 (057)</td>
<td>1.172</td>
<td>0.090</td>
<td>13.070</td>
<td>0.717</td>
<td>0.485</td>
<td>0.515</td>
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</tr>
<tr>
<td>SOM 17 (091)</td>
<td>1.165</td>
<td>0.091</td>
<td>12.736</td>
<td>0.713</td>
<td>0.491</td>
<td>0.509</td>
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</tr>
<tr>
<td>SOM 18 (106)</td>
<td>0.837</td>
<td>0.088</td>
<td>9.530</td>
<td>0.512</td>
<td>0.738</td>
<td>0.262</td>
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<tr>
<td>SOM 19 (141)</td>
<td>1.091</td>
<td>0.089</td>
<td>12.189</td>
<td>0.668</td>
<td>0.554</td>
<td>0.446</td>
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<tr>
<td>SOM 20 (164)</td>
<td>1.179</td>
<td>0.092</td>
<td>12.860</td>
<td>0.722</td>
<td>0.479</td>
<td>0.521</td>
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<tr>
<td>SOM 21 (176)</td>
<td>1.257</td>
<td>0.092</td>
<td>13.667</td>
<td>0.770</td>
<td>0.408</td>
<td>0.592</td>
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<td>SOM 22 (177)</td>
<td>1.174</td>
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<td>13.439</td>
<td>0.719</td>
<td>0.483</td>
<td>0.517</td>
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<tr>
<td>SOM 23 (179)</td>
<td>1.136</td>
<td>0.088</td>
<td>12.962</td>
<td>0.696</td>
<td>0.516</td>
<td>0.484</td>
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<tr>
<td>SOM 24 (208)</td>
<td>1.024</td>
<td>0.089</td>
<td>11.471</td>
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<td>0.607</td>
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<td>SOM 25 (224)</td>
<td>1.374</td>
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<td>14.104</td>
<td>0.841</td>
<td>0.292</td>
<td>0.708</td>
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<td>SOM 26 (255)</td>
<td>0.834</td>
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<td>0.739</td>
<td>0.261</td>
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<tr>
<td>SOM 27 (295)</td>
<td>0.916</td>
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<td>10.649</td>
<td>0.561</td>
<td>0.685</td>
<td>0.315</td>
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</tr>
</tbody>
</table>

*Note.* WLSMV estimation. SOM = Somatic Complaints.
RC2 LPE Low Positive Emotions

Male Sample

With the male sample, the RMSEA fit statistic meets cutoff criteria but the CFI and TLI fit statistics do not (CFI = 0.896, TLI = 0.939, RMSEA = 0.057) (see Table 6). This shows mixed evidence of good overall fit between the model and the sample data.

Statistics not used in evaluating model fit are SRMR = 0.080 and $\chi^2_m = 304.124$ (estimated df = 84, p < 0.0001) (see Tables 6 and 7).

A detailed inspection of the results identifies potential areas of model misfit. Unstandardized factor loading estimate / standard error ratios represent statistical tests of the direct effects of the factor on its indicators. All unstandardized factor loading estimate / standard error ratios are $\geq + 1.96$ demonstrating that the factor explains a statistically significant amount of variance in all of its indicators (see Table 12).

Standardized factor loadings range from 0.443 (LPE9) to 0.749 (LPE15) (see Table 12). R-square values are the proportion of the variance in each indicator explained by the factor. Indicators with small associated R-square values represent a potential source of model misfit. R-square values in this analysis range from 0.196 (LPE9) to 0.562 (LPE15) (see Table 12). This shows that the factor explains only a modest proportion of variance in some of its indicators. Indicators with small R-square values ($\leq 0.30$) include LPE4 (= 0.276), LPE9 (= 0.196), LPE11 (= 0.249), LPE14 (= 0.293), LPE16 (= 0.280), and LPE17 (= 0.228). These indicators represent potential sources of model misfit.
Residual covariances are the discrepancy between indicator covariances predicted by the model and observed values. Large residual covariances or patterns of residual covariances where one indicator fails to fit well with many others also represent potential sources of model misfit. The five largest residual covariances in this sample are between items LPE7 and LPE13 (= -0.191), LPE2 and LPE7 (= 0.208), LPE2 and LPE3 (= -0.212), LPE11 and LPE17 (= 0.215), and LPE3 and LPE12 (= 0.228) (see Appendix E).
Table 12

Model Results for RC2 Low Positive Emotions, Male Sample

<table>
<thead>
<tr>
<th>Factor or Item (MMPI-2 Item)</th>
<th>Estimate</th>
<th>Standard Error</th>
<th>Estimate / Standard Error</th>
<th>Standardized Estimate</th>
<th>Residual Variance</th>
<th>R-Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factor Variance</td>
<td>0.468</td>
<td>0.049</td>
<td>9.572</td>
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<td></td>
</tr>
<tr>
<td>LPE1 (009)*</td>
<td>1.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.684</td>
<td>0.532</td>
<td>0.468</td>
</tr>
<tr>
<td>LPE 2 (010)</td>
<td>1.054</td>
<td>0.068</td>
<td>15.442</td>
<td>0.721</td>
<td>0.481</td>
<td>0.519</td>
</tr>
<tr>
<td>LPE 3 (049)</td>
<td>0.920</td>
<td>0.069</td>
<td>13.291</td>
<td>0.629</td>
<td>0.604</td>
<td>0.396</td>
</tr>
<tr>
<td>LPE 4 (061)</td>
<td>0.768</td>
<td>0.073</td>
<td>10.502</td>
<td>0.525</td>
<td>0.724</td>
<td>0.276</td>
</tr>
<tr>
<td>LPE 5 (075)</td>
<td>1.026</td>
<td>0.089</td>
<td>11.572</td>
<td>0.701</td>
<td>0.508</td>
<td>0.492</td>
</tr>
<tr>
<td>LPE 6 (109)</td>
<td>1.021</td>
<td>0.084</td>
<td>12.208</td>
<td>0.698</td>
<td>0.512</td>
<td>0.488</td>
</tr>
<tr>
<td>LPE 7 (148)</td>
<td>1.029</td>
<td>0.072</td>
<td>14.279</td>
<td>0.704</td>
<td>0.505</td>
<td>0.495</td>
</tr>
<tr>
<td>LPE 8 (188)</td>
<td>0.905</td>
<td>0.077</td>
<td>11.781</td>
<td>0.619</td>
<td>0.617</td>
<td>0.383</td>
</tr>
<tr>
<td>LPE 9 (206)</td>
<td>0.648</td>
<td>0.074</td>
<td>8.791</td>
<td>0.443</td>
<td>0.804</td>
<td>0.196</td>
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<tr>
<td>LPE 10 (239)</td>
<td>0.849</td>
<td>0.066</td>
<td>12.940</td>
<td>0.580</td>
<td>0.663</td>
<td>0.337</td>
</tr>
<tr>
<td>LPE 11 (244)</td>
<td>0.729</td>
<td>0.066</td>
<td>11.005</td>
<td>0.499</td>
<td>0.751</td>
<td>0.249</td>
</tr>
<tr>
<td>LPE 12 (280)</td>
<td>1.043</td>
<td>0.074</td>
<td>14.096</td>
<td>0.713</td>
<td>0.492</td>
<td>0.508</td>
</tr>
<tr>
<td>LPE 13 (318)</td>
<td>1.063</td>
<td>0.096</td>
<td>11.103</td>
<td>0.727</td>
<td>0.472</td>
<td>0.528</td>
</tr>
<tr>
<td>LPE 14 (330)</td>
<td>0.791</td>
<td>0.072</td>
<td>10.999</td>
<td>0.541</td>
<td>0.707</td>
<td>0.293</td>
</tr>
<tr>
<td>LPE 15 (494)</td>
<td>1.096</td>
<td>0.073</td>
<td>14.926</td>
<td>0.749</td>
<td>0.438</td>
<td>0.562</td>
</tr>
<tr>
<td>LPE 16 (521)</td>
<td>0.773</td>
<td>0.071</td>
<td>10.842</td>
<td>0.529</td>
<td>0.720</td>
<td>0.280</td>
</tr>
<tr>
<td>LPE 17 (552)</td>
<td>0.699</td>
<td>0.070</td>
<td>9.973</td>
<td>0.478</td>
<td>0.772</td>
<td>0.228</td>
</tr>
</tbody>
</table>

Note. WLSMV estimation. LPE = Low Positive Emotions.
Female Sample

All of the fit statistics for the female sample fail to meet cutoff criteria showing poor overall fit between the model and the sample data (CFI = 0.860, TLI = 0.904, RMSEA = 0.069) (see Table 6). Statistics not used in evaluating model fit are SRMR = 0.097 and $\chi^2_m = 391.937$ (estimated df = 82, $p < 0.0001$) (see Tables 6 and 7).

A detailed inspection of the results identifies potential areas of model misfit. Unstandardized factor loading estimate / standard error ratios represent statistical tests of the direct effects of the factor on its indicators. All unstandardized factor loading estimate / standard error ratios are $\geq +1.96$ demonstrating that the factor explains a statistically significant amount of variance in all of its indicators (see Table 13).

Standardized factor loading estimates are the amount of change in the indicator in standard deviation units caused by a one standard deviation change in the factor. Standardized factor loadings range from 0.406 (LPE16) to 0.766 (LPE1) (see Table 13).

R-square values are the proportion of the variance in each indicator explained by the factor. Indicators with small associated observed R-square values represent a potential source of model misfit. R-square values in this analysis range from 0.165 (LPE16) to 0.587 (LPE1) (see Table 13). This shows that the factor explains only a modest proportion of variance in some of its indicators. Indicators with small R-square values ($\leq 0.30$) include LPE4 (= 0.292), LPE9 (= 0.235), LPE10 (= 0.220), LPE12 (= 0.293), LPE13 (= 0.181), and LPE16 (= 0.165). These indicators represent potential sources of model misfit.

Residual covariances are the discrepancy between indicator covariances predicted by the model and observed values. Large residual covariances or patterns of residual
covariances where one indicator fails to fit well with many others also represent potential sources of model misfit. The five largest residual covariances in this sample are between items LPE2 and LPE13 (= -0.234), LPE10 and LPE13 (= 0.246), LPE11 and LPE17 (= 0.280), LPE3 and LPE12 (= 0.318), and LPE13 and LPE16 (= 0.319) (see Appendix F).
Table 13

*Model Results for RC2 Low Positive Emotions, Female Sample*

<table>
<thead>
<tr>
<th>Factor or Item (MMPI-2 Item)</th>
<th>Estimate</th>
<th>Standard Error</th>
<th>Estimate / Standard Error</th>
<th>Standardized Error</th>
<th>Residual Variance</th>
<th>R-Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factor Variance</td>
<td>0.587</td>
<td>0.048</td>
<td>12.200</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LPE1 (009)*</td>
<td>1.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.766</td>
<td>0.413</td>
<td>0.587</td>
</tr>
<tr>
<td>LPE 2 (010)</td>
<td>0.939</td>
<td>0.054</td>
<td>17.545</td>
<td>0.719</td>
<td>0.483</td>
<td>0.517</td>
</tr>
<tr>
<td>LPE 3 (049)</td>
<td>0.811</td>
<td>0.056</td>
<td>14.521</td>
<td>0.621</td>
<td>0.614</td>
<td>0.386</td>
</tr>
<tr>
<td>LPE 4 (061)</td>
<td>0.706</td>
<td>0.066</td>
<td>10.771</td>
<td>0.541</td>
<td>0.708</td>
<td>0.292</td>
</tr>
<tr>
<td>LPE 5 (075)</td>
<td>0.759</td>
<td>0.080</td>
<td>9.543</td>
<td>0.582</td>
<td>0.662</td>
<td>0.338</td>
</tr>
<tr>
<td>LPE 6 (109)</td>
<td>0.880</td>
<td>0.071</td>
<td>12.321</td>
<td>0.674</td>
<td>0.545</td>
<td>0.455</td>
</tr>
<tr>
<td>LPE 7 (148)</td>
<td>0.942</td>
<td>0.062</td>
<td>15.207</td>
<td>0.722</td>
<td>0.479</td>
<td>0.521</td>
</tr>
<tr>
<td>LPE 8 (188)</td>
<td>0.897</td>
<td>0.061</td>
<td>14.810</td>
<td>0.687</td>
<td>0.528</td>
<td>0.472</td>
</tr>
<tr>
<td>LPE 9 (206)</td>
<td>0.633</td>
<td>0.061</td>
<td>10.289</td>
<td>0.485</td>
<td>0.765</td>
<td>0.235</td>
</tr>
<tr>
<td>LPE 10 (239)</td>
<td>0.613</td>
<td>0.060</td>
<td>10.210</td>
<td>0.469</td>
<td>0.780</td>
<td>0.220</td>
</tr>
<tr>
<td>LPE 11 (244)</td>
<td>0.741</td>
<td>0.059</td>
<td>12.482</td>
<td>0.568</td>
<td>0.678</td>
<td>0.322</td>
</tr>
<tr>
<td>LPE 12 (280)</td>
<td>0.707</td>
<td>0.065</td>
<td>10.846</td>
<td>0.542</td>
<td>0.707</td>
<td>0.293</td>
</tr>
<tr>
<td>LPE 13 (318)</td>
<td>0.555</td>
<td>0.079</td>
<td>7.027</td>
<td>0.425</td>
<td>0.819</td>
<td>0.181</td>
</tr>
<tr>
<td>LPE 14 (330)</td>
<td>0.824</td>
<td>0.058</td>
<td>14.212</td>
<td>0.631</td>
<td>0.601</td>
<td>0.399</td>
</tr>
<tr>
<td>LPE 15 (494)</td>
<td>0.914</td>
<td>0.061</td>
<td>14.877</td>
<td>0.700</td>
<td>0.510</td>
<td>0.490</td>
</tr>
<tr>
<td>LPE 16 (521)</td>
<td>0.530</td>
<td>0.062</td>
<td>8.611</td>
<td>0.406</td>
<td>0.835</td>
<td>0.165</td>
</tr>
<tr>
<td>LPE 17 (552)</td>
<td>0.757</td>
<td>0.063</td>
<td>11.966</td>
<td>0.580</td>
<td>0.664</td>
<td>0.336</td>
</tr>
</tbody>
</table>

*Note.* WLSMV estimation. LPE = Low Positive Emotions.
Male Sample

With the male sample, the TLI fit statistic meets cutoff criteria but the CFI and RMSEA fit statistics do not (CFI = 0.928, TLI = 0.960, RMSEA = 0.070) (see Table 6). This shows mixed evidence of good overall fit between the model and the sample data.

Statistics not used in evaluating model fit are SRMR = 0.072 and $\chi^2_m = 316.920$ (estimated df = 65, $p < 0.0001$) (see Tables 6 and 7).

A detailed inspection of the results of the analysis of the male sample provides evidence of good fit between the scale and its items. Unstandardized factor loading estimate / standard error ratios represent statistical tests of the direct effects of the factor on its indicators. All unstandardized factor loading estimate / standard error ratios are $> +1.96$ demonstrating that the factor explains a statistically significant amount of variance in all of its indicators (see Table 14).

Standardized factor loading estimates are the amount of change in the indicator in standard deviation units caused by a one standard deviation change in the factor. Standardized factor loadings range from 0.603 (CYN11) to 0.843 (CYN14) (see Table 14).

R-square values are the proportion of the variance in each indicator explained by the factor. Indicators with small associated R-square values represent a potential source of model misfit. R-square values in this analysis range from 0.363 (CYN11) to 0.711 (CYN14) (see Table 14). This shows that the factor explains at least a moderate proportion of variance ($> 0.30$) in all of its indicators. Indicators with small R-square values represent a potential source of model misfit.
Residual covariances are the discrepancy between indicator covariances predicted by the model and observed values. Large residual covariances or patterns of residual covariances where one indicator fails to fit well with many others also represent potential sources of model misfit. The five largest residual covariance in this sample are between items CYN1 and CYN15 (= -0.151), CYN3 and CYN14 (= -0.153), CYN5 and CYN15 (= -0.186), CYN3 and CYN15 (= -0.198) and CYN14 and CYN15 (= 0.230) (see Appendix G).
Table 14

*Model Results for RC3 Cynicism, Male Sample*

<table>
<thead>
<tr>
<th>Factor or Item</th>
<th>Estimate</th>
<th>Standard Error</th>
<th>Estimate/Standard Error</th>
<th>Standardized Estimate</th>
<th>Residual Variance</th>
<th>R-Square</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>(MMPI-2 Item)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Factor</td>
<td>0.412</td>
<td>0.044</td>
<td>9.272</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Variance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CYN1 (058)*</td>
<td>1.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.642</td>
<td>0.588</td>
<td>0.412</td>
</tr>
<tr>
<td>CYN 2 (076)</td>
<td>1.051</td>
<td>0.072</td>
<td>14.575</td>
<td>0.675</td>
<td>0.544</td>
<td>0.456</td>
</tr>
<tr>
<td>CYN 3 (081)</td>
<td>1.167</td>
<td>0.073</td>
<td>16.045</td>
<td>0.750</td>
<td>0.438</td>
<td>0.562</td>
</tr>
<tr>
<td>CYN 4 (104)</td>
<td>0.949</td>
<td>0.075</td>
<td>12.674</td>
<td>0.609</td>
<td>0.629</td>
<td>0.371</td>
</tr>
<tr>
<td>CYN 5 (110)</td>
<td>1.269</td>
<td>0.074</td>
<td>17.081</td>
<td>0.815</td>
<td>0.335</td>
<td>0.665</td>
</tr>
<tr>
<td>CYN 6 (241)</td>
<td>1.036</td>
<td>0.077</td>
<td>13.517</td>
<td>0.665</td>
<td>0.558</td>
<td>0.442</td>
</tr>
<tr>
<td>CYN 7 (254)</td>
<td>0.957</td>
<td>0.081</td>
<td>11.876</td>
<td>0.615</td>
<td>0.622</td>
<td>0.378</td>
</tr>
<tr>
<td>CYN 8 (284)</td>
<td>1.050</td>
<td>0.076</td>
<td>13.889</td>
<td>0.675</td>
<td>0.545</td>
<td>0.455</td>
</tr>
<tr>
<td>CYN 9 (286)</td>
<td>1.065</td>
<td>0.075</td>
<td>14.131</td>
<td>0.684</td>
<td>0.532</td>
<td>0.468</td>
</tr>
<tr>
<td>CYN 10 (352)</td>
<td>1.051</td>
<td>0.077</td>
<td>13.583</td>
<td>0.675</td>
<td>0.545</td>
<td>0.455</td>
</tr>
<tr>
<td>CYN 11 (436)</td>
<td>0.939</td>
<td>0.078</td>
<td>12.049</td>
<td>0.603</td>
<td>0.637</td>
<td>0.363</td>
</tr>
<tr>
<td>CYN 12 (445)</td>
<td>1.018</td>
<td>0.074</td>
<td>13.690</td>
<td>0.654</td>
<td>0.573</td>
<td>0.427</td>
</tr>
<tr>
<td>CYN 13 (538)</td>
<td>1.128</td>
<td>0.076</td>
<td>14.749</td>
<td>0.724</td>
<td>0.476</td>
<td>0.524</td>
</tr>
<tr>
<td>CYN 14 (563)</td>
<td>1.313</td>
<td>0.081</td>
<td>16.263</td>
<td>0.843</td>
<td>0.289</td>
<td>0.711</td>
</tr>
<tr>
<td>CYN 15 (567)</td>
<td>1.147</td>
<td>0.080</td>
<td>14.363</td>
<td>0.737</td>
<td>0.457</td>
<td>0.543</td>
</tr>
</tbody>
</table>

*Note.* WLSMV estimation. CYN = Cynicism.
Female Sample

With the female sample, the TLI and RMSEA fit statistics meet cutoff criteria but the CFI fit statistic does not, but comes close (CFI = 0.934, TLI = 0.960, RMSEA = 0.056) (see Table 6). This shows generally good overall fit between the model and the sample data. Statistics not used in evaluating model fit are SRMR = 0.071 and $\chi^2_m = 239.466$ (estimated df = 68, p < 0.0001) (see Tables 6 and 7).

A detailed inspection of the results provides further evidence of good fit between the scale and its items. Unstandardized factor loading estimate / standard error ratios represent statistical tests of the direct effects of the factor on its indicators. All unstandardized factor loading estimate / standard error ratios are $\geq + 1.96$ demonstrating that the factor explains a statistically significant amount of variance in all of its indicators (see Table 15).

Standardized factor loading estimates are the amount of change in the indicator in standard deviation units caused by a one standard deviation change in the factor. Standardized factor loadings range from 0.305 (CYN7) to 0.623 (CYN5) (see Table 15).

R-square values are the proportion of the variance in each indicator explained by the factor. Indicators with small associated R-square values represent a potential source of model misfit. R-square values in this analysis range from 0.305 (CYN7) to 0.623 (CYN5) (see Table 15). This shows that the factor explains at least a moderate proportion of variance (> 0.30) in all of its indicators. Indicators with small R-square values represent a potential source of model misfit.

Residual covariances are the discrepancy between indicator covariances predicted by the model and observed values. Large residual covariances or patterns of residual...
covariances where one indicator fails to fit well with many others also represent potential sources of model misfit. The five largest residual covariances in this sample are between items CYN5 and CYN15 (= -0.144), CYN1 and CYN6 (= -0.157), CYN4 and CYN14 (= -0.165), CYN13 and CYN14 (= 0.170), and CYN14 and CYN15 (= 0.281) (see Appendix H).
Table 15

Model Results for RC3 Cynicism, Female Sample

<table>
<thead>
<tr>
<th>Factor or Item (MMPI-2 Item)</th>
<th>Estimate</th>
<th>Standard Error</th>
<th>Estimate / Standard Error</th>
<th>Standardized Estimate</th>
<th>Residual Variance</th>
<th>R-Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factor Variance</td>
<td>0.357</td>
<td>0.044</td>
<td>8.144</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CYN1 (058)*</td>
<td>1.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.598</td>
<td>0.643</td>
<td>0.357</td>
</tr>
<tr>
<td>CYN 2 (076)</td>
<td>1.088</td>
<td>0.088</td>
<td>12.322</td>
<td>0.650</td>
<td>0.577</td>
<td>0.423</td>
</tr>
<tr>
<td>CYN 3 (081)</td>
<td>1.145</td>
<td>0.086</td>
<td>13.360</td>
<td>0.684</td>
<td>0.532</td>
<td>0.468</td>
</tr>
<tr>
<td>CYN 4 (104)</td>
<td>0.971</td>
<td>0.088</td>
<td>11.031</td>
<td>0.580</td>
<td>0.663</td>
<td>0.337</td>
</tr>
<tr>
<td>CYN 5 (110)</td>
<td>1.321</td>
<td>0.091</td>
<td>14.583</td>
<td>0.790</td>
<td>0.377</td>
<td>0.623</td>
</tr>
<tr>
<td>CYN 6 (241)</td>
<td>0.968</td>
<td>0.095</td>
<td>10.186</td>
<td>0.579</td>
<td>0.665</td>
<td>0.335</td>
</tr>
<tr>
<td>CYN 7 (254)</td>
<td>0.924</td>
<td>0.094</td>
<td>9.858</td>
<td>0.552</td>
<td>0.695</td>
<td>0.305</td>
</tr>
<tr>
<td>CYN 8 (284)</td>
<td>1.094</td>
<td>0.085</td>
<td>12.865</td>
<td>0.654</td>
<td>0.573</td>
<td>0.427</td>
</tr>
<tr>
<td>CYN 9 (286)</td>
<td>1.169</td>
<td>0.086</td>
<td>13.652</td>
<td>0.699</td>
<td>0.512</td>
<td>0.488</td>
</tr>
<tr>
<td>CYN 10 (352)</td>
<td>1.182</td>
<td>0.088</td>
<td>13.501</td>
<td>0.706</td>
<td>0.501</td>
<td>0.499</td>
</tr>
<tr>
<td>CYN 11 (436)</td>
<td>0.968</td>
<td>0.085</td>
<td>11.412</td>
<td>0.579</td>
<td>0.665</td>
<td>0.335</td>
</tr>
<tr>
<td>CYN 12 (445)</td>
<td>0.941</td>
<td>0.081</td>
<td>11.631</td>
<td>0.563</td>
<td>0.684</td>
<td>0.316</td>
</tr>
<tr>
<td>CYN 13 (538)</td>
<td>1.164</td>
<td>0.085</td>
<td>13.668</td>
<td>0.695</td>
<td>0.516</td>
<td>0.484</td>
</tr>
<tr>
<td>CYN 14 (563)</td>
<td>1.115</td>
<td>0.094</td>
<td>11.904</td>
<td>0.666</td>
<td>0.556</td>
<td>0.444</td>
</tr>
<tr>
<td>CYN 15 (567)</td>
<td>1.059</td>
<td>0.092</td>
<td>11.508</td>
<td>0.633</td>
<td>0.599</td>
<td>0.401</td>
</tr>
</tbody>
</table>

Note. WLSMV estimation. CYN = Cynicism.
Male Sample

With the male sample, the RMSEA fit statistic meets cutoff criteria but the CFI
and TLI fit statistics do not (CFI = 0.867, TLI = 0.922, RMSEA = 0.059) (see Table 6).
This shows poor overall fit between the model and the sample data. Statistics not used in
evaluating model fit are SRMR = 0.092 and $\chi^2_m = 432.433$ (estimated df = 114, p <
0.0001) (see Tables 6 and 7).

A detailed inspection of the results identifies potential areas of model misfit.
Unstandardized factor loading estimate / standard error ratios represent statistical tests of
the direct effects of the factor on its indicators. All unstandardized factor loading
estimate / standard error ratios are $\geq +1.96$ demonstrating that the factor explains a
statistically significant amount of variance in all of its indicators (see Table 16).

Standardized factor loading estimates are the amount of change in the indicator in
standard deviation units caused by a one standard deviation change in the factor.
Standardized factor loadings range from 0.259 (ASB17) to 0.787 (ASB4) (see Table 16).

R-square values are the proportion of the variance in each indicator explained by
the factor. Indicators with small associated R-square values represent a potential source of
model misfit. R-square values in this analysis range from 0.067 (ASB17) to 0.619
(ASB4) (see Table 16). This shows that the factor explains only a modest proportion of
variance in some of its indicators. Indicators with small R-square values ($\leq 0.30$) include
ASB6 (= 0.258), ASB8 (= 0.214), ASB17 (= 0.067), ASB18 (= 0.142), ASB19 (0.274),
ASB20 (= 0.291) and ASB 22 (= 0.126). These indicators represent potential sources of
model misfit.
Residual covariances are the discrepancy between indicator covariances predicted by the model and observed values. Large residual covariances or patterns of residual covariances where one indicator fails to fit well with many others also represent potential sources of model misfit. The five largest residual covariances in this sample are between items ASB3 and ASB4 (= 0.230), ASB14 and ASB21 (= 0.234), ASB12 and ASB21 (= 0.235), ASB4 and ASB21 (= -0.248), and ASB6 and ASB17 (= 0.275) (see Appendix I).
Table 16

Model Results for RC4 Antisocial Behavior, Male Sample

<table>
<thead>
<tr>
<th>Factor or Item (MMPI-2 Item)</th>
<th>Estimate</th>
<th>Standard Error</th>
<th>Estimate / Standard Error</th>
<th>Standardized Variance</th>
<th>Residual Variance</th>
<th>Residual R-Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factor Variance</td>
<td>0.379</td>
<td>0.047</td>
<td>8.143</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ASB 1 (021)*</td>
<td>1.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.616</td>
<td>0.621</td>
<td>0.379</td>
</tr>
<tr>
<td>ASB 2 (035)</td>
<td>0.915</td>
<td>0.079</td>
<td>11.530</td>
<td>0.563</td>
<td>0.683</td>
<td>0.317</td>
</tr>
<tr>
<td>ASB 3 (084)</td>
<td>1.188</td>
<td>0.085</td>
<td>13.919</td>
<td>0.732</td>
<td>0.465</td>
<td>0.535</td>
</tr>
<tr>
<td>ASB 4 (105)</td>
<td>1.278</td>
<td>0.086</td>
<td>14.922</td>
<td>0.787</td>
<td>0.381</td>
<td>0.619</td>
</tr>
<tr>
<td>ASB 5 (202)</td>
<td>1.052</td>
<td>0.086</td>
<td>12.218</td>
<td>0.648</td>
<td>0.580</td>
<td>0.420</td>
</tr>
<tr>
<td>ASB 6 (240)</td>
<td>0.825</td>
<td>0.141</td>
<td>5.853</td>
<td>0.508</td>
<td>0.742</td>
<td>0.258</td>
</tr>
<tr>
<td>ASB 7 (264)</td>
<td>1.037</td>
<td>0.082</td>
<td>12.627</td>
<td>0.639</td>
<td>0.592</td>
<td>0.408</td>
</tr>
<tr>
<td>ASB 8 (362)</td>
<td>0.751</td>
<td>0.080</td>
<td>9.401</td>
<td>0.462</td>
<td>0.786</td>
<td>0.214</td>
</tr>
<tr>
<td>ASB 9 (379)</td>
<td>0.906</td>
<td>0.091</td>
<td>9.916</td>
<td>0.558</td>
<td>0.689</td>
<td>0.311</td>
</tr>
<tr>
<td>ASB 10 (412)</td>
<td>1.070</td>
<td>0.091</td>
<td>11.714</td>
<td>0.659</td>
<td>0.566</td>
<td>0.434</td>
</tr>
<tr>
<td>ASB 11 (431)</td>
<td>1.208</td>
<td>0.098</td>
<td>12.284</td>
<td>0.744</td>
<td>0.447</td>
<td>0.553</td>
</tr>
<tr>
<td>ASB 12 (487)</td>
<td>1.082</td>
<td>0.084</td>
<td>12.887</td>
<td>0.666</td>
<td>0.557</td>
<td>0.443</td>
</tr>
<tr>
<td>ASB 13 (489)</td>
<td>1.164</td>
<td>0.108</td>
<td>10.739</td>
<td>0.717</td>
<td>0.486</td>
<td>0.514</td>
</tr>
<tr>
<td>ASB 14 (511)</td>
<td>1.106</td>
<td>0.102</td>
<td>10.883</td>
<td>0.681</td>
<td>0.536</td>
<td>0.464</td>
</tr>
<tr>
<td>ASB 15 (540)</td>
<td>1.228</td>
<td>0.114</td>
<td>10.739</td>
<td>0.756</td>
<td>0.429</td>
<td>0.571</td>
</tr>
<tr>
<td>ASB 16 (548)</td>
<td>1.088</td>
<td>0.093</td>
<td>11.714</td>
<td>0.670</td>
<td>0.552</td>
<td>0.448</td>
</tr>
</tbody>
</table>

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| ASB 17 (034) | 0.421 | 0.090 | 4.693 | 0.259 | 0.933 | 0.067 |
| ASB 18 (083) | 0.611 | 0.084 | 7.262 | 0.376 | 0.858 | 0.142 |
| ASB 19 (160) | 0.850 | 0.088 | 9.647 | 0.523 | 0.726 | 0.274 |
| ASB 20 (266) | 0.876 | 0.078 | 11.183 | 0.539 | 0.709 | 0.291 |
| ASB 21 (429) | 1.009 | 0.081 | 12.417 | 0.621 | 0.614 | 0.386 |
| ASB 22 (455) | 0.576 | 0.091 | 6.361 | 0.355 | 0.874 | 0.126 |

*Note. WLSMV estimation. ASB = Antisocial Behavior.*
Female Sample

With the female sample, the RMSEA fit statistic meets cutoff criteria but the CFI and TLI fit statistics do not (CFI = 0.802, TLI = 0.870, RMSEA = 0.058) (see Table 6). This shows poor overall fit between the model and the sample data. Statistics not used in evaluating model fit are SRMR = 0.126 and $\chi^2_m = 361.055$ (estimated df = 97, p < 0.0001) (see Tables 6 and 7).

A detailed inspection of the results of the analysis identifies potential areas of model misfit. Unstandardized factor loading estimate / standard error ratios represent statistical tests of the direct effects of the factor on its indicators. All unstandardized factor loading estimate / standard error ratios are $> + 1.96$ demonstrating that the factor explains a statistically significant amount of variance in all of its indicators (see Table 17).

Standardized factor loading estimates are the amount of change in the indicator in standard deviation units caused by a one standard deviation change in the factor. Standardized factor loadings range from 0.337 (ASB9) to 0.744 (ASB3) (see Table 17).

R-square values are the proportion of the variance in each indicator explained by the factor. Indictors with small associated R-square values represent a potential source of model misfit. R-square values in this analysis range from 0.114 (ASB9) to 0.554 (ASB3) (see Table 17). This shows that the factor explains only a modest proportion of variance in some of its indicators. Indicators with small R-square values ($\leq 0.30$) include ASB1 ($= 0.200$), ASB8 ($= 0.242$), ASB9 ($= 0.114$), ASB17 ($= 0.182$), ASB18 ($= 0.168$), ASB19 ($= 0.264$), and ASB22 ($= 0.152$). These indicators represent potential sources of model misfit.
Residual covariances are the discrepancy between indicator covariances predicted by the model and observed values. Large residual covariances or patterns of residual covariances where one indicator fails to fit well with many others also represent potential sources of model misfit. The five largest residual covariances in this sample are between items ASB14 and ASB21 (= 0.318), ASB4 and ASB15 (= -0.321), ASB6 and ASB14 (= -0.334), ASB7 and ASB11 (= -0.348), and ASB6 and ASB10 (= -0.495) (see Appendix J).
Table 17

Model Results for RC4 Antisocial Behavior, Female Sample

<table>
<thead>
<tr>
<th>Factor or Item (MMPI-2 Item)</th>
<th>Estimate</th>
<th>Standard Error</th>
<th>Estimate / Standard Error</th>
<th>Standardized Estimate</th>
<th>Residual Variance</th>
<th>R-Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factor Variance</td>
<td>0.200</td>
<td>0.042</td>
<td>4.767</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ASB1 (021)*</td>
<td>1.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.447</td>
<td>0.800</td>
<td>0.200</td>
</tr>
<tr>
<td>ASB 2 (035)</td>
<td>1.419</td>
<td>0.156</td>
<td>9.085</td>
<td>0.634</td>
<td>0.597</td>
<td>0.403</td>
</tr>
<tr>
<td>ASB 3 (084)</td>
<td>1.665</td>
<td>0.187</td>
<td>8.920</td>
<td>0.744</td>
<td>0.446</td>
<td>0.554</td>
</tr>
<tr>
<td>ASB 4 (105)</td>
<td>1.592</td>
<td>0.185</td>
<td>8.584</td>
<td>0.711</td>
<td>0.494</td>
<td>0.506</td>
</tr>
<tr>
<td>ASB 5 (202)</td>
<td>1.448</td>
<td>0.177</td>
<td>8.168</td>
<td>0.647</td>
<td>0.581</td>
<td>0.419</td>
</tr>
<tr>
<td>ASB 6 (240)</td>
<td>1.368</td>
<td>0.225</td>
<td>6.066</td>
<td>0.611</td>
<td>0.626</td>
<td>0.374</td>
</tr>
<tr>
<td>ASB 7 (264)</td>
<td>1.460</td>
<td>0.181</td>
<td>8.078</td>
<td>0.653</td>
<td>0.574</td>
<td>0.426</td>
</tr>
<tr>
<td>ASB 8 (362)</td>
<td>1.100</td>
<td>0.138</td>
<td>7.984</td>
<td>0.492</td>
<td>0.758</td>
<td>0.242</td>
</tr>
<tr>
<td>ASB 9 (379)</td>
<td>0.754</td>
<td>0.149</td>
<td>5.076</td>
<td>0.337</td>
<td>0.886</td>
<td>0.114</td>
</tr>
<tr>
<td>ASB 10 (412)</td>
<td>1.435</td>
<td>0.172</td>
<td>8.345</td>
<td>0.642</td>
<td>0.588</td>
<td>0.412</td>
</tr>
<tr>
<td>ASB 11 (431)</td>
<td>1.303</td>
<td>0.225</td>
<td>5.787</td>
<td>0.582</td>
<td>0.661</td>
<td>0.339</td>
</tr>
<tr>
<td>ASB 12 (487)</td>
<td>1.293</td>
<td>0.168</td>
<td>7.710</td>
<td>0.578</td>
<td>0.666</td>
<td>0.334</td>
</tr>
<tr>
<td>ASB 13 (489)</td>
<td>1.657</td>
<td>0.223</td>
<td>7.431</td>
<td>0.741</td>
<td>0.451</td>
<td>0.549</td>
</tr>
<tr>
<td>ASB 14 (511)</td>
<td>1.489</td>
<td>0.224</td>
<td>6.658</td>
<td>0.666</td>
<td>0.557</td>
<td>0.443</td>
</tr>
<tr>
<td>ASB 15 (540)</td>
<td>1.474</td>
<td>0.249</td>
<td>5.928</td>
<td>0.659</td>
<td>0.566</td>
<td>0.434</td>
</tr>
<tr>
<td>ASB 16 (548)</td>
<td>1.417</td>
<td>0.223</td>
<td>6.344</td>
<td>0.633</td>
<td>0.599</td>
<td>0.401</td>
</tr>
<tr>
<td>ASB 17 (034)</td>
<td>0.954</td>
<td>0.160</td>
<td>5.946</td>
<td>0.426</td>
<td>0.818</td>
<td>0.182</td>
</tr>
<tr>
<td>ASB 18 (083)</td>
<td>0.916</td>
<td>0.147</td>
<td>6.245</td>
<td>0.410</td>
<td>0.832</td>
<td>0.168</td>
</tr>
<tr>
<td>ASB 19 (160)</td>
<td>1.149</td>
<td>0.158</td>
<td>7.276</td>
<td>0.514</td>
<td>0.736</td>
<td>0.264</td>
</tr>
<tr>
<td>ASB 20 (266)</td>
<td>1.350</td>
<td>0.165</td>
<td>8.166</td>
<td>0.603</td>
<td>0.636</td>
<td>0.364</td>
</tr>
<tr>
<td>ASB 21 (429)</td>
<td>1.293</td>
<td>0.149</td>
<td>8.692</td>
<td>0.578</td>
<td>0.666</td>
<td>0.334</td>
</tr>
<tr>
<td>ASB 22 (455)</td>
<td>0.871</td>
<td>0.151</td>
<td>5.766</td>
<td>0.389</td>
<td>0.848</td>
<td>0.152</td>
</tr>
</tbody>
</table>

*Note.* WLSMV estimation. ASB = Antisocial Behavior.
Male Sample

All fit statistics for the male sample meet cutoff criteria showing good overall fit between the model and the sample data (CFI = 0.962, TLI = 0.963, RMSEA = 0.040) (see Table 6). Statistics not used in evaluating model fit are SRMR = 0.121 and \( \chi^2_m = 83.332 \) (estimated df = 36, p < 0.0001) (see Tables 6 and 7).

A detailed inspection of the results provides further evidence of good fit between the scale and its items and identifies some potential areas of model misfit. Unstandardized factor loading estimate / standard error ratios represent statistical tests of the direct effects of the factor on its indicators. All unstandardized factor loading estimate / standard error ratios are \( \geq + 1.96 \) demonstrating that the factor explains a statistically significant amount of variance in all of its indicators (see Table 18).

Standardized factor loading estimates are the amount of change in the indicator in standard deviation units caused by a one standard deviation change in the factor. Standardized factor loadings range 0.161 (PER12) to 0.823 (PER3) showing that the factor has a small to large effect on its indicators. (see Table 18).

R-square values are the proportion of the variance in each indicator explained by the factor. Indicators with small associated R-square values represent a potential source of model misfit. R-square values in this analysis range from 0.026 (PER12) to 0.677 (PER3) (see Table 18). This shows that the factor explains only a small proportion of variance in some of its indicators. Indicators with small R-square values (< 0.30) include PER7 (= 0.174), PER12 (= 0.026), PER13 (= 0.270), and PER16 (= 0.203). These indicators represent potential sources of model misfit.
Residual covariances are the discrepancy between indicator covariances predicted by the model and observed values. Large residual covariances or patterns of residual covariances where one indicator fails to fit well with many others also represent potential sources of model misfit. The five largest residual covariances in this sample are between items PER1 and PER16 (= 0.314), PER12 and PER13 (= 0.330), PER8 and PER12 (0.365), PER6 and PER12 (= 0.398), and PER7 and PER12 (0.429) (see Appendix K).
Table 18  
_Model Results for RC6 Ideas of Persecution, Male Sample_

<table>
<thead>
<tr>
<th>Factor or Item (MMPI-2 Item)</th>
<th>Estimate</th>
<th>Standard Error</th>
<th>Estimate / Standard Error</th>
<th>Standardized Estimate</th>
<th>Residual Variance</th>
<th>R-Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>PER1 (024)*</td>
<td>1.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.666</td>
<td>0.557</td>
<td>0.443</td>
</tr>
<tr>
<td>PER 2 (042)</td>
<td>1.203</td>
<td>0.147</td>
<td>8.201</td>
<td>0.801</td>
<td>0.359</td>
<td>0.641</td>
</tr>
<tr>
<td>PER 3 (099)</td>
<td>1.237</td>
<td>0.153</td>
<td>8.088</td>
<td>0.823</td>
<td>0.323</td>
<td>0.677</td>
</tr>
<tr>
<td>PER 4 (138)</td>
<td>1.183</td>
<td>0.151</td>
<td>7.861</td>
<td>0.787</td>
<td>0.380</td>
<td>0.620</td>
</tr>
<tr>
<td>PER 5 (144)</td>
<td>1.001</td>
<td>0.139</td>
<td>7.217</td>
<td>0.666</td>
<td>0.556</td>
<td>0.444</td>
</tr>
<tr>
<td>PER 6 (145)</td>
<td>1.127</td>
<td>0.142</td>
<td>7.916</td>
<td>0.750</td>
<td>0.438</td>
<td>0.562</td>
</tr>
<tr>
<td>PER 7 (162)</td>
<td>0.628</td>
<td>0.180</td>
<td>3.479</td>
<td>0.418</td>
<td>0.826</td>
<td>0.174</td>
</tr>
<tr>
<td>PER 8 (216)</td>
<td>0.922</td>
<td>0.165</td>
<td>5.588</td>
<td>0.614</td>
<td>0.623</td>
<td>0.377</td>
</tr>
<tr>
<td>PER 9 (228)</td>
<td>1.093</td>
<td>0.141</td>
<td>7.756</td>
<td>0.727</td>
<td>0.471</td>
<td>0.529</td>
</tr>
<tr>
<td>PER 10 (259)</td>
<td>1.234</td>
<td>0.161</td>
<td>7.673</td>
<td>0.822</td>
<td>0.325</td>
<td>0.675</td>
</tr>
<tr>
<td>PER 11 (333)</td>
<td>1.184</td>
<td>0.153</td>
<td>7.733</td>
<td>0.788</td>
<td>0.379</td>
<td>0.621</td>
</tr>
<tr>
<td>PER 12 (336)</td>
<td>0.242</td>
<td>0.123</td>
<td>1.972</td>
<td>0.161</td>
<td>0.974</td>
<td>0.026</td>
</tr>
<tr>
<td>PER 13 (355)</td>
<td>0.780</td>
<td>0.188</td>
<td>4.159</td>
<td>0.519</td>
<td>0.730</td>
<td>0.270</td>
</tr>
<tr>
<td>PER 14 (361)</td>
<td>1.011</td>
<td>0.151</td>
<td>6.698</td>
<td>0.673</td>
<td>0.547</td>
<td>0.453</td>
</tr>
<tr>
<td>PER 15 (484)</td>
<td>1.085</td>
<td>0.144</td>
<td>7.527</td>
<td>0.722</td>
<td>0.479</td>
<td>0.521</td>
</tr>
<tr>
<td>PER 16 (490)</td>
<td>0.678</td>
<td>0.097</td>
<td>6.993</td>
<td>0.451</td>
<td>0.797</td>
<td>0.203</td>
</tr>
<tr>
<td>PER 17 (314)</td>
<td>0.904</td>
<td>0.125</td>
<td>7.249</td>
<td>0.601</td>
<td>0.638</td>
<td>0.362</td>
</tr>
</tbody>
</table>

*Note.* WLSMV estimation. PER = Ideas of Persecution.
**Female Sample**

With the female sample, TLI and RMSEA fit statistics meet cutoff criteria but the CFI fit statistic does not, but come close (CFI = 0.944, TLI = 0.955, RMSEA = 0.042) (see Table 6). This shows generally good overall fit between the model and the sample data. Statistics not used in evaluating model fit are SRMR = 0.127 and $\chi^2_m = 78.195$ (estimated df = 32, p < 0.0001) (see Tables 6 and 7).

A detailed inspection of the results provides further evidence of good fit between the scale and its items and identifies potential areas of model misfit. Unstandardized factor loading estimate / standard error ratios represent statistical tests of the direct effects of the factor on its indicators. All unstandardized factor loading estimate / standard error ratios are $\pm 1.96$ demonstrating that the factor explains a statistically significant amount of variance in all of its indicators (see Table 19).

Standardized factor loading estimates are the amount of change in the indicator in standard deviation units caused by a one standard deviation change in the factor. Standardized factor loadings range from -0.003 (PER12) to 0.991 (PER4) (see Table 19).

R-square values are the proportion of the variance in each indicator explained by the factor. Indicators with small associated R-square values represent a potential source of model misfit. R-square values in this analysis range from 0.001 (PER12) to 0.982 (PER4) (see Table 19). This shows that the factor explains only a small proportion of variance in some of the indicators. Indicators with small R-square values ($< 0.30$) include PER1 ($= 0.150$), PER12 ($= 0.001$), and PER16 ($= 0.142$). These indicators represent a potential source of model misfit.
Residual covariances are the discrepancy between indicator covariances predicted by the model and observed values. Large residual covariances or patterns of residual covariances where one indicator fails to fit well with many others also represent potential sources of model misfit. The five largest residual covariances in this sample are between items PER7 and PER13 (= 0.260), PER5 and PER15 (= -0.312), PER9 and PER12 (= 0.364), PER8 and PER12 (= 0.414), and PER7 and PER12 (0.591) (see Appendix L).
Table 19

_Model Results for RC6 Ideas of Persecution, Female Sample_

<table>
<thead>
<tr>
<th>Factor or Item (MMPI-2 Item)</th>
<th>Estimate</th>
<th>Standard Error</th>
<th>Estimate / Standard Error</th>
<th>Standardized Estimate</th>
<th>Residual Variance</th>
<th>R-Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factor Variance</td>
<td>0.150</td>
<td>0.072</td>
<td>2.073</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PER1 (024)*</td>
<td>1.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.387</td>
<td>0.850</td>
<td>0.150</td>
</tr>
<tr>
<td>PER 2 (042)</td>
<td>1.967</td>
<td>0.493</td>
<td>3.990</td>
<td>0.762</td>
<td>0.419</td>
<td>0.581</td>
</tr>
<tr>
<td>PER 3 (099)</td>
<td>2.182</td>
<td>0.527</td>
<td>4.139</td>
<td>0.845</td>
<td>0.285</td>
<td>0.715</td>
</tr>
<tr>
<td>PER 4 (138)</td>
<td>2.559</td>
<td>0.620</td>
<td>4.126</td>
<td>0.991</td>
<td>0.018</td>
<td>0.982</td>
</tr>
<tr>
<td>PER 5 (144)</td>
<td>1.733</td>
<td>0.434</td>
<td>3.996</td>
<td>0.672</td>
<td>0.549</td>
<td>0.451</td>
</tr>
<tr>
<td>PER 6 (145)</td>
<td>1.922</td>
<td>0.475</td>
<td>4.046</td>
<td>0.745</td>
<td>0.446</td>
<td>0.554</td>
</tr>
<tr>
<td>PER 7 (162)</td>
<td>1.782</td>
<td>0.629</td>
<td>2.834</td>
<td>0.690</td>
<td>0.523</td>
<td>0.477</td>
</tr>
<tr>
<td>PER 8 (216)</td>
<td>1.728</td>
<td>0.554</td>
<td>3.120</td>
<td>0.669</td>
<td>0.552</td>
<td>0.448</td>
</tr>
<tr>
<td>PER 9 (228)</td>
<td>1.439</td>
<td>0.437</td>
<td>3.295</td>
<td>0.558</td>
<td>0.689</td>
<td>0.311</td>
</tr>
<tr>
<td>PER 10 (259)</td>
<td>1.910</td>
<td>0.467</td>
<td>4.087</td>
<td>0.740</td>
<td>0.453</td>
<td>0.547</td>
</tr>
<tr>
<td>PER 11 (333)</td>
<td>1.724</td>
<td>0.415</td>
<td>4.156</td>
<td>0.668</td>
<td>0.554</td>
<td>0.446</td>
</tr>
<tr>
<td>PER 12 (336)</td>
<td>0.086</td>
<td>0.233</td>
<td>-0.367</td>
<td>-0.033</td>
<td>0.999</td>
<td>0.001</td>
</tr>
<tr>
<td>PER 13 (355)</td>
<td>1.540</td>
<td>0.434</td>
<td>3.545</td>
<td>0.596</td>
<td>0.644</td>
<td>0.356</td>
</tr>
<tr>
<td>PER 14 (361)</td>
<td>1.878</td>
<td>0.472</td>
<td>3.978</td>
<td>0.727</td>
<td>0.471</td>
<td>0.529</td>
</tr>
<tr>
<td>PER 15 (484)</td>
<td>1.445</td>
<td>0.428</td>
<td>3.378</td>
<td>0.560</td>
<td>0.687</td>
<td>0.313</td>
</tr>
<tr>
<td>PER 16 (490)</td>
<td>0.974</td>
<td>0.284</td>
<td>3.429</td>
<td>0.377</td>
<td>0.858</td>
<td>0.142</td>
</tr>
<tr>
<td>PER 17 (314)</td>
<td>1.629</td>
<td>0.419</td>
<td>3.892</td>
<td>0.631</td>
<td>0.602</td>
<td>0.398</td>
</tr>
</tbody>
</table>

*Note.* WLSMV estimation. PER = Ideas of Persecution.
Male Sample

All fit statistics for the male sample meet cutoff criteria showing good overall fit between the model and the sample data (CFI = 0.966, TLI = 0.986, RMSEA = 0.040) (see Table 6). Statistics not used in evaluating model fit are SRMR = 0.059 and \(\chi^2_m = 295.676\) (estimated df = 130, \(p < 0.0001\)) (see Tables 6 and 7).

A detailed inspection of the results provides further evidence of good fit between the scale and its items. Unstandardized factor loading estimate / standard error ratios represent statistical tests of the direct effects of the factor on its indicators. All unstandardized factor loading estimate / standard error ratios are \(\geq +1.96\) demonstrating that the factor explains a statistically significant amount of variance in all of its indicators (see Table 20).

Standardized factor loading estimates are the amount of change in the indicator in standard deviation units caused by a one standard deviation change in the factor. Standardized factor loadings range from 0.598 (DNE10) to 0.846 (DNE20) (see Table 20).

R-square values are the proportion of the variance in each indicator explained by the factor. Indicators with small associated R-square values represent a potential source of model misfit. R-square values in this analysis range from 0.358 (DNE10) to 0.716 (DNE20) (see Table 20). This shows that the factor explains at least a moderate proportion of variance (> 0.30) in all of its indicators. Indicators with small associated observed R-square values represent a potential source of model misfit.
Residual covariances are the discrepancy between indicator covariances predicted by the model and observed values. Large residual covariances or patterns of residual covariances where one indicator fails to fit well with many others also represent potential sources of model misfit. The five largest residual covariances in this sample are between items DNE6 and DNE11 (= -0.156), DNE8 and DNE22 (= 0.158), DNE1 and DNE23 (= 0.169), DNE3 and DNE6 (= 0.182), and DNE1 and DNE13 (= -0.201) (see Appendix M).
### Table 20

Model Results for RC7 Dysfunctional Negative Emotions, Male Sample

<table>
<thead>
<tr>
<th>Factor or Item (MMPI-2 Item)</th>
<th>Estimate</th>
<th>Standard Error</th>
<th>Estimate / Standard Error</th>
<th>Standardized Estimate</th>
<th>Residual Variance</th>
<th>R-Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factor</td>
<td>0.400</td>
<td>0.046</td>
<td>8.696</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DNE1 (037)*</td>
<td>1.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.633</td>
<td>0.600</td>
<td>0.400</td>
</tr>
<tr>
<td>DNE 2 (127)</td>
<td>1.089</td>
<td>0.078</td>
<td>13.928</td>
<td>0.689</td>
<td>0.525</td>
<td>0.475</td>
</tr>
<tr>
<td>DNE 3 (161)</td>
<td>1.034</td>
<td>0.084</td>
<td>12.337</td>
<td>0.654</td>
<td>0.573</td>
<td>0.427</td>
</tr>
<tr>
<td>DNE 4 (251)</td>
<td>1.200</td>
<td>0.079</td>
<td>15.190</td>
<td>0.759</td>
<td>0.424</td>
<td>0.576</td>
</tr>
<tr>
<td>DNE 5 (274)</td>
<td>1.231</td>
<td>0.083</td>
<td>14.886</td>
<td>0.779</td>
<td>0.394</td>
<td>0.606</td>
</tr>
<tr>
<td>DNE 6 (289)</td>
<td>1.048</td>
<td>0.084</td>
<td>12.452</td>
<td>0.663</td>
<td>0.561</td>
<td>0.439</td>
</tr>
<tr>
<td>DNE 7 (301)</td>
<td>1.106</td>
<td>0.075</td>
<td>14.807</td>
<td>0.699</td>
<td>0.511</td>
<td>0.489</td>
</tr>
<tr>
<td>DNE 8 (302)</td>
<td>1.199</td>
<td>0.074</td>
<td>16.250</td>
<td>0.758</td>
<td>0.425</td>
<td>0.575</td>
</tr>
<tr>
<td>DNE 9 (310)</td>
<td>0.953</td>
<td>0.093</td>
<td>10.239</td>
<td>0.603</td>
<td>0.637</td>
<td>0.363</td>
</tr>
<tr>
<td>DNE 10 (320)</td>
<td>0.946</td>
<td>0.090</td>
<td>10.519</td>
<td>0.598</td>
<td>0.642</td>
<td>0.358</td>
</tr>
<tr>
<td>DNE 11 (327)</td>
<td>1.245</td>
<td>0.087</td>
<td>14.386</td>
<td>0.787</td>
<td>0.380</td>
<td>0.620</td>
</tr>
<tr>
<td>DNE 12 (328)</td>
<td>1.219</td>
<td>0.082</td>
<td>14.938</td>
<td>0.771</td>
<td>0.406</td>
<td>0.594</td>
</tr>
<tr>
<td>DNE 13 (329)</td>
<td>1.208</td>
<td>0.098</td>
<td>12.342</td>
<td>0.764</td>
<td>0.416</td>
<td>0.584</td>
</tr>
<tr>
<td>DNE 14 (390)</td>
<td>1.014</td>
<td>0.079</td>
<td>12.837</td>
<td>0.641</td>
<td>0.589</td>
<td>0.411</td>
</tr>
<tr>
<td>DNE 15 (421)</td>
<td>1.047</td>
<td>0.089</td>
<td>11.725</td>
<td>0.662</td>
<td>0.561</td>
<td>0.439</td>
</tr>
<tr>
<td>DNE 16 (424)</td>
<td>1.224</td>
<td>0.084</td>
<td>14.627</td>
<td>0.774</td>
<td>0.401</td>
<td>0.599</td>
</tr>
</tbody>
</table>

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| DNE 17 (430) | 1.293 | 0.077 | 16.762 | 0.818 | 0.331 | 0.669 |
| DNE 18 (442) | 1.103 | 0.076 | 14.428 | 0.698 | 0.513 | 0.487 |
| DNE 19 (451) | 1.103 | 0.092 | 12.018 | 0.698 | 0.513 | 0.487 |
| DNE 20 (463) | 1.338 | 0.082 | 16.283 | 0.846 | 0.284 | 0.716 |
| DNE 21 (471) | 1.146 | 0.082 | 13.997 | 0.725 | 0.475 | 0.525 |
| DNE 22 (507) | 1.077 | 0.079 | 13.552 | 0.681 | 0.536 | 0.464 |
| DNE 23 (513) | 1.330 | 0.078 | 17.141 | 0.841 | 0.293 | 0.707 |
| DNE 24 (519) | 1.176 | 0.081 | 14.489 | 0.744 | 0.447 | 0.553 |

*Note.* WLSMV estimation. DNE = Dysfunctional Negative Emotions.
Female Sample

With the female sample, TLI and RMSEA fit statistics meet cutoff criteria but the CFI fit statistic does not, but comes close (CFI = 0.938, TLI = 0.968, RMSEA = 0.046) (see Table 6). This shows generally good overall fit between the model and the sample data. Statistics not used in evaluating model fit are SRMR = 0.078 and $\chi^2_m = 351.452$ (estimated df = 132, $p < 0.0001$) (see Tables 6 and 7).

A detailed inspection of the results provides further evidence of good fit between the scale and its items and identifies some potential areas of model misfit. Unstandardized factor loading estimate / standard error ratios represent statistical tests of the direct effects of the factor on its indicators. All unstandardized factor loading estimate / standard error ratios are $\geq +1.96$ demonstrating that the factor explains a statistically significant amount of variance in all of its indicators (see Table 21).

Standardized factor loading estimates are the amount of change in the indicator in standard deviation units caused by a one standard deviation change in the factor. Standardized factor loadings range from 0.463 (DNE10) to 0.792 (DNE20) (see Table 21).

R-square values are the proportion of the variance in each indicator explained by the factor. Indicators with small associated R-square values represent a potential source of model misfit. R-square values in this analysis range from 0.214 (DNE10) to 0.628 (DNE20) (see Table 21). This shows that the factor explains only a modest proportion of variance in some of its indicators. Indicators with small R-square values ($\leq 0.30$) include DNE3 (= 0.233), DNE10 (= 0.214), and DNE19 (= 0.282). These indicators represent a potential source of model misfit.
Residual covariances are the discrepancy between indicator covariances predicted by the model and observed values. Large residual covariances or patterns of residual covariances where one indicator fails to fit well with many others also represent potential sources of model misfit. The six largest residual covariances in this sample are between items DNE6 and DNE20 (= -0.176), DNE6 and DNE21 (= -0.176), DNE13 and DNE20 (= 0.184), DNE13 and DNE21 (= 0.261), DNE3 and DNE6 (= 0.311), and DNE13 and DNE15 (= -0.326) (see Appendix N).
Table 21

Model Results for RC7 Dysfunctional Negative Emotions, Female Sample

<table>
<thead>
<tr>
<th>Factor or Item (MMPI-2 Item)</th>
<th>Estimate</th>
<th>Standard Error</th>
<th>Estimate / Standard Error</th>
<th>Standardized Estimate</th>
<th>Residual Variance</th>
<th>R-Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factor Variance</td>
<td>0.435</td>
<td>0.051</td>
<td>8.599</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DNE1 (037)*</td>
<td>1.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.659</td>
<td>0.565</td>
<td>0.435</td>
</tr>
<tr>
<td>DNE 2 (127)</td>
<td>0.833</td>
<td>0.070</td>
<td>11.967</td>
<td>0.549</td>
<td>0.698</td>
<td>0.302</td>
</tr>
<tr>
<td>DNE 3 (161)</td>
<td>0.732</td>
<td>0.081</td>
<td>9.014</td>
<td>0.483</td>
<td>0.767</td>
<td>0.233</td>
</tr>
<tr>
<td>DNE 4 (251)</td>
<td>1.051</td>
<td>0.076</td>
<td>13.861</td>
<td>0.693</td>
<td>0.520</td>
<td>0.480</td>
</tr>
<tr>
<td>DNE 5 (274)</td>
<td>1.057</td>
<td>0.073</td>
<td>14.575</td>
<td>0.697</td>
<td>0.514</td>
<td>0.486</td>
</tr>
<tr>
<td>DNE 6 (289)</td>
<td>0.857</td>
<td>0.076</td>
<td>11.315</td>
<td>0.565</td>
<td>0.681</td>
<td>0.319</td>
</tr>
<tr>
<td>DNE 7 (301)</td>
<td>1.087</td>
<td>0.070</td>
<td>15.468</td>
<td>0.717</td>
<td>0.486</td>
<td>0.514</td>
</tr>
<tr>
<td>DNE 8 (302)</td>
<td>1.043</td>
<td>0.075</td>
<td>13.899</td>
<td>0.688</td>
<td>0.527</td>
<td>0.473</td>
</tr>
<tr>
<td>DNE 9 (310)</td>
<td>0.961</td>
<td>0.101</td>
<td>9.483</td>
<td>0.634</td>
<td>0.599</td>
<td>0.401</td>
</tr>
<tr>
<td>DNE 10 (320)</td>
<td>0.702</td>
<td>0.084</td>
<td>8.329</td>
<td>0.463</td>
<td>0.786</td>
<td>0.214</td>
</tr>
<tr>
<td>DNE 11 (327)</td>
<td>0.927</td>
<td>0.102</td>
<td>9.124</td>
<td>0.611</td>
<td>0.626</td>
<td>0.374</td>
</tr>
<tr>
<td>DNE 12 (328)</td>
<td>1.102</td>
<td>0.078</td>
<td>14.117</td>
<td>0.727</td>
<td>0.472</td>
<td>0.528</td>
</tr>
<tr>
<td>DNE 13 (329)</td>
<td>0.936</td>
<td>0.101</td>
<td>9.248</td>
<td>0.617</td>
<td>0.620</td>
<td>0.380</td>
</tr>
<tr>
<td>DNE 14 (390)</td>
<td>0.889</td>
<td>0.076</td>
<td>11.766</td>
<td>0.586</td>
<td>0.657</td>
<td>0.343</td>
</tr>
<tr>
<td>DNE 15 (421)</td>
<td>0.908</td>
<td>0.084</td>
<td>10.827</td>
<td>0.599</td>
<td>0.642</td>
<td>0.358</td>
</tr>
<tr>
<td>DNE 16 (424)</td>
<td>1.062</td>
<td>0.081</td>
<td>13.133</td>
<td>0.700</td>
<td>0.509</td>
<td>0.491</td>
</tr>
</tbody>
</table>

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| DNE 17 (430) | 1.158 | 0.078 | 14.882 | 0.763 | 0.417 | 0.583 |
| DNE 18 (442) | 0.941 | 0.070 | 13.531 | 0.621 | 0.615 | 0.385 |
| DNE 19 (451) | 0.805 | 0.102 | 7.894  | 0.531 | 0.718 | 0.282 |
| DNE 20 (463) | 1.202 | 0.081 | 14.919 | 0.792 | 0.372 | 0.628 |
| DNE 21 (471) | 0.986 | 0.083 | 11.902 | 0.650 | 0.578 | 0.422 |
| DNE 22 (507) | 1.056 | 0.075 | 14.012 | 0.696 | 0.516 | 0.484 |
| DNE 23 (513) | 1.169 | 0.076 | 15.413 | 0.770 | 0.406 | 0.594 |
| DNE 24 (519) | 1.034 | 0.076 | 13.582 | 0.681 | 0.536 | 0.464 |

Note. WLSMV estimation. DNE = Dysfunctional Negative Emotions.
**RC8 Aberrant Experiences**

**Male Sample**

All fit statistics for the male sample meet cutoff criteria showing good overall fit between the model and the sample data (CFI = 0.961, TLI = 0.980, RMSEA = 0.035) (see Table 6). Statistics not used in evaluating model fit are SRMR = 0.071 and $\chi^2_m = 149.140$ (estimated df = 75, p < 0.0001) (see Tables 6 and 7).

A detailed inspection of the results provides further evidence of good fit between the scale and its items and identifies some potential areas of model misfit. Unstandardized factor loading estimate / standard error ratios represent statistical tests of the direct effects of the factor on its indicators. All unstandardized factor loading estimate / standard error ratios are $\geq +1.96$ demonstrating that the factor explains a statistically significant amount of variance in all of its indicators (see Table 22).

Standardized factor loading estimates are the amount of change in the indicator in standard deviation units caused by a one standard deviation change in the factor. Standardized factor loadings range from 0.513 (ABX18) to 0.940 (ABX14) (see Table 22).

R-square values are the proportion of the variance in each indicator explained by the factor. Indicators with small associated R-square values represent a potential source of model misfit. R-square values in this analysis range from 0.263 (ABX18) to 0.883 (ABX14) (see Table 22). This shows that the factor explains only a modest proportion of variance in some of its indicators. Indicators with small R-square values ($\leq 0.30$) include ABX9 ($= 0.272$), ABX15 ($= 0.279$), and ABX18 ($= 0.263$). These indicators represent a potential source of model misfit.
Residual covariances are the discrepancy between indicator covariances predicted by the model and observed values. Large residual covariances or patterns of residual covariances where one indicator fails to fit well with many others also represent potential sources of model misfit. The five largest residual covariances in this sample are between items ABX3 and ABX5 (= -0.146), ABX1 and ABX13 (= 0.178), ABX5 and ABX8 (= 0.180), ABX15 and ABX16 (= 0.192), and ABX4 and ABX16 (= 0.195) (see Appendix O).
<table>
<thead>
<tr>
<th>Factor or Item (MMPI-2 Item)</th>
<th>Estimate</th>
<th>Standard Error</th>
<th>Estimate / Standard Error</th>
<th>Standardized Estimate</th>
<th>Residual Variance</th>
<th>R-Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Variance</td>
<td>0.430</td>
<td>0.055</td>
<td>7.825</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ABX1 (032)*</td>
<td>1.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.656</td>
<td>0.570</td>
<td>0.430</td>
</tr>
<tr>
<td>ABX 2 (060)</td>
<td>1.055</td>
<td>0.102</td>
<td>10.360</td>
<td>0.692</td>
<td>0.522</td>
<td>0.478</td>
</tr>
<tr>
<td>ABX 3 (072)</td>
<td>1.088</td>
<td>0.098</td>
<td>11.058</td>
<td>0.713</td>
<td>0.491</td>
<td>0.509</td>
</tr>
<tr>
<td>ABX 4 (096)</td>
<td>0.854</td>
<td>0.134</td>
<td>6.389</td>
<td>0.560</td>
<td>0.687</td>
<td>0.313</td>
</tr>
<tr>
<td>ABX 5 (168)</td>
<td>1.044</td>
<td>0.098</td>
<td>10.682</td>
<td>0.684</td>
<td>0.532</td>
<td>0.468</td>
</tr>
<tr>
<td>ABX 6 (182)</td>
<td>1.046</td>
<td>0.118</td>
<td>8.894</td>
<td>0.686</td>
<td>0.530</td>
<td>0.470</td>
</tr>
<tr>
<td>ABX 7 (198)</td>
<td>1.344</td>
<td>0.108</td>
<td>12.456</td>
<td>0.881</td>
<td>0.223</td>
<td>0.777</td>
</tr>
<tr>
<td>ABX 8 (229)</td>
<td>1.227</td>
<td>0.095</td>
<td>12.976</td>
<td>0.805</td>
<td>0.353</td>
<td>0.647</td>
</tr>
<tr>
<td>ABX 9 (296)</td>
<td>0.796</td>
<td>0.105</td>
<td>7.611</td>
<td>0.522</td>
<td>0.728</td>
<td>0.272</td>
</tr>
<tr>
<td>ABX 10 (298)</td>
<td>1.026</td>
<td>0.098</td>
<td>10.490</td>
<td>0.673</td>
<td>0.547</td>
<td>0.453</td>
</tr>
<tr>
<td>ABX 11 (307)</td>
<td>0.980</td>
<td>0.100</td>
<td>9.797</td>
<td>0.642</td>
<td>0.587</td>
<td>0.413</td>
</tr>
<tr>
<td>ABX 12 (311)</td>
<td>1.152</td>
<td>0.103</td>
<td>11.168</td>
<td>0.755</td>
<td>0.430</td>
<td>0.570</td>
</tr>
<tr>
<td>ABX 13 (316)</td>
<td>1.210</td>
<td>0.082</td>
<td>14.686</td>
<td>0.793</td>
<td>0.371</td>
<td>0.629</td>
</tr>
<tr>
<td>ABX 14 (319)</td>
<td>1.434</td>
<td>0.102</td>
<td>13.988</td>
<td>0.940</td>
<td>0.117</td>
<td>0.883</td>
</tr>
<tr>
<td>ABX 15 (466)</td>
<td>0.805</td>
<td>0.095</td>
<td>8.473</td>
<td>0.528</td>
<td>0.721</td>
<td>0.279</td>
</tr>
<tr>
<td>ABX 16 (508)</td>
<td>0.918</td>
<td>0.099</td>
<td>9.231</td>
<td>0.602</td>
<td>0.638</td>
<td>0.362</td>
</tr>
<tr>
<td>ABX 17 (551)</td>
<td>1.150</td>
<td>0.100</td>
<td>11.483</td>
<td>0.754</td>
<td>0.432</td>
<td>0.568</td>
</tr>
<tr>
<td>ABX 18 (427)</td>
<td>0.782</td>
<td>0.082</td>
<td>9.595</td>
<td>0.513</td>
<td>0.737</td>
<td>0.263</td>
</tr>
</tbody>
</table>

*Note.* WLSMV estimation. ABX = Aberrant Experiences.
**Female Sample**

With the women's sample, the RMSEA fit statistic meets cutoff criteria but the CFI and TLI fit statistics do not, but come close (CFI = 0.925, TLI = 0.947, RMSEA = 0.004) (see Table 6). This shows generally good overall fit between the model and the sample data. Statistics not used in evaluating model fit are SRMR = 0.097 and $\chi^2_m = 147.140$ (estimated df = 65, $p < 0.0001$) (see Tables 6 and 7).

A detailed inspection of the results provides further evidence of good fit between the scale and its items and identifies some potential areas of model misfit.

Unstandardized factor loading estimate / standard error ratios represent statistical tests of the direct effects of the factor on its indicators. All unstandardized factor loading estimate / standard error ratios are $\geq +1.96$ demonstrating that the factor explains a statistically significant amount of variance in all of its indicators (see Table 23).

Standardized factor loading estimates are the amount of change in the indicator in standard deviation units caused by a one standard deviation change in the factor. Standardized factor loadings range from 0.487 (ABX4) to 0.831 (ABX7) (see Table 23).

R-square values are the proportion of the variance in each indicator explained by the factor. Indicators with small associated R-square values represent a potential source of model misfit. R-square values in this analysis range from 0.237 (ABX4) to 0.691 (ABX7) (see Table 23). This shows that the factor explains only a modest proportion of variance in some of its indicators. Indicators with small R-square values ($\leq 0.30$) include ABX4 (= 0.237), ABX6 (= 0.241), ABX15 (= 0.270), and ABX18 (= 0.279). These indicators represent a potential source of model misfit.
Residual covariances are the discrepancy between indicator covariances predicted by the model and observed values. Large residual covariances or patterns of residual covariances where one indicator fails to fit well with many others also represent potential sources of model misfit. The five largest residual covariances in this sample are between items ABX7 and ABX14 (0.216), ABX3 and ABX17 (-0.236), ABX5 and ABX8 (0.257), ABX5 and ABX7 (-0.320), and ABX1 and ABX7 (-0.360) (see Appendix P).
Table 23

Model Results for RC8 Aberrant Experiences, Female Sample

<table>
<thead>
<tr>
<th>Factor or Item (MMPI-2 Item)</th>
<th>Estimate</th>
<th>Standard Error</th>
<th>Estimate / Standard Error</th>
<th>Standardized Estimate</th>
<th>Residual Variance</th>
<th>R-Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factor Variance</td>
<td>0.300</td>
<td>0.053</td>
<td>5.642</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ABX1 (032)*</td>
<td>1.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.548</td>
<td>0.700</td>
<td>0.300</td>
</tr>
<tr>
<td>ABX 2 (060)</td>
<td>1.025</td>
<td>0.159</td>
<td>6.450</td>
<td>0.562</td>
<td>0.684</td>
<td>0.316</td>
</tr>
<tr>
<td>ABX 3 (072)</td>
<td>1.153</td>
<td>0.155</td>
<td>7.442</td>
<td>0.632</td>
<td>0.601</td>
<td>0.399</td>
</tr>
<tr>
<td>ABX 4 (096)</td>
<td>0.889</td>
<td>0.184</td>
<td>4.827</td>
<td>0.487</td>
<td>0.783</td>
<td>0.237</td>
</tr>
<tr>
<td>ABX 5 (168)</td>
<td>1.283</td>
<td>0.125</td>
<td>10.274</td>
<td>0.703</td>
<td>0.506</td>
<td>0.494</td>
</tr>
<tr>
<td>ABX 6 (182)</td>
<td>0.895</td>
<td>0.146</td>
<td>6.151</td>
<td>0.491</td>
<td>0.759</td>
<td>0.241</td>
</tr>
<tr>
<td>ABX 7 (198)</td>
<td>1.516</td>
<td>0.189</td>
<td>8.019</td>
<td>0.831</td>
<td>0.309</td>
<td>0.691</td>
</tr>
<tr>
<td>ABX 8 (229)</td>
<td>1.213</td>
<td>0.139</td>
<td>8.713</td>
<td>0.665</td>
<td>0.558</td>
<td>0.442</td>
</tr>
<tr>
<td>ABX 9 (296)</td>
<td>1.128</td>
<td>0.120</td>
<td>9.367</td>
<td>0.618</td>
<td>0.618</td>
<td>0.382</td>
</tr>
<tr>
<td>ABX 10 (298)</td>
<td>1.258</td>
<td>0.140</td>
<td>8.977</td>
<td>0.690</td>
<td>0.524</td>
<td>0.476</td>
</tr>
<tr>
<td>ABX 11 (307)</td>
<td>1.078</td>
<td>0.132</td>
<td>8.146</td>
<td>0.591</td>
<td>0.651</td>
<td>0.349</td>
</tr>
<tr>
<td>ABX 12 (311)</td>
<td>1.119</td>
<td>0.155</td>
<td>7.238</td>
<td>0.613</td>
<td>0.624</td>
<td>0.376</td>
</tr>
<tr>
<td>ABX 13 (316)</td>
<td>1.363</td>
<td>0.144</td>
<td>9.489</td>
<td>0.747</td>
<td>0.442</td>
<td>0.558</td>
</tr>
<tr>
<td>ABX 14 (319)</td>
<td>1.393</td>
<td>0.168</td>
<td>8.297</td>
<td>0.763</td>
<td>0.417</td>
<td>0.583</td>
</tr>
<tr>
<td>ABX 15 (466)</td>
<td>0.948</td>
<td>0.124</td>
<td>7.630</td>
<td>0.519</td>
<td>0.730</td>
<td>0.270</td>
</tr>
<tr>
<td>ABX 16 (508)</td>
<td>1.244</td>
<td>0.137</td>
<td>9.060</td>
<td>0.682</td>
<td>0.535</td>
<td>0.465</td>
</tr>
<tr>
<td>ABX 17 (551)</td>
<td>1.299</td>
<td>0.148</td>
<td>8.805</td>
<td>0.712</td>
<td>0.493</td>
<td>0.507</td>
</tr>
<tr>
<td>ABX 18 (427)</td>
<td>0.963</td>
<td>0.121</td>
<td>7.962</td>
<td>0.528</td>
<td>0.721</td>
<td>0.279</td>
</tr>
</tbody>
</table>

Note. WLSMV estimation. ABX = Aberrant Experiences.
*RC9 HPM Hypomanic Activation*

*Male Sample*

All of the fit statistics for the male sample fail to meet cutoff criteria showing poor overall fit between the model and the sample data (CFI = 0.772, TLI = 0.851, RMSEA = 0.067) (see Table 6). Statistics not used in evaluating model fit are SRMR = 0.096 and $\chi^2_m = 858.064$ (estimated df = 187, p < 0.0001) (see Tables 6 and 7).

A detailed inspection of the results identifies potential areas of model misfit. Unstandardized factor loading estimate / standard error ratios represent statistical tests of the direct effects of the factor on its indicators. All unstandardized factor loading estimate / standard error ratios are ≥ + 1.96 demonstrating that the factor explains a statistically significant amount of variance in all of its indicators (see Table 24).

Standardized factor loading estimates are the amount of change in the indicator in standard deviation units caused by a one standard deviation change in the factor. Standardized factor loadings range from 0.201 (HPM28) to 0.803 (HPM18) showing that the factor has small to large effects on its indicators (see Table 24).

R-square values are the proportion of the variance in each indicator explained by the factor. Indicators with small associated R-square values represent a potential source of model misfit. R-square values in this analysis range from 0.040 (HPM28) to 0.645 (HPM18) (see Table 24). This shows that the factor explains only a small proportion of variance in some of its indicators. Indicators with small R-square values (< 0.30) include HPM2 (≈ 0.145), HPM4 (≈ 0.107), HPM5 (≈ 0.295), HPM7 (≈ 0.236), HPM8 (≈ 0.276), HPM9 (≈ 0.175), HPM10 (≈ 0.159), HPM11 (≈ 0.194), HPM12 (≈ 0.299), HPM13 (≈ 0.234), HPM15 (≈ 0.291), HPM16 (≈ 0.264), HPM17 (≈ 0.231), HPM19 (≈ 0.052),
HPM20 (= 0.239), HPM24 (= 0.182), and HPM28 (= 0.040). These indicators represent a potential source of model misfit.

Residual covariances are the discrepancy between indicator covariances predicted by the model and observed values. Large residual covariances or patterns of residual covariances where one indicator fails to fit well with many others also represent potential sources of model misfit. The five largest residual covariances in this sample are between items HPM13 and HPM22 (= -0.266), HPM9 and HPM10 (= 0.309), HPM4 and HPM9 (= 0.316), HPM2 and HPM20 (= 0.363), and HPM13 and HPM16 (= 0.468) (see Appendix Q).
Table 24

*Math Model Results for RC9 Hypomanic Activation, Male Sample*

<table>
<thead>
<tr>
<th>Factor or Item (MMPI-2 Item)</th>
<th>Estimate</th>
<th>Standard Error</th>
<th>Estimate / Standard Error</th>
<th>Standardized Estimate</th>
<th>Residual Variance</th>
<th>R-Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factor</td>
<td>0.345</td>
<td>0.049</td>
<td>6.994</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Variance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HPM1 (027)*</td>
<td>1.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.587</td>
<td>0.655</td>
<td>0.345</td>
</tr>
<tr>
<td>HPM 2 (050)</td>
<td>0.649</td>
<td>0.085</td>
<td>7.672</td>
<td>0.381</td>
<td>0.855</td>
<td>0.145</td>
</tr>
<tr>
<td>HPM 3 (055)</td>
<td>0.955</td>
<td>0.092</td>
<td>10.420</td>
<td>0.561</td>
<td>0.685</td>
<td>0.315</td>
</tr>
<tr>
<td>HPM 4 (086)</td>
<td>0.557</td>
<td>0.088</td>
<td>6.301</td>
<td>0.327</td>
<td>0.893</td>
<td>0.107</td>
</tr>
<tr>
<td>HPM 5 (122)</td>
<td>0.924</td>
<td>0.103</td>
<td>9.015</td>
<td>0.543</td>
<td>0.705</td>
<td>0.295</td>
</tr>
<tr>
<td>HPM 6 (134)</td>
<td>1.117</td>
<td>0.104</td>
<td>10.788</td>
<td>0.656</td>
<td>0.570</td>
<td>0.430</td>
</tr>
<tr>
<td>HPM 7 (153)</td>
<td>0.827</td>
<td>0.095</td>
<td>8.661</td>
<td>0.486</td>
<td>0.764</td>
<td>0.236</td>
</tr>
<tr>
<td>HPM 8 (169)</td>
<td>0.895</td>
<td>0.092</td>
<td>9.750</td>
<td>0.526</td>
<td>0.724</td>
<td>0.276</td>
</tr>
<tr>
<td>HPM 9 (189)</td>
<td>0.712</td>
<td>0.083</td>
<td>8.559</td>
<td>0.418</td>
<td>0.825</td>
<td>0.175</td>
</tr>
<tr>
<td>HPM 10 (209)</td>
<td>0.679</td>
<td>0.086</td>
<td>7.923</td>
<td>0.399</td>
<td>0.841</td>
<td>0.159</td>
</tr>
<tr>
<td>HPM 11 (212)</td>
<td>0.750</td>
<td>0.092</td>
<td>8.161</td>
<td>0.441</td>
<td>0.806</td>
<td>0.194</td>
</tr>
<tr>
<td>HPM 12 (213)</td>
<td>0.932</td>
<td>0.090</td>
<td>10.397</td>
<td>0.547</td>
<td>0.701</td>
<td>0.299</td>
</tr>
<tr>
<td>HPM 13 (226)</td>
<td>0.823</td>
<td>0.095</td>
<td>8.701</td>
<td>0.484</td>
<td>0.766</td>
<td>0.234</td>
</tr>
<tr>
<td>HPM 14 (242)</td>
<td>0.952</td>
<td>0.097</td>
<td>9.828</td>
<td>0.559</td>
<td>0.688</td>
<td>0.312</td>
</tr>
<tr>
<td>HPM 15 (250)</td>
<td>0.918</td>
<td>0.093</td>
<td>9.831</td>
<td>0.539</td>
<td>0.709</td>
<td>0.291</td>
</tr>
</tbody>
</table>

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<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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</tr>
<tr>
<td>HPM 16 (267)</td>
<td>0.875</td>
<td>0.092</td>
<td>9.491</td>
<td>0.514</td>
<td>0.736</td>
</tr>
<tr>
<td>HPM 17 (304)</td>
<td>0.819</td>
<td>0.089</td>
<td>9.152</td>
<td>0.481</td>
<td>0.769</td>
</tr>
<tr>
<td>HPM 18 (324)</td>
<td>1.368</td>
<td>0.129</td>
<td>10.608</td>
<td>0.803</td>
<td>0.355</td>
</tr>
<tr>
<td>HPM 19 (345)</td>
<td>0.388</td>
<td>0.087</td>
<td>4.435</td>
<td>0.228</td>
<td>0.948</td>
</tr>
<tr>
<td>HPM 20 (346)</td>
<td>0.833</td>
<td>0.086</td>
<td>9.658</td>
<td>0.489</td>
<td>0.761</td>
</tr>
<tr>
<td>HPM 21 (366)</td>
<td>1.002</td>
<td>0.106</td>
<td>9.415</td>
<td>0.589</td>
<td>0.654</td>
</tr>
<tr>
<td>HPM 22 (389)</td>
<td>1.150</td>
<td>0.101</td>
<td>11.402</td>
<td>0.675</td>
<td>0.544</td>
</tr>
<tr>
<td>HPM 23 (393)</td>
<td>1.089</td>
<td>0.092</td>
<td>11.785</td>
<td>0.639</td>
<td>0.591</td>
</tr>
<tr>
<td>HPM 24 (406)</td>
<td>0.727</td>
<td>0.086</td>
<td>8.410</td>
<td>0.427</td>
<td>0.818</td>
</tr>
<tr>
<td>HPM 25 (414)</td>
<td>0.967</td>
<td>0.087</td>
<td>11.152</td>
<td>0.568</td>
<td>0.678</td>
</tr>
<tr>
<td>HPM 26 (423)</td>
<td>1.202</td>
<td>0.100</td>
<td>12.059</td>
<td>0.706</td>
<td>0.502</td>
</tr>
<tr>
<td>HPM 27 (542)</td>
<td>1.136</td>
<td>0.093</td>
<td>12.232</td>
<td>0.667</td>
<td>0.555</td>
</tr>
<tr>
<td>HPM 28 (100)</td>
<td>0.342</td>
<td>0.083</td>
<td>4.102</td>
<td>0.201</td>
<td>0.960</td>
</tr>
</tbody>
</table>

Note. WLSMV estimation. HPM = Hypomanic Activation.
Female Sample

With the women's sample, the RMSEA fit statistic meets cutoff criteria but the CFI and TLI fit statistics do not (CFI = 0.739, TLI = 0.787, RMSEA = 0.059) (see Table 6). This shows generally poor overall fit between the model and the sample data. Statistics not used in evaluating model fit are SRMR = 0.104 and $\chi^2_m = 647.642$ (estimated df = 173, p < 0.0001) (see Tables 6 and 7).

A detailed inspection of the results identifies potential areas of model misfit. Unstandardized factor loading estimate / standard error ratios represent statistical tests of the direct effects of the factor on its indicators. All unstandardized factor loading estimate / standard error ratios are ≥ + 1.96 demonstrating that the factor explains a statistically significant amount of variance in all of its indicators (see Table 25).

Standardized factor loading estimates are the amount of change in the indicator in standard deviation units caused by a one standard deviation change in the factor. Standardized factor loadings range from 0.258 (HPM19) to 0.723 (HPM18) (see Table 25).

R-square values are the proportion of the variance in each indicator explained by the factor. Indicators with small associated R-square values represent a potential source of model misfit. R-square values in this analysis range from 0.067 (HPM19) to 0.523 (HPM18) (see Table 25). This shows that the factor explains only a modest proportion of variance in some of its indicators. Indicators with small R-square values (< 0.30) include HPM1 (= 0.290), HPM2 (= 0.136), HPM3 (= 0.188), HPM4 (= 0.096), HPM5 (= 0.229), HPM7 (= 0.144), HPM8 (= 0.223), HPM9 (= 0.220), HPM10 (= 0.158), HPM11 (= 0.098), HPM12 (= 0.190), HPM14 (= 0.220), HPM16 (= 0.278), HPM17 (= 0.238),
HPM19 (= 0.067), HPM20 (0.0185), HPM24 (= 0.171), HPM25 (= 0.227), HPM26 (= 0.239), HPM27 (= 0.289), and HPM28 (= 0.106).

Residual covariances are the discrepancy between indicator covariances predicted by the model and observed values. Large residual covariances or patterns of residual covariances where one indicator fails to fit well with many others also represent potential sources of model misfit. The five largest residual covariances in this sample are between items HPM4 and HPM8 (= 0.303), HPM2 and HPM20 (= 0.306), HPM6 and HPM19 (= 0.321), HPM13 and HPM16 (= 0.369), and HPM9 and HPM10 (= 0.371) (see Appendix R).
Table 25

Model Results for RC9 Hypomanic Activation, Female Sample

<table>
<thead>
<tr>
<th>Factor or Item (MMPI-2 Item)</th>
<th>Estimate</th>
<th>Standard Error</th>
<th>Estimate / Standard Error</th>
<th>Standardized Estimate</th>
<th>Residual Variance</th>
<th>R-Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factor Variance</td>
<td>0.290</td>
<td>0.061</td>
<td>4.746</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HPM1 (027)*</td>
<td>1.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.539</td>
<td>0.710</td>
<td>0.290</td>
</tr>
<tr>
<td>HPM 2 (050)</td>
<td>0.684</td>
<td>0.109</td>
<td>6.280</td>
<td>0.369</td>
<td>0.864</td>
<td>0.136</td>
</tr>
<tr>
<td>HPM 3 (055)</td>
<td>0.805</td>
<td>0.123</td>
<td>6.561</td>
<td>0.434</td>
<td>0.812</td>
<td>0.188</td>
</tr>
<tr>
<td>HPM 4 (086)</td>
<td>0.574</td>
<td>0.110</td>
<td>5.210</td>
<td>0.309</td>
<td>0.904</td>
<td>0.096</td>
</tr>
<tr>
<td>HPM 5 (122)</td>
<td>0.889</td>
<td>0.125</td>
<td>7.084</td>
<td>0.479</td>
<td>0.771</td>
<td>0.229</td>
</tr>
<tr>
<td>HPM 6 (134)</td>
<td>1.165</td>
<td>0.135</td>
<td>8.655</td>
<td>0.628</td>
<td>0.606</td>
<td>0.394</td>
</tr>
<tr>
<td>HPM 7 (153)</td>
<td>0.705</td>
<td>0.112</td>
<td>6.314</td>
<td>0.380</td>
<td>0.856</td>
<td>0.144</td>
</tr>
<tr>
<td>HPM 8 (169)</td>
<td>0.877</td>
<td>0.124</td>
<td>7.075</td>
<td>0.473</td>
<td>0.777</td>
<td>0.223</td>
</tr>
<tr>
<td>HPM 9 (189)</td>
<td>0.870</td>
<td>0.122</td>
<td>7.131</td>
<td>0.469</td>
<td>0.780</td>
<td>0.220</td>
</tr>
<tr>
<td>HPM 10 (209)</td>
<td>0.738</td>
<td>0.106</td>
<td>6.974</td>
<td>0.398</td>
<td>0.842</td>
<td>0.158</td>
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<tr>
<td>HPM 11 (212)</td>
<td>0.582</td>
<td>0.124</td>
<td>4.688</td>
<td>0.314</td>
<td>0.902</td>
<td>0.098</td>
</tr>
<tr>
<td>HPM 12 (213)</td>
<td>0.809</td>
<td>0.111</td>
<td>7.279</td>
<td>0.436</td>
<td>0.810</td>
<td>0.190</td>
</tr>
<tr>
<td>HPM 13 (226)</td>
<td>1.094</td>
<td>0.140</td>
<td>7.813</td>
<td>0.590</td>
<td>0.652</td>
<td>0.348</td>
</tr>
<tr>
<td>HPM 14 (242)</td>
<td>0.871</td>
<td>0.126</td>
<td>6.929</td>
<td>0.469</td>
<td>0.780</td>
<td>0.220</td>
</tr>
<tr>
<td>HPM 15 (250)</td>
<td>1.021</td>
<td>0.158</td>
<td>6.473</td>
<td>0.550</td>
<td>0.697</td>
<td>0.303</td>
</tr>
<tr>
<td>HPM</td>
<td>16 (267)</td>
<td>17 (304)</td>
<td>18 (324)</td>
<td>19 (345)</td>
<td>20 (346)</td>
<td>21 (366)</td>
</tr>
<tr>
<td>--------</td>
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<tr>
<td></td>
<td>0.979</td>
<td>0.906</td>
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<td>0.067</td>
<td>0.185</td>
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</table>

**Note.** WLSMV estimation. HPM = Hypomanic Activation.
Inter-Scale Analyses
### Inter-Scale Analyses (Part 1)

<table>
<thead>
<tr>
<th>Model</th>
<th>CFI</th>
<th>TLI</th>
<th>RMSEA</th>
<th>SRMR</th>
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<tr>
<td>1</td>
<td>0.971</td>
<td>0.969</td>
<td>0.037</td>
<td>0.035</td>
</tr>
<tr>
<td>1a</td>
<td>0.971</td>
<td>0.969</td>
<td>0.037</td>
<td>0.035</td>
</tr>
<tr>
<td>2</td>
<td>0.668</td>
<td>0.652</td>
<td>0.123</td>
<td>0.344</td>
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<td>3</td>
<td>0.770</td>
<td>0.758</td>
<td>0.103</td>
<td>0.309</td>
</tr>
<tr>
<td>4</td>
<td>0.888</td>
<td>0.883</td>
<td>0.071</td>
<td>0.096</td>
</tr>
<tr>
<td>5</td>
<td>0.927</td>
<td>0.924</td>
<td>0.058</td>
<td>0.075</td>
</tr>
<tr>
<td>5a</td>
<td>0.942</td>
<td>0.939</td>
<td>0.052</td>
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*Note.* MLMV estimation.
Table 27

*Inter-Scale Analyses (Part 2)*

<table>
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<tr>
<th>Model</th>
<th>Chi-Square</th>
<th>Estimated df</th>
<th>P</th>
<th>AIC</th>
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<tbody>
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<td>1</td>
<td>579.934</td>
<td>202</td>
<td>&lt; 0.0001</td>
<td>110104.626</td>
</tr>
<tr>
<td>1a</td>
<td>579.934</td>
<td>202</td>
<td>&lt; 0.0001</td>
<td>110104.626</td>
</tr>
<tr>
<td>2</td>
<td>4611.779</td>
<td>211</td>
<td>&lt; 0.0001</td>
<td>117518.216</td>
</tr>
<tr>
<td>3</td>
<td>3253.008</td>
<td>210</td>
<td>&lt; 0.0001</td>
<td>115014.375</td>
</tr>
<tr>
<td>4</td>
<td>1689.612</td>
<td>211</td>
<td>&lt; 0.0001</td>
<td>112099.977</td>
</tr>
<tr>
<td>5</td>
<td>1183.373</td>
<td>212</td>
<td>&lt; 0.0001</td>
<td>111181.464</td>
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<tr>
<td>5a</td>
<td>984.107</td>
<td>212</td>
<td>&lt; 0.0001</td>
<td>110821.699</td>
</tr>
</tbody>
</table>

*Note.* MLMV estimation.
Model 1

Model 1 is a CFA model in which each factor of the Restructured Clinical scales is allowed to covary with every other factor. Recall that this ‘measurement model’ is the least restrictive of the inter-scale models to be tested and carries the least explanatory weight. This model does, however, evaluate how well the subscale indicators fit with their respective factors. Based on existing validation research by Tellegen et al. (2003) that show moderate correlations between the Restructured Clinical scales (see Tables 3 and 4), it was hypothesized that this model would show good overall fit with the sample data.

As hypothesized, Model 1 shows good overall fit with the sample data with all fit statistics meeting cutoff criteria (CFI = 0.971, TLI = 0.969, RMSEA = 0.037, SRMR = 0.035) (see Table 26). Statistics not used in evaluating model fit are $\chi^2_m = 579.934$ (estimated df = 202, p < 0.0001) and AIC = 110104.626 (see Table 27).

In Model 1, parameter estimate / standard error ratios are tests of the statistical significance of the direct effects of factors on their indicators and covariances between factors. With one exception, all estimated parameters are statistically significant with parameter estimate / standard error ratios $\geq \pm 1.96$ (see Table 28). The covariance between Hypomanic Activation and Low Positive Emotions has a covariance estimate / standard error ratio of 1.327. This means that all factors explain a statistically significant amount of variance in their respective indicators and all factors significantly covary with one another, with the aforementioned exception of the covariance between Hypomanic Activation and Low Positive Emotions.
In this analysis, parameter estimates refer both to the effects of factors on their respective indicators and the covariances between factors. All parameter estimates for Model 1 are presented in Table 28. Demoralization has its three highest standardized covariances with
<table>
<thead>
<tr>
<th></th>
<th>Estimate</th>
<th>Standard Error</th>
<th>Estimate / Standard Error</th>
<th>Standardized Estimate</th>
<th>Standardized XY Estimate</th>
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<tbody>
<tr>
<td>DEM by DEMSS1</td>
<td>1.000</td>
<td>0.000</td>
<td>0.000</td>
<td>1.751</td>
<td>0.906</td>
</tr>
<tr>
<td>DEM by DEMSS2</td>
<td>1.678</td>
<td>0.030</td>
<td>55.816</td>
<td>2.939</td>
<td>0.920</td>
</tr>
<tr>
<td>DEM by DEMSS3</td>
<td>0.950</td>
<td>0.018</td>
<td>52.917</td>
<td>1.663</td>
<td>0.887</td>
</tr>
<tr>
<td>SOM by SOMSS1</td>
<td>1.000</td>
<td>0.000</td>
<td>0.000</td>
<td>2.170</td>
<td>0.919</td>
</tr>
<tr>
<td>SOM by SOMSS2</td>
<td>0.711</td>
<td>0.018</td>
<td>39.158</td>
<td>1.544</td>
<td>0.824</td>
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<tr>
<td>SOM by SOMSS3</td>
<td>0.839</td>
<td>0.019</td>
<td>45.178</td>
<td>1.820</td>
<td>0.877</td>
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<tr>
<td>LPE by LPES1</td>
<td>1.000</td>
<td>0.000</td>
<td>0.000</td>
<td>1.404</td>
<td>0.845</td>
</tr>
<tr>
<td>LPE by LPES2</td>
<td>0.585</td>
<td>0.020</td>
<td>29.621</td>
<td>0.822</td>
<td>0.746</td>
</tr>
<tr>
<td>LPE by LPES3</td>
<td>0.675</td>
<td>0.021</td>
<td>32.392</td>
<td>0.947</td>
<td>0.751</td>
</tr>
<tr>
<td>CYN by CYNSS1</td>
<td>1.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.831</td>
<td>0.750</td>
</tr>
<tr>
<td>CYN by CYNSS2</td>
<td>1.331</td>
<td>0.043</td>
<td>30.708</td>
<td>1.106</td>
<td>0.796</td>
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<tr>
<td>CYN by CYNSS3</td>
<td>1.866</td>
<td>0.058</td>
<td>31.933</td>
<td>1.551</td>
<td>0.838</td>
</tr>
<tr>
<td>ASB by ASBSS1</td>
<td>1.000</td>
<td>0.000</td>
<td>0.000</td>
<td>1.122</td>
<td>0.815</td>
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<tr>
<td>ASB by ASBSS2</td>
<td>0.987</td>
<td>0.037</td>
<td>26.698</td>
<td>1.107</td>
<td>0.765</td>
</tr>
<tr>
<td>ASB by ASBSS3</td>
<td>1.014</td>
<td>0.037</td>
<td>27.166</td>
<td>1.137</td>
<td>0.775</td>
</tr>
<tr>
<td>PER by PERSS1</td>
<td>1.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.650</td>
<td>0.741</td>
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<tr>
<td>PER by PERSS2</td>
<td>0.630</td>
<td>0.037</td>
<td>16.833</td>
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<td>0.717</td>
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<td>PER by PERSS3</td>
<td>1.308</td>
<td>0.062</td>
<td>20.928</td>
<td>0.850</td>
<td>0.830</td>
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<tr>
<td>DNE by DNESS1</td>
<td>1.000</td>
<td>0.000</td>
<td>0.000</td>
<td>1.518</td>
<td>0.864</td>
</tr>
<tr>
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<td>40.860</td>
<td>1.390</td>
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</tr>
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<tr>
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<td>-----</td>
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</tr>
<tr>
<td>DNE by DNESS3</td>
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<td>0.033</td>
<td>40.153</td>
<td>2.002</td>
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<tr>
<td>ABX by ABXSS1</td>
<td>1.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.829</td>
<td>0.794</td>
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<tr>
<td>ABX by ABXSS2</td>
<td>1.111</td>
<td>0.043</td>
<td>25.983</td>
<td>0.921</td>
<td>0.832</td>
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<td>ABX by ABXSS3</td>
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</tr>
<tr>
<td>HPM by HPMSS1</td>
<td>1.000</td>
<td>0.000</td>
<td>0.000</td>
<td>1.562</td>
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</tr>
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<td>0.024</td>
<td>24.122</td>
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<td>2.804</td>
<td>0.139</td>
<td>20.122</td>
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<td>LPE with DEM</td>
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<td>21.863</td>
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<tr>
<td>CYN with DEM</td>
<td>0.816</td>
<td>0.054</td>
<td>15.144</td>
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<tr>
<td>ASB with DEM</td>
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<td>12.951</td>
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<tr>
<td>LPE with SOM</td>
<td>2.003</td>
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<td>18.062</td>
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<tr>
<td>CYN with SOM</td>
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<td>0.062</td>
<td>12.784</td>
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<td>ASB with SOM</td>
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<td>0.076</td>
<td>7.784</td>
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<tr>
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<td>0.056</td>
<td>11.351</td>
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<td>0.091</td>
<td>11.373</td>
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<td>9.352</td>
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<td>0.041</td>
<td>9.560</td>
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<tr>
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<td>0.086</td>
<td>0.065</td>
<td>1.327</td>
<td>0.039</td>
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</tr>
<tr>
<td>ASB with CYN</td>
<td>0.379</td>
<td>0.036</td>
<td>10.642</td>
<td>0.406</td>
<td>0.406</td>
</tr>
<tr>
<td>PER with CYN</td>
<td>0.345</td>
<td>0.027</td>
<td>12.713</td>
<td>0.639</td>
<td>0.639</td>
</tr>
<tr>
<td>DNE with CYN</td>
<td>0.876</td>
<td>0.056</td>
<td>15.675</td>
<td>0.694</td>
<td>0.694</td>
</tr>
<tr>
<td>ABX with CYN</td>
<td>0.437</td>
<td>0.037</td>
<td>11.771</td>
<td>0.634</td>
<td>0.634</td>
</tr>
<tr>
<td>HPM with CYN</td>
<td>0.889</td>
<td>0.055</td>
<td>16.219</td>
<td>0.685</td>
<td>0.685</td>
</tr>
<tr>
<td>PER with ASB</td>
<td>0.219</td>
<td>0.031</td>
<td>6.954</td>
<td>0.300</td>
<td>0.300</td>
</tr>
<tr>
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<td>0.909</td>
<td>0.067</td>
<td>13.652</td>
<td>0.534</td>
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<tr>
<td>ABX with ASB</td>
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<td>0.043</td>
<td>9.152</td>
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<tr>
<td>HPM with ASB</td>
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<td>14.256</td>
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<td>12.623</td>
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<td>0.039</td>
<td>9.849</td>
<td>0.708</td>
<td>0.708</td>
</tr>
<tr>
<td>HPM with PER</td>
<td>0.534</td>
<td>0.049</td>
<td>10.922</td>
<td>0.526</td>
<td>0.526</td>
</tr>
<tr>
<td>ABX with DNE</td>
<td>0.972</td>
<td>0.078</td>
<td>12.425</td>
<td>0.772</td>
<td>0.772</td>
</tr>
<tr>
<td>HPM with DNE</td>
<td>1.570</td>
<td>0.102</td>
<td>15.372</td>
<td>0.682</td>
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</tr>
<tr>
<td>HPM with ABX</td>
<td>0.884</td>
<td>0.072</td>
<td>12.316</td>
<td>0.682</td>
<td>0.682</td>
</tr>
</tbody>
</table>

Note. MLMV estimation. DEM = Demoralization, SOM = Somatic Complaints, LPE = Low Positive Emotions, CYN = Cynicism, ASB = Antisocial Behavior, PER = Ideas of Persecution, DNE = Dysfunctional Negative Emotions, ABX = Aberrant Experiences, HPM = Hypomanic Activation. SS following scale factor denotes subscale.
Somatic Complaints ($= 0.738$), Low Positive Emotions ($= 0.849$), and Dysfunctional Negative Emotions ($= 0.881$). Low Positive Emotions has its three highest standardized covariances with Demoralization ($= 0.849$), Somatic Complaints ($= 0.658$), and Dysfunctional Negative Emotions ($= 0.623$). Dysfunctional Negative Emotions has its three highest covariances with Demoralization ($= 0.881$), Cynicism ($= 0.694$), and Aberrant Experiences ($= 0.772$). All of the factors have one of their three highest standardized covariances with Dysfunctional Negative Emotions.

In this analysis, R-square values represent the proportion of variance in each subscale indicator explained by its respective factor. All R-square values are $> 0.30$ showing that all factors explain at least a moderate proportion of variance in their respective subscale indicators (see Appendix S).

Residual covariances are the discrepancy between indicator covariances predicted by the model and observed values. For the inter-scale analyses, the consistency of discrepancies between the respective subscale indicators of factors is emphasized over the absolute magnitude of any single residual covariance. Whereas any single residual covariance may reflect idiosyncrasies in subscale construction specific to this investigation, consistent discrepancy between many subscale indicators of a factor and the subscale indicators of another factor is believed to reflect genuine relations between the factors. No consistent discrepancies between the subscale indicators of one factor and those of another factor are noted. The three largest residuals for Model 1 are between DEMSS2 and SOMSS1 ($= -0.333$), DEMSS2 and SOMSS3 ($= -0.401$), and DEMSS2 and HPMSS3 ($= -0.449$) (see Appendix S).
Modification indices predict the improvement in $\chi^2_m$ that may be realized by freeing an estimate that has been restricted by the researcher to zero. Modification indices $\geq 100$ are likely to reflect significant improvement in $\chi^2_m$. Because all factors in Model 1 are allowed to covary, there are no modification indices for Model 1.

Model 1a

Because the covariance between Hypomanic Activation and Low Positive Emotions was not found to be statistically significant in Model 1a, another model (Model 1a) was tested in which this covariance is restricted to zero.

The overall fit statistics for Model 1a are identical to Model 1. All fit statistics meet cutoff criteria, showing good overall fit between the model and the sample data (CFI = 0.971, TLI = 0.969, RMSEA = 0.037, SRMR = 0.035) (see Table 26). Statistics not used in evaluating model fit are $\chi^2_m = 579.934$ (estimated df = 202, $p < 0.0001$) and AIC = 110104.626 (see Table 27).

In Model 1a, parameter estimate / standard error ratios are tests of the statistical significance of the direct effects of factors on their indicators and covariances between factors. All estimated parameter estimates are statistically significant with parameter estimate / standard error ratios $\geq 1.96$ (see Table 29). This means that all factors explain a statistically significant amount of variance in their respective indicators and all factors that are free to covary with one another have statistically significant covariances (recall the covariance between Low Positive Emotions and Hypomanic Activation is restricted to zero).
Table 29

Results for Model 1a

<table>
<thead>
<tr>
<th></th>
<th>Estimate</th>
<th>Standard Error</th>
<th>Estimate / Standard Error</th>
<th>Standardized Estimate</th>
<th>Standardized XY Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEM by DEMSS1</td>
<td>1.000</td>
<td>0.000</td>
<td>0.000</td>
<td>1.736</td>
<td>0.905</td>
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<tr>
<td>DEM by DEMSS2</td>
<td>1.678</td>
<td>0.031</td>
<td>54.757</td>
<td>2.913</td>
<td>0.919</td>
</tr>
<tr>
<td>DEM by DEMSS3</td>
<td>0.950</td>
<td>0.018</td>
<td>51.937</td>
<td>1.649</td>
<td>0.885</td>
</tr>
<tr>
<td>SOM by SOMSS1</td>
<td>1.000</td>
<td>0.000</td>
<td>0.000</td>
<td>2.159</td>
<td>0.919</td>
</tr>
<tr>
<td>SOM by SOMSS2</td>
<td>0.711</td>
<td>0.018</td>
<td>38.657</td>
<td>1.536</td>
<td>0.822</td>
</tr>
<tr>
<td>SOM by SOMSS3</td>
<td>0.839</td>
<td>0.019</td>
<td>44.716</td>
<td>1.811</td>
<td>0.876</td>
</tr>
<tr>
<td>LPE by LPESS1</td>
<td>1.000</td>
<td>0.000</td>
<td>0.000</td>
<td>1.404</td>
<td>0.845</td>
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<tr>
<td>LPE by LPESS2</td>
<td>0.585</td>
<td>0.020</td>
<td>29.653</td>
<td>0.822</td>
<td>0.746</td>
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<tr>
<td>LPE by LPESS2</td>
<td>0.674</td>
<td>0.021</td>
<td>32.440</td>
<td>0.947</td>
<td>0.751</td>
</tr>
<tr>
<td>CYN by CYNSS1</td>
<td>1.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.827</td>
<td>0.749</td>
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<tr>
<td>CYN by CYNSS2</td>
<td>1.331</td>
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<td>30.383</td>
<td>1.101</td>
<td>0.794</td>
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<td>CYN by CYNSS3</td>
<td>1.866</td>
<td>0.059</td>
<td>31.468</td>
<td>1.544</td>
<td>0.837</td>
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<tr>
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<td>0.000</td>
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<td>0.987</td>
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<td>ASB by ASBSS3</td>
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<td>26.804</td>
<td>1.132</td>
<td>0.774</td>
</tr>
<tr>
<td>PER by PERSS1</td>
<td>1.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.647</td>
<td>0.739</td>
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<tr>
<td>PER by PERSS2</td>
<td>0.630</td>
<td>0.038</td>
<td>16.584</td>
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<td>PER by PERSS3</td>
<td>1.308</td>
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<tr>
<td>DNE by DNESS1</td>
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<td>0.000</td>
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<td>Value</td>
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<td>-------</td>
<td>-------</td>
<td>-------</td>
<td>-------</td>
<td>-------</td>
</tr>
<tr>
<td>DNE by DNESS2</td>
<td>0.915</td>
<td>0.023</td>
<td>39.894</td>
<td>1.375</td>
<td>0.838</td>
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<tr>
<td>DNE by DNESS3</td>
<td>1.319</td>
<td>0.034</td>
<td>39.239</td>
<td>1.982</td>
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<td>ABX by ABXSS1</td>
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<td>0.000</td>
<td>0.000</td>
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<td>ABX by ABXSS2</td>
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<td>0.043</td>
<td>25.603</td>
<td>0.916</td>
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<td>ABX by ABXSS3</td>
<td>0.864</td>
<td>0.040</td>
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<td>0.713</td>
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<tr>
<td>HPM by HPMSS1</td>
<td>1.000</td>
<td>0.000</td>
<td>0.000</td>
<td>1.562</td>
<td>0.780</td>
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<tr>
<td>HPM by HPMSS2</td>
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<tr>
<td>HPM by HPMSS3</td>
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<td>24.259</td>
<td>0.915</td>
<td>0.621</td>
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<tr>
<td>SOM with DEM</td>
<td>2.754</td>
<td>0.135</td>
<td>20.359</td>
<td>0.735</td>
<td>0.735</td>
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<tr>
<td>LPE with DEM</td>
<td>2.057</td>
<td>0.093</td>
<td>22.174</td>
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<td>CYN with DEM</td>
<td>0.790</td>
<td>0.050</td>
<td>15.811</td>
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<tr>
<td>ASB with DEM</td>
<td>0.902</td>
<td>0.066</td>
<td>13.648</td>
<td>0.465</td>
<td>0.465</td>
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<td>PER with DEM</td>
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<td>DNE with DEM</td>
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<td>22.157</td>
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<td>0.068</td>
<td>13.112</td>
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<td>0.623</td>
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<tr>
<td>HPM with DEM</td>
<td>1.090</td>
<td>0.076</td>
<td>14.346</td>
<td>0.402</td>
<td>0.402</td>
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<tr>
<td>LPE with SOM</td>
<td>1.975</td>
<td>0.109</td>
<td>18.053</td>
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<td>CYN with SOM</td>
<td>0.765</td>
<td>0.059</td>
<td>12.912</td>
<td>0.428</td>
<td>0.428</td>
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<tr>
<td>ASB with SOM</td>
<td>0.561</td>
<td>0.072</td>
<td>7.754</td>
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<tr>
<td>PER with SOM</td>
<td>0.622</td>
<td>0.055</td>
<td>11.354</td>
<td>0.445</td>
<td>0.445</td>
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<tr>
<td>DNE with SOM</td>
<td>2.090</td>
<td>0.126</td>
<td>16.584</td>
<td>0.644</td>
<td>0.644</td>
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<td>ABX with SOM</td>
<td>1.009</td>
<td>0.089</td>
<td>11.347</td>
<td>0.567</td>
<td>0.567</td>
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<tr>
<td>HPM with SOM</td>
<td>0.969</td>
<td>0.097</td>
<td>9.967</td>
<td>0.287</td>
<td>0.287</td>
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<table>
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<tr>
<th>Pair</th>
<th>MLMV 1</th>
<th>MLMV 2</th>
<th>MLMV 3</th>
<th>MLMV 4</th>
<th>MLMV 5</th>
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<tr>
<td>CYN with LPE</td>
<td>0.320</td>
<td>0.031</td>
<td>10.297</td>
<td>0.276</td>
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<tr>
<td>ASB with LPE</td>
<td>0.419</td>
<td>0.046</td>
<td>9.057</td>
<td>0.267</td>
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<td>PER with LPE</td>
<td>0.297</td>
<td>0.030</td>
<td>9.854</td>
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<td>DNE with LPE</td>
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<td>0.369</td>
<td>0.036</td>
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<td>0.319</td>
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<tr>
<td>ASB with CYN</td>
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<td>0.035</td>
<td>10.689</td>
<td>0.401</td>
<td>0.401</td>
</tr>
<tr>
<td>PER with CYN</td>
<td>0.340</td>
<td>0.027</td>
<td>12.695</td>
<td>0.635</td>
<td>0.635</td>
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<tr>
<td>DNE with CYN</td>
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<td>0.054</td>
<td>15.793</td>
<td>0.689</td>
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<tr>
<td>ABX with CYN</td>
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<td>0.037</td>
<td>11.768</td>
<td>0.630</td>
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<tr>
<td>HPM with CYN</td>
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<td>16.261</td>
<td>0.679</td>
<td>0.679</td>
</tr>
<tr>
<td>PER with ASB</td>
<td>0.212</td>
<td>0.031</td>
<td>6.876</td>
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<td>DNE with ASB</td>
<td>0.884</td>
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<td>14.043</td>
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<td>ABX with ASB</td>
<td>0.387</td>
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<td>9.138</td>
<td>0.421</td>
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<td>HPM with ASB</td>
<td>1.087</td>
<td>0.075</td>
<td>14.414</td>
<td>0.623</td>
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<td>12.632</td>
<td>0.631</td>
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<td>ABX with PER</td>
<td>0.376</td>
<td>0.038</td>
<td>9.829</td>
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<td>0.705</td>
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<td>HPM with PER</td>
<td>0.523</td>
<td>0.048</td>
<td>10.931</td>
<td>0.518</td>
<td>0.518</td>
</tr>
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<td>0.952</td>
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<td>12.470</td>
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<td>0.768</td>
</tr>
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<td>HPM with DNE</td>
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<td>0.095</td>
<td>16.072</td>
<td>0.649</td>
<td>0.649</td>
</tr>
<tr>
<td>HPM with ABX</td>
<td>0.870</td>
<td>0.070</td>
<td>12.377</td>
<td>0.676</td>
<td>0.676</td>
</tr>
</tbody>
</table>

*Note.* MLMV estimation. DEM = Demoralization, SOM = Somatic Complaints, LPE = Low Positive Emotions, CYN = Cynicism, ASB = Antisocial Behavior, PER = Ideas of Persecution, DNE = Dysfunctional Negative Emotions, ABX = Aberrant Experiences, HPM = Hypomanic Activation. SS following scale factor denotes subscale.
In this analysis, parameter estimates refer both to the effects of factors on their respective indicators and the covariances between factors. All parameter estimates for Model 1a are presented in Table 29. Demoralization has its three highest standardized covariances with Somatic Complaints (= 0.735), Low Positive Emotions (= 0.844), and Dysfunctional Negative Emotions (= 0.878). Low Positive Emotions has its three highest standardized covariances with Demoralization (= 0.844), Somatic Complaints (= 0.652), and Dysfunctional Negative Emotions (= 0.609). Dysfunctional Negative Emotions has its three highest covariances with Demoralization (= 0.878), Cynicism (= 0.689), and Aberrant Experiences (= 0.768). All of the factors have one of their three highest standardized covariances with Dysfunctional Negative Emotions.

In Model 1a, R-square values represent the proportion of variance in each subscale indicator explained by its respective factor. All R-square values are > 0.30 showing that all factors explain at least a moderate proportion of variance in their respective subscale indicators (see Appendix T).

Residual covariances are the discrepancy between indicator covariances predicted by the model and observed values. For the inter-scale analyses, the consistency of discrepancies between the respective subscale indicators of factors is emphasized over the absolute magnitude of any single residual covariance. Whereas any single residual covariance may reflect idiosyncrasies in subscale construction specific to this investigation, consistent discrepancy between many subscale indicators of a factor and the subscale indicators of another factor is believed to reflect genuine relations between the factors. No consistent patterns of residual covariances were noted. The three largest
residuals for Model 1a are between DEMSS2 and DNESS3 (= 0.365), SOMSS2 and HPMSS2 (= 0.377), and DEMSS2 and HPMSS3 (= -0.378) (see Appendix T).

Modification indices predict the improvement in $\chi^2_m$ that may be realized by freeing an estimate that has been restricted by the researcher to zero. Modification indices ≥ 100 are likely to reflect significant improvement in $\chi^2_m$. The covariance estimate between Hypomanic Activation and Low Positive Emotions has a modification index value < 100 meaning that freeing this covariance to be estimated is not likely to significantly improve $\chi^2_m$.

**Model 2**

Model 2 is an SR model in which covariances between all of the factors of the Restructured Clinical scales are restricted to zero. Recall that Tellegen et al. (2003) have not claimed that the Restructured Clinical scales should be unrelated with one another and that such a model is incongruent with the theoretical basis of the scales. Based on existing validation research by Tellegen et al. (2003) that show moderate correlations between the Restructured Clinical scales (see Tables 3 and 4), it was hypothesized that Model 2 would show poor overall fit with the sample data.

As hypothesized, Model 2 shows poor overall fit with the sample data with all fit statistics failing to meet cutoff criteria (CFI = 0.668, TLI = 0.652, RMSEA = 0.123, SRMR = 0.331) (see Table 26). Statistics not used in evaluating model fit are $\chi^2_m = 4611.779$ (estimated df = 211, $p < 0.0001$) and AIC = 116565.632 (see Table 27).

In Model 2, parameter estimate / standard error ratios are tests of the statistical significance of the direct effects of factors on their indicators. There are no parameter estimate / standard error ratios for the direct effects of factors on other factors or
covariances between factors because all relations between factors are restricted to zero in this model. All estimated parameters have parameter estimate / standard error ratios ≥ ± 1.96 (see Table 30). This means that all factors explain a statistically significant amount of variance in their respective indicators.

In this analysis, parameter estimates refer only to the effects of factors on their indicators. There are no parameter estimates for the direct effects of factors on other factors or covariances between factors because all relations between factors are restricted to zero in this model. The parameter estimates are reported in Table 30.

In this analysis, R-square values represent the proportion of variance in each subscale indicator explained by its respective factor. All R-square values are > 0.30 showing that all factors explain at least a moderate proportion of variance in their respective subscale indicators (see Appendix U).

Residual covariances are the discrepancy between indicator covariances predicted by the model and observed values. For the inter-scale analyses, the consistency of discrepancies between the respective subscale indicators of factors is emphasized over the absolute magnitude of any single residual covariance. Whereas any single residual covariance may reflect idiosyncrasies in subscale construction specific to this investigation, consistent discrepancy between many subscale indicators of a factor and the subscale indicators of another factor is believed to reflect genuine relations between the factors. Consistent patterns of residual covariances were noted between the indicators for all factors. The three largest residuals for Model 2 are between DEMSS2 and DNESS1 ( = 3.867), DEMSS2 and SOMSS1 ( = 4.373), and DEMSS2 and DNESS3 ( = 5.431) (see Appendix U).
<table>
<thead>
<tr>
<th></th>
<th>Estimate</th>
<th>Standard Error</th>
<th>Estimate / Standard Error</th>
<th>Standardized Estimate</th>
<th>Standardized XY Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEM by DEMSS1</td>
<td>1.000</td>
<td>0.000</td>
<td>0.000</td>
<td>1.758</td>
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<td>SOM by SOMSS1</td>
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<td>0.000</td>
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<td>0.916</td>
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<td>0.000</td>
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<td>CYN by CYNSS3</td>
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<td>1.107</td>
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<td>PER by PERSS1</td>
<td>1.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.660</td>
<td>0.752</td>
</tr>
<tr>
<td>PER by PERSS2</td>
<td>0.641</td>
<td>0.029</td>
<td>21.770</td>
<td>0.423</td>
<td>0.740</td>
</tr>
<tr>
<td>PER by PERSS3</td>
<td>1.244</td>
<td>0.061</td>
<td>20.286</td>
<td>0.820</td>
<td>0.801</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---------------</td>
<td>-------</td>
<td>-------</td>
<td>-------</td>
<td>-------</td>
<td>-------</td>
</tr>
<tr>
<td>DNE by DNES1</td>
<td>1.000</td>
<td>0.000</td>
<td>0.000</td>
<td>1.564</td>
<td>0.890</td>
</tr>
<tr>
<td>DNE by DNES2</td>
<td>0.897</td>
<td>0.014</td>
<td>66.237</td>
<td>1.403</td>
<td>0.848</td>
</tr>
<tr>
<td>DNE by DNES3</td>
<td>1.238</td>
<td>0.023</td>
<td>53.896</td>
<td>1.936</td>
<td>0.867</td>
</tr>
<tr>
<td>ABX by ABXSS1</td>
<td>1.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.847</td>
<td>0.811</td>
</tr>
<tr>
<td>ABX by ABXSS2</td>
<td>1.067</td>
<td>0.042</td>
<td>25.658</td>
<td>0.904</td>
<td>0.816</td>
</tr>
<tr>
<td>ABX by ABXSS3</td>
<td>0.846</td>
<td>0.029</td>
<td>28.844</td>
<td>0.717</td>
<td>0.714</td>
</tr>
<tr>
<td>HPM by HPMSS1</td>
<td>1.000</td>
<td>0.000</td>
<td>0.000</td>
<td>1.487</td>
<td>0.743</td>
</tr>
<tr>
<td>HPM by HPMSS2</td>
<td>1.309</td>
<td>0.050</td>
<td>26.238</td>
<td>1.946</td>
<td>0.870</td>
</tr>
<tr>
<td>HPM by HPMSS3</td>
<td>0.817</td>
<td>0.020</td>
<td>30.852</td>
<td>0.918</td>
<td>0.623</td>
</tr>
</tbody>
</table>

*Note.* MLMV estimation. DEM = Demoralization, SOM = Somatic Complaints, LPE = Low Positive Emotions, CYN = Cynicism, ASB = Antisocial Behavior, PER = Ideas of Persecution, DNE = Dysfunctional Negative Emotions, ABX = Aberrant Experiences, HPM = Hypomanic Activation. SS following scale factor denotes subscale.
The modification index predicts the improvement in $\chi^2_m$ that may be realized by freeing an estimate that has been restricted by the researcher to zero. Factor covariances restricted to zero and which have a modification index $\geq 100$ are reported in Table 31. Although freeing these covariances would likely improve $\chi^2_m$, there should be a clear theoretical rationale for doing so. Hence the systematic model-testing process of this investigation.
Table 31

*Modification Indices for Model 2*

<table>
<thead>
<tr>
<th>Covariance</th>
<th>Modification Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demoralization and Somatic Complaints</td>
<td>343.935</td>
</tr>
<tr>
<td>Demoralization and Low Positive Emotions</td>
<td>416.691</td>
</tr>
<tr>
<td>Demoralization and Cynicism</td>
<td>184.698</td>
</tr>
<tr>
<td>Demoralization and Antisocial Behavior</td>
<td>130.671</td>
</tr>
<tr>
<td>Demoralization and Ideas of Persecution</td>
<td>167.314</td>
</tr>
<tr>
<td>Demoralization and Dysfunctional Negative Emotions</td>
<td>480.865</td>
</tr>
<tr>
<td>Demoralization and Aberrant Experiences</td>
<td>230.239</td>
</tr>
<tr>
<td>Demoralization and Hypomanic Activation</td>
<td>103.427</td>
</tr>
<tr>
<td>Somatic Complaints and Low Positive Emotions</td>
<td>243.645</td>
</tr>
<tr>
<td>Somatic Complaints and Cynicism</td>
<td>109.837</td>
</tr>
<tr>
<td>Somatic Complaints and Ideas of Persecution</td>
<td>114.141</td>
</tr>
<tr>
<td>Somatic Complaints and Dysfunctional Negative Emotions</td>
<td>257.324</td>
</tr>
<tr>
<td>Somatic Complaints and Aberrant Experiences</td>
<td>187.505</td>
</tr>
<tr>
<td>Low Positive Emotions and Dysfunctional Negative Emotions</td>
<td>211.808</td>
</tr>
<tr>
<td>Cynicism and Ideas of Persecution</td>
<td>205.224</td>
</tr>
<tr>
<td>Cynicism and Dysfunctional Negative Emotions</td>
<td>274.295</td>
</tr>
<tr>
<td>Cynicism and Aberrant Experiences</td>
<td>210.325</td>
</tr>
<tr>
<td>Cynicism and Hypomanic Activation</td>
<td>238.393</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Relationship</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antisocial Behavior and Dysfunctional Negative Emotions</td>
<td>157.494</td>
</tr>
<tr>
<td>Antisocial Behavior and Hypomanic Activation</td>
<td>199.400</td>
</tr>
<tr>
<td>Ideas of Persecution and Dysfunctional Negative Emotions</td>
<td>218.426</td>
</tr>
<tr>
<td>Ideas of Persecution and Aberrant Experiences</td>
<td>252.311</td>
</tr>
<tr>
<td>Ideas of Persecution and Hypomanic Activation</td>
<td>132.777</td>
</tr>
<tr>
<td>Dysfunctional Negative Emotions and Aberrant Experiences</td>
<td>333.139</td>
</tr>
<tr>
<td>Dysfunctional Negative Emotions and Hypomanic Activation</td>
<td>239.981</td>
</tr>
<tr>
<td>Aberrant Experiences and Hypomanic Activation</td>
<td>230.923</td>
</tr>
</tbody>
</table>
Model 3

Model 3 is an SR model in which Low Positive Emotions and Dysfunctional Negative Emotions are regressed on Demoralization (Model 3) and all other scale relations are restricted to zero. Recall that Model 3 reflects the dimensional and hierarchical model of affect behind the Restructured Clinical scales in which a general pleasantness-unpleasantness factor overlaps relatively independent factors of positive emotionality and negative emotionality (Tellegen, Watson, and Clark, 1999). Recall also that Tellegen et al. (2003) do not explicitly state that there should be any other relations between the Restructured Clinical scales. Based on existing validation research by Tellegen et al. (2003) that show moderate correlations between the Restructured Clinical scales (see Tables 3 and 4), it was hypothesized that Model 3 would show poor overall fit with the sample data.

As hypothesized, Model 3 shows poor overall fit with the sample data with all fit statistics failing to meet cutoff criteria (CFI = 0.770, TLI = 0.758, RMSEA = 0.103, SRMR = 0.309) (see Table 26). Statistics not used in evaluating model fit are $\chi^2_m = 3253.008$ (estimated df = 210, $p < 0.0001$) and AIC = 115014.375 (see Table 27).

In Model 3, parameter estimate / standard error ratios are statistical tests of the significance of direct effects of factors on their indicator and the direct effects of a factor on other factors. All estimated parameters are statistically significant with parameter estimate / standard error ratios $\geq \pm 1.96$ (see Table 32). This means that all factors explain a statistically significant amount of variance in their respective factors and that Demoralization has statistically significant direct effects on Low Positive Emotions and Dysfunctional Negative Emotions.
Table 32

Results for Model 3

<table>
<thead>
<tr>
<th></th>
<th>Estimate</th>
<th>Standard Error</th>
<th>Estimate / Standard Error</th>
<th>Standardized Estimate</th>
<th>Standardized XY Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEM by DEMSS1</td>
<td>1.000</td>
<td>0.000</td>
<td>0.000</td>
<td>1.756</td>
<td>0.909</td>
</tr>
<tr>
<td>DEM by DEMSS2</td>
<td>1.690</td>
<td>0.019</td>
<td>86.860</td>
<td>2.967</td>
<td>0.929</td>
</tr>
<tr>
<td>DEM by DEMSS3</td>
<td>0.942</td>
<td>0.013</td>
<td>72.753</td>
<td>1.654</td>
<td>0.882</td>
</tr>
<tr>
<td>SOM by SOMSS1</td>
<td>1.000</td>
<td>0.000</td>
<td>0.000</td>
<td>2.161</td>
<td>0.916</td>
</tr>
<tr>
<td>SOM by SOMSS2</td>
<td>0.707</td>
<td>0.015</td>
<td>47.218</td>
<td>1.528</td>
<td>0.815</td>
</tr>
<tr>
<td>SOM by SOMSS3</td>
<td>0.853</td>
<td>0.015</td>
<td>55.441</td>
<td>1.842</td>
<td>0.888</td>
</tr>
<tr>
<td>LPE by LPESS1</td>
<td>1.000</td>
<td>0.000</td>
<td>0.000</td>
<td>1.407</td>
<td>0.847</td>
</tr>
<tr>
<td>LPE by LPESS2</td>
<td>0.573</td>
<td>0.014</td>
<td>42.175</td>
<td>0.806</td>
<td>0.732</td>
</tr>
<tr>
<td>LPE by LPESS2</td>
<td>0.683</td>
<td>0.014</td>
<td>50.496</td>
<td>0.961</td>
<td>0.763</td>
</tr>
<tr>
<td>CYN by CYNSS1</td>
<td>1.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.833</td>
<td>0.752</td>
</tr>
<tr>
<td>CYN by CYNSS2</td>
<td>1.334</td>
<td>0.040</td>
<td>33.361</td>
<td>1.110</td>
<td>0.799</td>
</tr>
<tr>
<td>CYN by CYNSS3</td>
<td>1.855</td>
<td>0.056</td>
<td>33.232</td>
<td>1.544</td>
<td>0.834</td>
</tr>
<tr>
<td>ASB by ASBSS1</td>
<td>1.000</td>
<td>0.000</td>
<td>0.000</td>
<td>1.107</td>
<td>0.804</td>
</tr>
<tr>
<td>ASB by ASBSS2</td>
<td>1.001</td>
<td>0.036</td>
<td>27.883</td>
<td>1.108</td>
<td>0.766</td>
</tr>
<tr>
<td>ASB by ASBSS3</td>
<td>1.041</td>
<td>0.036</td>
<td>28.577</td>
<td>1.152</td>
<td>0.785</td>
</tr>
<tr>
<td>PER by PERSS1</td>
<td>1.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.660</td>
<td>0.752</td>
</tr>
<tr>
<td>PER by PERSS2</td>
<td>0.641</td>
<td>0.029</td>
<td>21.768</td>
<td>0.423</td>
<td>0.740</td>
</tr>
</tbody>
</table>

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| Item                  | MLMV | DEM | SOM | LPE | CYN | PER | ASB | DNE | DNE | DNE | DNE | ABX | ABX | HPM | HPM | HPM | HPM | HPM | HPM | LPE | DNE | DNE | DNE |
|-----------------------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| PER by PERSS3         | 1.244|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| DNE by DNESS1         | 1.000|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| DNE by DNESS2         | 0.911|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| DNE by DNESS3         | 1.320|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| ABX by ABXSS1         | 1.000|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| ABX by ABXSS2         | 1.067|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| ABX by ABXSS3         | 0.846|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| HPM by HPMSS1         | 1.000|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| HPM by HPMSS2         | 1.309|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| HPM by HPMSS3         | 0.617|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| LPE on DEM            | 0.664|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| DNE on DEM            | 0.752|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |

*Note.* MLMV estimation. DEM = Demoralization, SOM = Somatic Complaints, LPE = Low Positive Emotions, CYN = Cynicism, ASB = Antisocial Behavior, PER = Ideas of Persecution, DNE = Dysfunctional Negative Emotions, ABX = Aberrant Experiences, HPM = Hypomanic Activation. SS following scale factor denotes subscale.
Table 33

*R-Square Values for Model 3 Latent Factors*

<table>
<thead>
<tr>
<th>Independent Variable &gt; Dependent Variable</th>
<th>R-square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demoralization &gt; Low Positive Emotions</td>
<td>0.687</td>
</tr>
<tr>
<td>Demoralization &gt; Dysfunctional Negative Emotions</td>
<td>0.754</td>
</tr>
</tbody>
</table>

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In this analysis, parameter estimates refer both to the direct effects of factors on their respective indicators and the direct effects of Demoralization on Low Positive Emotions and Dysfunctional Negative Emotions. Parameter estimates for Model 3 are presented in Table 37. The factor loading estimate from Demoralization to Low Positive Emotions has a standardized value of 0.829. The factor loading estimate from Demoralization to Dysfunctional Negative Emotions has a standardized value of 0.868.

In Model 3, R-square values represent the proportion of variance in each subscale indicator explained by its respective factor and the proportion of variance in Low Positive Emotions and Dysfunctional Negative Emotions explained by Demoralization. All R-square values for factor-indicator factor loadings are > 0.30 showing that the factors explain at least a moderate proportion of variance in their respective subscale indicators (see Appendix V). The R-square value for Low Positive Emotions is 0.687 and the R-square value for Dysfunctional Negative Emotions is 0.754 (see Table 33). This shows that Demoralization explains a moderate to large proportion of variance in these two factors.

Residual covariances are the discrepancy between indicator covariances predicted by the model and observed values. For the inter-scale analyses, the consistency of discrepancies between the respective subscale indicators of factors is emphasized over the absolute magnitude of any single residual covariance. Whereas any single residual covariance may reflect idiosyncrasies in subscale construction specific to this investigation, consistent discrepancy between many subscale indicators of a factor and the subscale indicators of another factor is believed to reflect genuine relations between the factors. Consistent patterns of residual covariances were noted between the indicators.
for all factors with covariances restricted to zero. Descriptively, the three largest residuals for Model 2 are between DEMSS2 and SOMSS2 (= 3.431), DEMSS2 and SOMSS3 (= 3.547), and DEMSS2 and SOMSS1 (= 4.373) (see Appendix V).

The modification index predicts the improvement in $\chi^2_m$ that may be realized by freeing an estimate that has been restricted by the researcher to zero. Modification indices $\geq 100$ are likely to reflect significant improvement in $\chi^2_m$. Factor covariances restricted to zero and which have a modification index $\geq 100$ are reported in Table 34. Although freeing these covariances would likely improve $\chi^2_m$, doing so would essentially re-create Model 1a and not provide a better understanding of the scale correlations. Hence the systematic model-testing process of this investigation.
Table 34

*Modification Indices for Model 3*

<table>
<thead>
<tr>
<th>Covariance</th>
<th>Modification Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demoralization and Somatic Complaints</td>
<td>352.322</td>
</tr>
<tr>
<td>Demoralization and Cynicism</td>
<td>195.855</td>
</tr>
<tr>
<td>Demoralization and Antisocial Behavior</td>
<td>136.277</td>
</tr>
<tr>
<td>Demoralization and Ideas of Persecution</td>
<td>177.928</td>
</tr>
<tr>
<td>Demoralization and Aberrant Experiences</td>
<td>243.227</td>
</tr>
<tr>
<td>Demoralization and Hypomanic Activation</td>
<td>110.164</td>
</tr>
<tr>
<td>Somatic Complaints and Cynicism</td>
<td>110.065</td>
</tr>
<tr>
<td>Somatic Complaints and Ideas of Persecution</td>
<td>114.379</td>
</tr>
<tr>
<td>Somatic Complaints and Aberrant Experiences</td>
<td>187.896</td>
</tr>
<tr>
<td>Low Positive Emotions and Hypomanic Activation</td>
<td>115.737</td>
</tr>
<tr>
<td>Cynicism and Ideas of Persecution</td>
<td>205.641</td>
</tr>
<tr>
<td>Cynicism and Dysfunctional Negative Emotions</td>
<td>100.675</td>
</tr>
<tr>
<td>Cynicism and Aberrant Experiences</td>
<td>210.753</td>
</tr>
<tr>
<td>Cynicism and Hypomanic Activation</td>
<td>238.877</td>
</tr>
<tr>
<td>Antisocial Behavior and Hypomanic Activation</td>
<td>199.808</td>
</tr>
<tr>
<td>Ideas of Persecution and Aberrant Experiences</td>
<td>252.827</td>
</tr>
<tr>
<td>Ideas of Persecution and Hypomanic Activation</td>
<td>133.048</td>
</tr>
<tr>
<td>Dysfunctional Negative Emotions and Aberrant Experiences</td>
<td>118.376</td>
</tr>
<tr>
<td>Dysfunctional Negative Emotions and Hypomanic Activation</td>
<td>175.650</td>
</tr>
<tr>
<td>Aberrant Experiences and Hypomanic Activation</td>
<td>231.394</td>
</tr>
</tbody>
</table>
Model 4

Model 4 is an SR model in which all of the syndrome Restructured Clinical scale factors are regressed on Demoralization. Recall that this model evaluates the hypothesis that residual Demoralization in the syndrome Restructured Clinical scales can by itself account for the scale correlations. Because the aim of Tellegen et al. (2003) was to remove Demoralization from the Clinical Scales, it was hypothesized that this model would show poor overall fit with the sample data.

As hypothesized, Model 4 shows poor overall fit with the sample data with all fit statistics failing to meet cutoff criteria (CFI = 0.888, TLI = 0.883, RMSEA = 0.071, SRMR = 0.096) (see Table 26). Statistics not used in evaluating model fit are $\chi^2_m = 1689.612$ (estimated df = 211, p < 0.0001) and AIC = 111793.416 (see Table 27).

In Model 4, parameter estimate / standard error ratios are statistical tests of the significance of direct effects of factors on their indicator and the direct effects of a factor on other factors. All estimated parameters are statistically significant with parameter estimate / standard error ratios $\geq 1.96$ (see Table 35). This means that all factors explain a statistically significant amount of variance in their respective factors and that Demoralization has statistically significant direct effects on the syndrome Restructured Clinical scales.

In this analysis, parameter estimates refer both to the direct effects of factors on their respective indicators and the direct effects of Demoralization on the syndrome Restructured Clinical scale factors. Parameter estimates for Model 4 are presented in Table 35. The factor loading estimates from Demoralization to the syndrome
Table 35

Results for Model 4

<table>
<thead>
<tr>
<th></th>
<th>Estimate</th>
<th>Standard Error</th>
<th>Estimate / Standard Error</th>
<th>Standardized Estimate</th>
<th>Standardized XY Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEM by DEMSS1</td>
<td>1.000</td>
<td>0.000</td>
<td>0.000</td>
<td>1.744</td>
<td>0.903</td>
</tr>
<tr>
<td>DEM by DEMSS2</td>
<td>1.662</td>
<td>0.030</td>
<td>54.766</td>
<td>2.899</td>
<td>0.907</td>
</tr>
<tr>
<td>DEM by DEMSS3</td>
<td>0.941</td>
<td>0.018</td>
<td>52.494</td>
<td>1.641</td>
<td>0.875</td>
</tr>
<tr>
<td>SOM by SOMSS1</td>
<td>1.000</td>
<td>0.000</td>
<td>0.000</td>
<td>2.164</td>
<td>0.917</td>
</tr>
<tr>
<td>SOM by SOMSS2</td>
<td>0.716</td>
<td>0.019</td>
<td>38.680</td>
<td>1.550</td>
<td>0.827</td>
</tr>
<tr>
<td>SOM by SOMSS3</td>
<td>0.841</td>
<td>0.019</td>
<td>43.915</td>
<td>1.820</td>
<td>0.877</td>
</tr>
<tr>
<td>LPE by LPESS1</td>
<td>1.000</td>
<td>0.000</td>
<td>0.000</td>
<td>1.410</td>
<td>0.849</td>
</tr>
<tr>
<td>LPE by LPESS2</td>
<td>0.572</td>
<td>0.020</td>
<td>27.969</td>
<td>0.807</td>
<td>0.733</td>
</tr>
<tr>
<td>LPE by LPESS2</td>
<td>0.680</td>
<td>0.022</td>
<td>30.566</td>
<td>0.958</td>
<td>0.760</td>
</tr>
<tr>
<td>CYN by CYNSS1</td>
<td>1.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.848</td>
<td>0.766</td>
</tr>
<tr>
<td>CYN by CYNSS2</td>
<td>1.296</td>
<td>0.043</td>
<td>30.292</td>
<td>1.100</td>
<td>0.791</td>
</tr>
<tr>
<td>CYN by CYNSS3</td>
<td>1.809</td>
<td>0.058</td>
<td>31.331</td>
<td>1.534</td>
<td>0.829</td>
</tr>
<tr>
<td>ASB by ASBSS1</td>
<td>1.000</td>
<td>0.000</td>
<td>0.000</td>
<td>1.122</td>
<td>0.815</td>
</tr>
<tr>
<td>ASB by ASBSS2</td>
<td>0.969</td>
<td>0.037</td>
<td>26.191</td>
<td>1.087</td>
<td>0.751</td>
</tr>
<tr>
<td>ASB by ASBSS3</td>
<td>1.030</td>
<td>0.038</td>
<td>27.261</td>
<td>1.155</td>
<td>0.788</td>
</tr>
<tr>
<td>PER by PERSS1</td>
<td>1.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.672</td>
<td>0.766</td>
</tr>
<tr>
<td>PER by PERSS2</td>
<td>0.620</td>
<td>0.034</td>
<td>18.411</td>
<td>0.416</td>
<td>0.728</td>
</tr>
<tr>
<td>PER by PERSS3</td>
<td>1.217</td>
<td>0.057</td>
<td>21.289</td>
<td>0.818</td>
<td>0.799</td>
</tr>
<tr>
<td>Item</td>
<td>Value1</td>
<td>Value2</td>
<td>Value3</td>
<td>Value4</td>
<td>Value5</td>
</tr>
<tr>
<td>--------------</td>
<td>--------</td>
<td>--------</td>
<td>--------</td>
<td>--------</td>
<td>--------</td>
</tr>
<tr>
<td>DNE by DNESS1</td>
<td>1.000</td>
<td>0.000</td>
<td>0.000</td>
<td>1.517</td>
<td>0.864</td>
</tr>
<tr>
<td>DNE by DNESS2</td>
<td>0.910</td>
<td>0.023</td>
<td>39.663</td>
<td>1.381</td>
<td>0.835</td>
</tr>
<tr>
<td>DNE by DNESS3</td>
<td>1.325</td>
<td>0.034</td>
<td>39.008</td>
<td>2.011</td>
<td>0.900</td>
</tr>
<tr>
<td>ABX by ABXSS1</td>
<td>1.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.826</td>
<td>0.792</td>
</tr>
<tr>
<td>ABX by ABXSS2</td>
<td>1.114</td>
<td>0.045</td>
<td>24.880</td>
<td>0.921</td>
<td>0.832</td>
</tr>
<tr>
<td>ABX by ABXSS3</td>
<td>0.872</td>
<td>0.038</td>
<td>22.968</td>
<td>0.721</td>
<td>0.718</td>
</tr>
<tr>
<td>HPM by HPMSS1</td>
<td>1.000</td>
<td>0.000</td>
<td>0.000</td>
<td>1.507</td>
<td>0.753</td>
</tr>
<tr>
<td>HPM by HPMSS2</td>
<td>1.294</td>
<td>0.048</td>
<td>27.074</td>
<td>1.950</td>
<td>0.872</td>
</tr>
<tr>
<td>HPM by HPMSS3</td>
<td>0.593</td>
<td>0.023</td>
<td>26.338</td>
<td>0.893</td>
<td>0.606</td>
</tr>
<tr>
<td>SOM on DEM</td>
<td>0.921</td>
<td>0.034</td>
<td>27.263</td>
<td>0.742</td>
<td>0.742</td>
</tr>
<tr>
<td>LPE on DEM</td>
<td>0.633</td>
<td>0.022</td>
<td>28.694</td>
<td>0.783</td>
<td>0.783</td>
</tr>
<tr>
<td>CYN on DEM</td>
<td>0.306</td>
<td>0.015</td>
<td>20.067</td>
<td>0.628</td>
<td>0.628</td>
</tr>
<tr>
<td>ASB on DEM</td>
<td>0.324</td>
<td>0.021</td>
<td>15.206</td>
<td>0.504</td>
<td>0.504</td>
</tr>
<tr>
<td>PER on DEM</td>
<td>0.235</td>
<td>0.015</td>
<td>16.104</td>
<td>0.609</td>
<td>0.609</td>
</tr>
<tr>
<td>DNE on DEM</td>
<td>0.794</td>
<td>0.024</td>
<td>33.666</td>
<td>0.913</td>
<td>0.913</td>
</tr>
<tr>
<td>ABX on DEM</td>
<td>0.334</td>
<td>0.020</td>
<td>16.605</td>
<td>0.704</td>
<td>0.704</td>
</tr>
<tr>
<td>HPM on DEM</td>
<td>0.440</td>
<td>0.028</td>
<td>15.816</td>
<td>0.509</td>
<td>0.509</td>
</tr>
</tbody>
</table>

*Note.* MLMV estimation. DEM = Demoralization, SOM = Somatic Complaints, LPE = Low Positive Emotions, CYN = Cynicism, ASB = Antisocial Behavior, PER = Ideas of Persecution, DNE = Dysfunctional Negative Emotions, ABX = Aberrant Experiences, HPM = Hypomanic Activation.

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Table 36

*R-Square Values for Model 4 Latent Factors*

<table>
<thead>
<tr>
<th>Independent Variable &gt; Dependent Variable</th>
<th>R-square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demoralization &gt; Somatic Complaints</td>
<td>0.551</td>
</tr>
<tr>
<td>Demoralization &gt; Low Positive Emotions</td>
<td>0.613</td>
</tr>
<tr>
<td>Demoralization &gt; Cynicism</td>
<td>0.395</td>
</tr>
<tr>
<td>Demoralization &gt; Antisocial Behavior</td>
<td>0.254</td>
</tr>
<tr>
<td>Demoralization &gt; Ideas of Persecution</td>
<td>0.371</td>
</tr>
<tr>
<td>Demoralization &gt; Dysfunctional Negative Emotions</td>
<td>0.833</td>
</tr>
<tr>
<td>Demoralization &gt; Aberrant Experiences</td>
<td>0.495</td>
</tr>
<tr>
<td>Demoralization &gt; Hypomanic Activation</td>
<td>0.259</td>
</tr>
</tbody>
</table>

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Restructured Clinical scales range from moderate to large and appear continuous. The three largest standardized factor loading estimates between factors involve the direct effects of Demoralization on Somatic Complaints (= 0.742), Low Positive Emotions (= 0.783), and Dysfunctional Negative Emotions (= 0.913).

In Model 4, R-square values represent the proportion of variance in each subscale indicator explained by its respective factor and the proportion of variance in the syndrome Restructured Clinical scale factors explained by Demoralization. All R-square values for factor-indicator factor loadings are > 0.30 showing that all factors explain at least a moderate proportion of the variance in their respective indicators (see Appendix W). The R-square values for the syndrome Restructured Clinical scales range from 0.254 (Antisocial Behavior) to 0.833 (Dysfunctional Negative Emotions) (see Table 36). This shows that Demoralization explains a small to large proportion of variance in these factors.

Residual covariances are the discrepancy between indicator covariances predicted by the model and observed values. For the inter-scale analyses, the consistency of discrepancies between the respective subscale indicators of factors is emphasized over the absolute magnitude of any single residual covariance. Whereas any single residual covariance may reflect idiosyncrasies in subscale construction specific to this investigation, consistent discrepancy between many subscale indicators of a factor and the subscale indicators of another factor is believed to reflect genuine relations between the factors. Systematic patterns of large residual covariances were observed between the indicators for Hypomanic Activation and those for Low Positive Emotions, Cynicism, Antisocial Behavior, Dysfunctional Negative Emotions, and Aberrant Experiences.
Descriptively, the three largest residuals for Model 2 are between CYNSS2 and HPMSS1 (= 0.792), ASBSS2 and HPMSS2 (= 0.807), and LPESS1 and HPMSS2 (= -0.890) (see Appendix W).

The modification index predicts the improvement in $\chi^2_m$ that may be realized by freeing an estimate that has been restricted by the researcher to zero. Modification indices $\geq 100$ are likely to reflect significant improvement in $\chi^2_m$. Factor covariances restricted to zero and which have a modification index $\geq 100$ are reported in Table 37. These indices suggest that allowing Low Positive Emotions, Cynicism, Antisocial Behavior, Dysfunctional Negative Emotions and Aberrant Experiences to covary with Hypomanic Activation would produce significant improvement in $\chi^2_m$. This hypothesis is tested in Model 4a.
<table>
<thead>
<tr>
<th>Covariance</th>
<th>Modification Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Positive Emotions and Hypomanic Activation</td>
<td>187.921</td>
</tr>
<tr>
<td>Cynicism and Hypomanic Activation</td>
<td>134.725</td>
</tr>
<tr>
<td>Antisocial Behavior and Hypomanic Activation</td>
<td>115.487</td>
</tr>
<tr>
<td>Ideas of Persecution and Aberrant Experiences</td>
<td>103.760</td>
</tr>
<tr>
<td>Dysfunctional Negative Emotions and Hypomanic Activation</td>
<td>128.150</td>
</tr>
<tr>
<td>Aberrant Experiences and Hypomanic Activation</td>
<td>118.774</td>
</tr>
</tbody>
</table>
Model 4a

Analysis of residual covariances and modification indices from Model 4 suggest that significant correlations between the syndrome Restructured Clinical scales persist even after accounting for shared variance with Demoralization. The correlations suggested from Model 4’s residual covariances and modification indices are between Hypomanic Activation and Low Positive Emotions, Hypomanic Activation and Cynicism, Hypomanic Activation and Antisocial Behavior, Hypomanic Activation and Dysfunctional Negative Emotions, and Hypomanic Activation and Aberrant Experiences.

To test whether a second factor in addition to Demoralization can account for the scale correlations in the syndrome Restructured Clinical scales, Model 4 was modified to include a higher order factor regressed on Low Positive Emotions, Cynicism, Antisocial Behavior, Dysfunctional Negative Emotions, Aberrant Experiences, and Hypomanic Activation (see Figure 8). Speculation as to the nature of this factor is offered in the Discussion section (Chapter 5). SR modeling of Model 4a fails to produce a converged solution. Allowing Low Positive Emotions, Cynicism, Antisocial Behavior, Dysfunctional Negative Emotions, and Aberrant Experiences to covary with Hypomanic Activation also fails to produce a converged solution. Possible reasons for these outcomes are offered in the Discussion section (Chapter 5).

To explore the nature of these correlations, a series of regression, factor, and correlational analyses were performed. Principal factor analysis of RC2 Low Positive Emotions, RC3 Cynicism, RC4 Antisocial Behavior, RC7 Dysfunctional Negative Emotions, and RC9 Hypomanic Activation using Promax rotation was not successful. SPSS produced the error message, “Community of a variable exceeded 1.0.”
Figure 8.

Model 4a

Note. Indicators and error terms omitted for clarity.
A subsequent principal factor analysis was performed on these scales, again using Promax rotation, after variance from RCd Demoralization was removed (see Table 38). Results from this analysis are presented in Tables 39 and 40. This principal factor analysis identified one significant factor. This factor was then correlated with external scales (see Table 41). These external scales are the Repression scale (R) (Welsh, 1956), the Bizarre Mentation (BIZ) and Cynicism (CYN) scales from Wiggins' Content Scales (1966), and the Aggression (PSY-5 AGG), Psychoticism (PSY-5 PSY), and Constraint (PSY-5 CON) scales from the Personality Psychopathology Five (PSY-5) scales (Harkness & McNulty, 1994).

The results of these post hoc exploratory analyses show that a significant factor persists between Low Positive Emotions, Cynicism, Antisocial Behavior, Dysfunctional Negative Emotions, Aberrant Experiences, and Hypomanic Activation after the direct effects of Demoralization have been removed. This factor loads most heavily on Hypomanic Activation (= 0.859) and is moderately correlated with the PSY-5 AGG (-0.380) and R (0.352) scales.
Table 38

Multiple Regression Analyses with DEM as an Independent Variable

<table>
<thead>
<tr>
<th>Scale Factor</th>
<th>F</th>
<th>Sig.</th>
<th>Independent Variable</th>
<th>Beta</th>
<th>R-square</th>
</tr>
</thead>
<tbody>
<tr>
<td>RC2 LPE</td>
<td>1759.353</td>
<td>&lt; 0.001</td>
<td>RCd DEM</td>
<td>0.750</td>
<td>0.562</td>
</tr>
<tr>
<td>RC3 CYN</td>
<td>448.686</td>
<td>&lt; 0.001</td>
<td>RCd DEM</td>
<td>0.497</td>
<td>0.247</td>
</tr>
<tr>
<td>RC4 ASB</td>
<td>281.505</td>
<td>&lt; 0.001</td>
<td>RCd DEM</td>
<td>0.413</td>
<td>0.171</td>
</tr>
<tr>
<td>RC7 DNE</td>
<td>2569.260</td>
<td>&lt; 0.001</td>
<td>RCd DEM</td>
<td>0.808</td>
<td>0.652</td>
</tr>
<tr>
<td>RC8 ABX</td>
<td>604.021</td>
<td>&lt; 0.001</td>
<td>RCd DEM</td>
<td>0.553</td>
<td>0.306</td>
</tr>
<tr>
<td>RC9 HPM</td>
<td>198.665</td>
<td>&lt; 0.001</td>
<td>RCd DEM</td>
<td>0.356</td>
<td>0.127</td>
</tr>
</tbody>
</table>

*Note.* DEM = Demoralization, LPE = Low Positive Emotions, CYN = Cynicism, ASB = Antisocial Behavior, DNE = Dysfunctional Negative Emotions, ABX = Aberrant Experiences, HPM = Hypomanic Activation.
Table 39

Principal Factor Analysis for Model 4a

<table>
<thead>
<tr>
<th>Factor</th>
<th>Total</th>
<th>% of Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2.660</td>
<td>44.338</td>
</tr>
</tbody>
</table>

*Note.* Promax rotation. Non-significant factors omitted.
Table 40

*Factor Matrix for Model 4a*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>RC2 Low Positive Emotions</td>
<td>-0.387</td>
</tr>
<tr>
<td>RC3 Cynicism</td>
<td>0.565</td>
</tr>
<tr>
<td>RC4 Antisocial Behavior</td>
<td>0.393</td>
</tr>
<tr>
<td>RC7 Dysfunctional Negative Emotions</td>
<td>0.627</td>
</tr>
<tr>
<td>RC8 Aberrant Experiences</td>
<td>0.588</td>
</tr>
<tr>
<td>RC9 Hypomanic Activation</td>
<td>0.859</td>
</tr>
</tbody>
</table>

*Note.* Principal factor analysis. Promax rotation.

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Table 41

*Correlation of Model 4a Factor with External Scales*

<table>
<thead>
<tr>
<th>External Scales</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>R</td>
<td>0.352</td>
</tr>
<tr>
<td>BIZ</td>
<td>-0.33</td>
</tr>
<tr>
<td>CYN</td>
<td>-0.096</td>
</tr>
<tr>
<td>PSY-5 AGG</td>
<td>-0.380</td>
</tr>
<tr>
<td>PSY-5 PSY</td>
<td>0.058</td>
</tr>
<tr>
<td>PSY-5 CON</td>
<td>0.229</td>
</tr>
</tbody>
</table>

*Note.* Pearson correlation. R = Repression, BIZ = Bizarre Mentation Content Scale, CYN = Cynicism Content Scale, PSY-5 AGG = Personality Psychopathology Five Aggression, PSY-5 PSY = Personality Psychopathology Five Psychoticism, PSY-5 CON = Personality Psychopathology Five Constraint.
**Model 5**

Because Models 1 – 4 showed poor fit with the sample data, an exploratory approach was adopted that would allow for further investigation of the correlations in the Restructured Clinical scales. Model 5 is an SR hierarchical model in which Low Positive Emotions and Dysfunctional Negative Emotions are regressed on Demoralization and the LOS scales are regressed on Demoralization, Low Positive Emotions, or Dysfunctional Negative Emotions, depending on the results of regression analyses described below. This model tests whether the correlations in the Restructured Clinical scales can best be accounted for by latent Demoralization, positive emotionality, or negative emotionality in the LOS scales.

To derive Model 5, each LOS scale was regressed on RCd Demoralization, RC2 Low Positive Emotions, and RC7 Dysfunctional Negative Emotions using the enter method. Beta weights and semi-partial correlations are reported in Table 42. Beta weights are the regression coefficients for standardized data and describe the change in the dependent variable for every standard deviation change in the independent variable. Semi-partial correlations are the unique correlation between an independent and the dependent variable with the effects of other independent variables removed. These analyses suggest that Somatic Complaints should be regressed directly onto Demoralization and that all other LOS scales should be regressed onto Dysfunctional Negative Emotions (see Figure 9).

Model 5 generally shows good overall fit with the sample data with CFI and TLI fit statistics failing to meet cutoff criteria, but coming close, and RMSEA and SRMR fit statistics meeting cutoff criteria (CFI = 0.927, TLI = 0.924, RMSEA = 0.058, SRMR =
0.075) (see Table 26). Statistics not used in evaluating model fit are $\chi^2_m = 13465.099$
(estimated df = 221, p < 0.0001) and AIC = 111181.464 (see Table 27).
Table 42

*Multiple Regression Analyses with DEM, LPE, and DNE as Independent Variables*

<table>
<thead>
<tr>
<th>Scale Factor</th>
<th>$F$</th>
<th>Sig.</th>
<th>Independent Variable</th>
<th>Beta</th>
<th>Semi-Partial Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>RC1SOM</td>
<td>421.433</td>
<td>&lt; 0.001</td>
<td>DEM</td>
<td>0.424</td>
<td>0.194</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>LPE</td>
<td>0.163</td>
<td>0.106</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>DNE</td>
<td>0.166</td>
<td>0.097</td>
</tr>
<tr>
<td>RC3CYN</td>
<td>284.125</td>
<td>&lt; 0.001</td>
<td>DEM</td>
<td>0.199</td>
<td>0.091</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>LPE</td>
<td>-0.197</td>
<td>-0.128</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>DNE</td>
<td>0.552</td>
<td>0.321</td>
</tr>
<tr>
<td>RC4ASB</td>
<td>129.771</td>
<td>&lt; 0.001</td>
<td>DEM</td>
<td>0.224</td>
<td>0.102</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>LPE</td>
<td>-0.114</td>
<td>-0.075</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>DNE</td>
<td>0.340</td>
<td>0.198</td>
</tr>
<tr>
<td>RC6PER</td>
<td>201.264</td>
<td>&lt; 0.001</td>
<td>DEM</td>
<td>0.186</td>
<td>0.085</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>LPE</td>
<td>-0.096</td>
<td>-0.063</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>DNE</td>
<td>0.449</td>
<td>0.261</td>
</tr>
<tr>
<td>RC8ABX</td>
<td>394.783</td>
<td>&lt; 0.001</td>
<td>DEM</td>
<td>0.228</td>
<td>0.104</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>LPE</td>
<td>-0.207</td>
<td>-0.135</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>DNE</td>
<td>0.595</td>
<td>0.346</td>
</tr>
<tr>
<td>RC9HPM</td>
<td>342.657</td>
<td>&lt; 0.001</td>
<td>DEM</td>
<td>0.142</td>
<td>0.065</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>LPE</td>
<td>-0.461</td>
<td>-0.301</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>DNE</td>
<td>0.694</td>
<td>0.403</td>
</tr>
</tbody>
</table>

*Note.* Enter method.
Figure 9.

Model 5

Note. Indicators and error terms omitted for clarity.
In this analysis, parameter estimate / standard error ratios are statistical tests of the significance of direct effects of factors on their indicator and the direct effects of factors on other factors. All estimated parameters are statistically significant with parameter estimate / standard error ratios $\geq \pm 1.96$ (see Table 43). This means that all factors explain a statistically significant amount of variance in their respective factors, that Demoralization has a statistically significant direct effect of Somatic Complaints, Low Positive Emotions, and Dysfunctional Negative Emotions, and that Dysfunctional Negative Emotions has a statistically significant direct effect on Cynicism, Antisocial Behavior, Ideas of Persecution, Aberrant Experiences, and Hypomanic Activation.

In Model 5, parameter estimates refer both to the direct effects of factors on their respective indicators and the direct effects of factors on other factors. Parameter estimates for Model 5 are presented in Table 43. Demoralization has comparable standardized factor loading estimates on Somatic Complaints ($= 0.745$), Low Positive Emotions ($= 0.829$), and Dysfunctional Negative Emotions ($= 0.836$). With the exception of Somatic Complaints, which is regressed on Demoralization, the LOS scales are regressed on Dysfunctional Negative Emotions. All of these LOS scales have higher corresponding factor loading estimates with Dysfunctional Negative Emotions than they do with Demoralization in Model 4.

In this analysis, R-square values represent the proportion of variance in each subscale indicator explained by its respective factor and the proportion of variance in factors explained by other factors. All R-square values for factor-indicator factor loadings are $> 0.30$ showing that all factors explain at least a moderate proportion of the
### Table 43

**Results for Model 5**

<table>
<thead>
<tr>
<th>combination</th>
<th>Estimate</th>
<th>Standard Error</th>
<th>Estimate / Standard Error</th>
<th>Standardized Estimate</th>
<th>Standardized XY Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEM by DEMSS1</td>
<td>1.000</td>
<td>0.000</td>
<td>0.000</td>
<td>1.759</td>
<td>0.911</td>
</tr>
<tr>
<td>DEM by DEMSS2</td>
<td>1.668</td>
<td>0.029</td>
<td>57.094</td>
<td>2.935</td>
<td>0.919</td>
</tr>
<tr>
<td>DEM by DEMSS3</td>
<td>0.950</td>
<td>0.018</td>
<td>53.210</td>
<td>1.672</td>
<td>0.891</td>
</tr>
<tr>
<td>SOM by SOMSS1</td>
<td>1.000</td>
<td>0.000</td>
<td>0.000</td>
<td>2.167</td>
<td>0.918</td>
</tr>
<tr>
<td>SOM by SOMSS2</td>
<td>0.714</td>
<td>0.018</td>
<td>39.333</td>
<td>1.547</td>
<td>0.825</td>
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<tr>
<td>SOM by SOMSS3</td>
<td>0.840</td>
<td>0.019</td>
<td>44.571</td>
<td>1.820</td>
<td>0.877</td>
</tr>
<tr>
<td>LPE by LPESS1</td>
<td>1.000</td>
<td>0.000</td>
<td>0.000</td>
<td>1.408</td>
<td>0.847</td>
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<tr>
<td>LPE by LPESS2</td>
<td>0.576</td>
<td>0.020</td>
<td>29.497</td>
<td>0.811</td>
<td>0.736</td>
</tr>
<tr>
<td>LPE by LPESS2</td>
<td>0.679</td>
<td>0.021</td>
<td>32.111</td>
<td>0.957</td>
<td>0.759</td>
</tr>
<tr>
<td>CYN by CYNSS1</td>
<td>1.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.843</td>
<td>0.761</td>
</tr>
<tr>
<td>CYN by CYNSS2</td>
<td>1.311</td>
<td>0.043</td>
<td>30.481</td>
<td>1.105</td>
<td>0.795</td>
</tr>
<tr>
<td>CYN by CYNSS3</td>
<td>1.824</td>
<td>0.057</td>
<td>32.177</td>
<td>1.537</td>
<td>0.830</td>
</tr>
<tr>
<td>ASB by ASBSS1</td>
<td>1.000</td>
<td>0.000</td>
<td>0.000</td>
<td>1.116</td>
<td>0.811</td>
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<tr>
<td>ASB by ASBSS2</td>
<td>0.980</td>
<td>0.037</td>
<td>26.664</td>
<td>1.094</td>
<td>0.756</td>
</tr>
<tr>
<td>ASB by ASBSS3</td>
<td>1.035</td>
<td>0.039</td>
<td>26.680</td>
<td>1.155</td>
<td>0.787</td>
</tr>
<tr>
<td>PER by PERSS1</td>
<td>1.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.667</td>
<td>0.760</td>
</tr>
<tr>
<td>PER by PERSS2</td>
<td>0.620</td>
<td>0.034</td>
<td>18.270</td>
<td>0.414</td>
<td>0.724</td>
</tr>
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</table>

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<table>
<thead>
<tr>
<th></th>
<th>1.240</th>
<th>0.057</th>
<th>21.602</th>
<th>0.827</th>
<th>0.808</th>
</tr>
</thead>
<tbody>
<tr>
<td>DNE by DNESS1</td>
<td>1.000</td>
<td>0.000</td>
<td>0.000</td>
<td>1.520</td>
<td>0.865</td>
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<tr>
<td>DNE by DNESS2</td>
<td>0.910</td>
<td>0.022</td>
<td>40.542</td>
<td>1.384</td>
<td>0.837</td>
</tr>
<tr>
<td>DNE by DNESS3</td>
<td>1.308</td>
<td>0.032</td>
<td>41.318</td>
<td>1.989</td>
<td>0.890</td>
</tr>
<tr>
<td>ABX by ABXSS1</td>
<td>1.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.831</td>
<td>0.796</td>
</tr>
<tr>
<td>ABX by ABXSS2</td>
<td>1.105</td>
<td>0.042</td>
<td>26.224</td>
<td>0.918</td>
<td>0.830</td>
</tr>
<tr>
<td>ABX by ABXSS3</td>
<td>0.863</td>
<td>0.038</td>
<td>22.996</td>
<td>0.718</td>
<td>0.715</td>
</tr>
<tr>
<td>HPM by HPMSS1</td>
<td>1.000</td>
<td>0.000</td>
<td>0.000</td>
<td>1.543</td>
<td>0.771</td>
</tr>
<tr>
<td>HPM by HPMSS2</td>
<td>1.241</td>
<td>0.043</td>
<td>28.699</td>
<td>1.915</td>
<td>0.856</td>
</tr>
<tr>
<td>HPM by HPMSS3</td>
<td>0.574</td>
<td>0.024</td>
<td>24.182</td>
<td>0.886</td>
<td>0.601</td>
</tr>
<tr>
<td>SOM on DEM</td>
<td>0.918</td>
<td>0.032</td>
<td>28.558</td>
<td>0.745</td>
<td>0.745</td>
</tr>
<tr>
<td>LPE on DEM</td>
<td>0.663</td>
<td>0.021</td>
<td>31.576</td>
<td>0.829</td>
<td>0.829</td>
</tr>
<tr>
<td>DNE on DEM</td>
<td>0.722</td>
<td>0.021</td>
<td>34.368</td>
<td>0.836</td>
<td>0.836</td>
</tr>
<tr>
<td>CYN on DNE</td>
<td>0.402</td>
<td>0.017</td>
<td>24.115</td>
<td>0.725</td>
<td>0.725</td>
</tr>
<tr>
<td>ASB on DNE</td>
<td>0.405</td>
<td>0.025</td>
<td>16.261</td>
<td>0.551</td>
<td>0.551</td>
</tr>
<tr>
<td>PER on DNE</td>
<td>0.297</td>
<td>0.017</td>
<td>17.232</td>
<td>0.678</td>
<td>0.678</td>
</tr>
<tr>
<td>ABX on DNE</td>
<td>0.437</td>
<td>0.021</td>
<td>20.369</td>
<td>0.799</td>
<td>0.799</td>
</tr>
<tr>
<td>HPM on DNE</td>
<td>0.693</td>
<td>0.030</td>
<td>22.778</td>
<td>0.682</td>
<td>0.682</td>
</tr>
</tbody>
</table>

**Note.** MLMV estimation. DEM = Demoralization, SOM = Somatic Complaints, LPE = Low Positive Emotions, CYN = Cynicism, ASB = Antisocial Behavior, PER = Ideas of Persecution, DNE = Dysfunctional Negative Emotions, ABX = Aberrant Experiences, HPM = Hypomanic Activation. SS following scale factor denotes subscale.
Table 44

*R-Square Values for Model 5 Latent Factors*

<table>
<thead>
<tr>
<th>Independent Variable &gt; Dependent Variable</th>
<th>R-square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demoralization &gt; Somatic Complaints</td>
<td>0.555</td>
</tr>
<tr>
<td>Demoralization &gt; Los Positive Emotions</td>
<td>0.687</td>
</tr>
<tr>
<td>Demoralization &gt; Dysfunctional Negative Emotions</td>
<td>0.698</td>
</tr>
<tr>
<td>Demoralization &gt; Cynicism</td>
<td>0.526</td>
</tr>
<tr>
<td>Demoralization &gt; Antisocial Behavior</td>
<td>0.304</td>
</tr>
<tr>
<td>Demoralization &gt; Ideas of Persecution</td>
<td>0.460</td>
</tr>
<tr>
<td>Demoralization &gt; Aberrant Experiences</td>
<td>0.638</td>
</tr>
<tr>
<td>Demoralization &gt; Hypomanic Activation</td>
<td>0.466</td>
</tr>
</tbody>
</table>
variance in their respective indicators (see Appendix X). R-square values for factors loading onto Demoralization range from 0.555 (Somatic Complaints) to 0.698 (Dysfunctional Negative Emotions) (see Table 44). This shows that Demoralization explains a moderate proportion of variance in these factors. R-square values for factors loading onto Dysfunction Negative Emotions range from 0.304 (Antisocial Behavior) to 0.638 (Aberrant Experiences). This shows that Dysfunctional Negative Emotions explains a moderate proportion of variance in these factors.

Residual covariances are the discrepancy between indicator covariances predicted by the model and observed values. For the inter-scale analyses, the consistency of discrepancies between the respective subscale indicators of factors is emphasized over the absolute magnitude of any single residual covariance. Whereas any single residual covariance may reflect idiosyncrasies in subscale construction specific to this investigation, consistent discrepancy between many subscale indicators of a factor and the subscale indicators of another factor is believed to reflect genuine relations between the factors whereas isolated residual covariances may reflect idiosyncrasies in the data. Visual inspection shows three areas of consistent model misfit between the indicator subscales of factors: Demoralization and Low Positive Emotions, Low Positive Emotions and Hypomanic Activation, and Antisocial Behavior and Hypomanic Activation. For Demoralization and Hypomanic Activation, residual covariances range from -0.216 (DEMSS1 and HPMSS1) to -0.810 (DEMSS2 and HPMSS2). For Low Positive Emotions and Hypomanic Activation, residual covariances range from -0.500 (LPESS2 and HPMSS3) to -1.069 (LPESS1 and HPMSS2). Finally, for Antisocial Behavior and Hypomanic Activation, residual covariances range from 0.328 (ASBSS3 and HPMSS3)
to 0.563 (ASBSS2 and HPMSS2) (see Appendix X). These residual covariances suggest that changing the relations between these factors (either by freeing them to covary or restricting their covariances to zero, by regressing one on another, or by modeling a higher order factor) will improve the fit of the model. Model 5a addresses the residual covariances between Low Positive Emotions and Hypomanic Activation by regressing the latter on the former. Model 6 address the residual covariances between Antisocial Behavior and Hypomanic Activation by modeling a higher order hostility-dyscontrol factor suggested by subsequent principal components and multiple regression analyses (see Model 6 for further details). The residual covariances between Demoralization and Hypomanic Activation are not addressed because of the low beta weights and semi-partial correlations for Demoralization produced in the regression analysis used to derive Model 5 (see Table 42).

The modification index predicts the improvement in $\chi^2_m$ that may be realized by freeing an estimate that has been restricted by the researcher to zero. Factor covariances restricted to zero and which have a modification index ≥ 100 are reported in Table 49. Although freeing these covariances would likely improve $\chi^2_m$, there should be a clear theoretical rationale for doing so. Model 5a addresses the modification index for Low Positive Emotions and Hypomanic Activation by regressing the latter on the former. Model 6 address the modification index for Antisocial Behavior and Hypomanic Activation by modeling a higher order hostility-dyscontrol factor suggested by subsequent principal components and multiple regression analyses (see Model 6 for further details). The modification index for Demoralization and Hypomanic Activation is not addressed because of the low beta weights and semi-partial correlations for
Demoralization produced in the regression analysis used to derive Model 5 (see Table 45).
Table 45

*Modification Indices for Model 5*

<table>
<thead>
<tr>
<th>Covariance</th>
<th>Modification Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demoralization and Hypomanic Activation</td>
<td>108.834</td>
</tr>
<tr>
<td>Low Positive Emotions and Hypomanic Activation</td>
<td>124.562</td>
</tr>
<tr>
<td>Dysfunctional Negative Emotions and Hypomanic Activation</td>
<td>108.836</td>
</tr>
</tbody>
</table>
Model 5a

Model 5a is identical to Model 5 except that it also models the direct effect of Low Positive Emotions on Hypomanic Activation. This modification was made on the basis of regression analysis, modification index, and residual covariance data from Model 5.

The regression analysis used to derive Model 5 (see Table 42) shows that Low Positive Emotions has comparable beta weights and semi-partial correlations with Dysfunctional Negative Emotions in explaining the variance in Hypomanic Activation. The modification indices from Model 5 show that allowing a relation between Low Positive Emotions and Hypomanic Activation would improve the fit of the model (see Table 45). Finally, the residual covariance data for Model 5 shows consistent misfit between these two factors when their relations are restricted to zero.

As with Model 5, Model 5a shows generally good overall fit with the sample data, with CFI and TLI fit statistics failing to meet cutoff criteria, but coming close, and RMSEA and SRMR fit statistics meeting cutoff criteria (CFI = 0.942, TLI = 0.939, RMSEA = 0.052, SRMR = 0.064) (see Table 26). Fit statistics not used in model evaluation are $\chi^2_m = 984.107$ (estimated df = 212, $p < 0.0001$) and $\text{AIC} = 110821.699$ (see Table 27). All fit statistics are improved over those from Model 5.

In this analysis, parameter estimate / standard error ratios are statistical tests of the significance of direct effects of factors on their indicator and the direct effects of a factor on other factors. All estimated parameters are statistically significant with parameter estimate / standard error ratios $\geq \pm 1.96$ (see Table 46). This means that all factors
Figure 10.

Model 5a

Note. Indicators and error terms omitted for clarity.
Table 46

Results for Model 5a

<table>
<thead>
<tr>
<th></th>
<th>Estimate</th>
<th>Standard Error</th>
<th>Estimate / Standard Error</th>
<th>Standardized Estimate</th>
<th>Standardized XY Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEM by DEMSS1</td>
<td>1.000</td>
<td>0.000</td>
<td>0.000</td>
<td>1.759</td>
<td>0.910</td>
</tr>
<tr>
<td>DEM by DEMSS2</td>
<td>1.669</td>
<td>0.030</td>
<td>54.824</td>
<td>2.936</td>
<td>0.919</td>
</tr>
<tr>
<td>DEM by DEMSS3</td>
<td>0.950</td>
<td>0.018</td>
<td>52.842</td>
<td>1.671</td>
<td>0.891</td>
</tr>
<tr>
<td>SOM by SOMSS1</td>
<td>1.000</td>
<td>0.000</td>
<td>0.000</td>
<td>2.167</td>
<td>0.918</td>
</tr>
<tr>
<td>SOM by SOMSS2</td>
<td>0.714</td>
<td>0.018</td>
<td>38.982</td>
<td>1.547</td>
<td>0.825</td>
</tr>
<tr>
<td>SOM by SOMSS3</td>
<td>0.840</td>
<td>0.019</td>
<td>44.462</td>
<td>1.820</td>
<td>0.877</td>
</tr>
<tr>
<td>LPE by LPESS1</td>
<td>1.000</td>
<td>0.000</td>
<td>0.000</td>
<td>1.406</td>
<td>0.846</td>
</tr>
<tr>
<td>LPE by LPESS2</td>
<td>0.578</td>
<td>0.020</td>
<td>29.342</td>
<td>0.813</td>
<td>0.738</td>
</tr>
<tr>
<td>LPE by LPESS2</td>
<td>0.679</td>
<td>0.021</td>
<td>32.858</td>
<td>0.954</td>
<td>0.757</td>
</tr>
<tr>
<td>CYN by CYNSS1</td>
<td>1.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.842</td>
<td>0.760</td>
</tr>
<tr>
<td>CYN by CYNSS2</td>
<td>1.311</td>
<td>0.043</td>
<td>30.592</td>
<td>1.103</td>
<td>0.794</td>
</tr>
<tr>
<td>CYN by CYNSS3</td>
<td>1.830</td>
<td>0.057</td>
<td>32.301</td>
<td>1.540</td>
<td>0.832</td>
</tr>
<tr>
<td>ASB by ASBSS1</td>
<td>1.000</td>
<td>0.000</td>
<td>0.000</td>
<td>1.117</td>
<td>0.812</td>
</tr>
<tr>
<td>ASB by ASBSS2</td>
<td>0.979</td>
<td>0.037</td>
<td>26.688</td>
<td>1.094</td>
<td>0.756</td>
</tr>
<tr>
<td>ASB by ASBSS3</td>
<td>1.033</td>
<td>0.039</td>
<td>26.770</td>
<td>1.154</td>
<td>0.787</td>
</tr>
<tr>
<td>PER by PERSS1</td>
<td>1.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.667</td>
<td>0.761</td>
</tr>
<tr>
<td>PER by PERSS2</td>
<td>0.619</td>
<td>0.034</td>
<td>18.237</td>
<td>0.413</td>
<td>0.724</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th></th>
<th>MLMV estimate (a)</th>
<th>MLMV estimate (b)</th>
<th>MLMV estimate (c)</th>
<th>MLMV estimate (d)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PER by PERSS3</td>
<td>1.238</td>
<td>0.057</td>
<td>21.618</td>
<td>0.826</td>
</tr>
<tr>
<td>DNE by DNESS1</td>
<td>1.000</td>
<td>0.000</td>
<td>0.000</td>
<td>1.505</td>
</tr>
<tr>
<td>DNE by DNESS2</td>
<td>0.916</td>
<td>0.023</td>
<td>40.399</td>
<td>1.379</td>
</tr>
<tr>
<td>DNE by DNESS3</td>
<td>1.317</td>
<td>0.032</td>
<td>41.259</td>
<td>1.982</td>
</tr>
<tr>
<td>ABX by ABXSS1</td>
<td>1.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.829</td>
</tr>
<tr>
<td>ABX by ABXSS2</td>
<td>1.110</td>
<td>0.042</td>
<td>26.140</td>
<td>0.920</td>
</tr>
<tr>
<td>ABX by ABXSS3</td>
<td>0.868</td>
<td>0.038</td>
<td>22.909</td>
<td>0.719</td>
</tr>
<tr>
<td>HPM by HPMSS1</td>
<td>1.000</td>
<td>0.000</td>
<td>0.000</td>
<td>1.501</td>
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<tr>
<td>HPM by HPMSS2</td>
<td>1.191</td>
<td>0.044</td>
<td>26.887</td>
<td>1.788</td>
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<tr>
<td>HPM by HPMSS3</td>
<td>0.573</td>
<td>0.027</td>
<td>21.225</td>
<td>0.860</td>
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<tr>
<td>SOM on DEM</td>
<td>0.918</td>
<td>0.033</td>
<td>27.849</td>
<td>0.745</td>
</tr>
<tr>
<td>LPE on DEM</td>
<td>0.664</td>
<td>0.022</td>
<td>30.677</td>
<td>0.831</td>
</tr>
<tr>
<td>DNE on DEM</td>
<td>0.728</td>
<td>0.021</td>
<td>34.014</td>
<td>0.851</td>
</tr>
<tr>
<td>HPM on LPE</td>
<td>-0.738</td>
<td>0.046</td>
<td>-16.199</td>
<td>-0.692</td>
</tr>
<tr>
<td>CYN on DNE</td>
<td>0.407</td>
<td>0.017</td>
<td>24.013</td>
<td>0.727</td>
</tr>
<tr>
<td>ASB on DNE</td>
<td>0.421</td>
<td>0.025</td>
<td>16.562</td>
<td>0.567</td>
</tr>
<tr>
<td>PER on DNE</td>
<td>0.300</td>
<td>0.017</td>
<td>17.284</td>
<td>0.676</td>
</tr>
<tr>
<td>ABX on DNE</td>
<td>0.439</td>
<td>0.022</td>
<td>20.261</td>
<td>0.796</td>
</tr>
<tr>
<td>HPM on DNE</td>
<td>1.192</td>
<td>0.051</td>
<td>23.181</td>
<td>1.196</td>
</tr>
</tbody>
</table>

*Note.* MLMV estimation. DEM = Demoralization, SOM = Somatic Complaints, LPE = Low Positive Emotions, CYN = Cynicism, ASB = Antisocial Behavior, PER = Ideas of Persecution, DNE = Dysfunctional Negative Emotions, ABX = Aberrant Experiences, HPM = Hypomanic Activation. SS following scale factor denotes subscale.
Table 47

*R-Square Values for Model 5a Latent Factors*

<table>
<thead>
<tr>
<th>Independent Variable &gt; Dependent Variable</th>
<th>R-square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demoralization &gt; Somatic Complaints</td>
<td>0.555</td>
</tr>
<tr>
<td>Demoralization &gt; Low Positive Emotions</td>
<td>0.690</td>
</tr>
<tr>
<td>Demoralization &gt; Dysfunctional Negative Emotions</td>
<td>0.724</td>
</tr>
<tr>
<td>Demoralization &gt; Cynicism</td>
<td>0.529</td>
</tr>
<tr>
<td>Demoralization &gt; Antisocial Behavior</td>
<td>0.321</td>
</tr>
<tr>
<td>Demoralization &gt; Ideas of Persecution</td>
<td>0.457</td>
</tr>
<tr>
<td>Demoralization &gt; Aberrant Experiences</td>
<td>0.634</td>
</tr>
<tr>
<td>Low Positive Emotion / Dysfunctional Negative Emotions &gt; Hypomanic Activation</td>
<td>0.738</td>
</tr>
</tbody>
</table>
explain a statistically significant amount of variance in their respective factors; Demoralization has a statistically significant direct effect of Somatic Complaints, Low Positive Emotions, and Dysfunctional Negative Emotions; Dysfunctional Negative Emotions has a statistically significant direct effect on Cynicism, Antisocial Behavior, Ideas of Persecution, Aberrant Experiences, and Hypomanic Activation; and Low Positive Emotions has a statistically significant direct effect on Hypomanic Activation.

In Model 5a, parameter estimates refer both to the direct effects of factors on their respective indicators and the direct effects of factors on other factors. Parameter estimates for Model 5a are presented in Table 46. Analyses of the parameter estimates provide information regarding the strength and statistical significance of the specified relations in the model. The standardized factor loading estimates for the direct effects of Demoralization on Somatic Complaints (= 0.745), Low Positive Emotions (= 0.831), and Dysfunctional Negative Emotions (= 0.851) are largely unchanged from those in Model 5. The standardized factor loading estimate for the added direct of Low Positive Emotions on Hypomanic Activation is -0.692. The standardized factor loading estimates for the direct effects of Dysfunctional Negative Emotions on Cynicism, Antisocial Behavior, Ideas of Persecution, and Aberrant Experiences are largely unchanged from those in Model 5. The standardized factor loading estimate of the direct effect of Dysfunctional Negative Emotions to Hypomanic Activation, however, has increased from 0.682 in Model 5 to 1.196 in Model 5a.

In this analysis, R-square values represent the proportion of variance in each subscale indicator explained by its respective factor and the proportion of variance in
factors explained by other factors. All R-square values for factor-indicator factor loadings are > 0.30 showing that all factors explain at least a moderate proportion of the variance in their respective indicators (see Appendix Y). R-square values for factors loading onto Demoralization range from 0.555 (Somatic Complaints) to 0.724 (Dysfunctional Negative Emotions) (see Table 47). This shows that Demoralization explains a moderate proportion of variance in these factors. R-square values for factors loading onto Dysfunction Negative Emotions range from 0.321 (Antisocial Behavior) to 0.634 (Aberrant Experiences). This shows that Dysfunctional Negative Emotions explains a moderate proportion of variance in these factors. The R-square value for Hypomanic Activation, which has direct effects from both Low Positive Emotions and Dysfunctional Negative Emotions is 0.738. This shows that Low Positive Emotions and Dysfunctional Negative Emotions account for a moderate to large proportion of the variance in Hypomanic Activation.

Residual covariances are the discrepancy between indicator covariances predicted by the model and observed values. For the inter-scale analyses, the consistency of discrepancies between the respective subscale indicators of factors is emphasized over the absolute magnitude of any single residual covariance. Whereas any single residual covariance may reflect idiosyncrasies in subscale construction specific to this investigation, consistent discrepancy between many subscale indicators of a factor and the subscale indicators of another factor is believed to reflect genuine relations between the factors whereas isolated residual covariances may reflect idiosyncrasies in the data. Visual inspection shows misfit between the indicators of Cynicism and Hypomanic Activation and confirms the misfit between the indicators of Antisocial Behavior and
Hypomanic Activation identified in Model 5. Additionally, it is observed that the residual covariances between the indicators of Demoralization and Hypomanic Activation identified in Model 5a are smaller in comparison with the residual covariances identified in Model 5 (see Appendix Y).

For Cynicism and Hypomanic Activation, residual covariances range from -0.17 (CYNSS2 and HPMSS3) to 0.733 (CYNSS3 and HPMSS2). Although this misfit is not consistently high across indicators, several of the highest residuals for Model 5a are between indicators of these factors. As in Model 5a, a consistent pattern of misfit was observed between indicator subscales of Antisocial Behavior and Hypomanic Activation. These residual covariances range from 0.315 (ASBSS3 and HPMSS3) to 0.568 (ASBSS2 and HPMSS2). It should also be noted that the residual covariances for indicators of Demoralization and Hypomanic Activation are lower than in Model 5. Whereas in Model 5, these residual covariances range from -0.216 (DEMSS1 and HPMSS1) to -0.810 (DEMSS2 and HPMSS2); in Model 5a they range from 0.007 (DEMSS3 and HPMSS1) to -0.425 (DEMSS2 and HPMSS3).

These residual covariances suggest that changing the relations between these factors (either by freeing them to covary or restricting their covariances to zero, by regressing one on another, or by modeling a higher order factor) will improve the fit of the model. Model 6 will address the residual covariances between Antisocial Behavior and Hypomanic Activation by modeling a higher order hostility-dyscontrol factor suggested by subsequent principal components and multiple regression analyses (see Model 6 for further details). Model 6 will not address the residual covariances between
Cynicism and Hypomanic Activation because no related higher order factor has been identified through subsequent analyses.

The modification index predicts the improvement in $\chi^2_m$ that may be realized by freeing an estimate that has been restricted by the researcher to zero. No modification index $\geq 100$ are reported. This suggests that freeing covariances restricted to zero will not improve the fit of the model.

**Model 6**

Model 6 builds upon Model 5a. Like Model 5a, Model 6 in an SR hierarchical model in which Low Positive Emotions and Dysfunctional Negative Emotions are regressed on Demoralization and the LOS scales are regressed on Demoralization, Low Positive Emotions, or Dysfunctional Negative Emotions based on empirical evidence described above. Model 6, however, introduces two latent higher order factors to explain specific correlations in the LOS scales. The first factor reflects psychotic content and is modeled as a higher order factor of Ideas of Persecution and Aberrant Experiences. The second factor reflects hostility-dyscontrol content and is modeled as a higher order factor of Antisocial Behavior and Hypomanic Activation. The process by which these factors were hypothesized is detailed below. Model 6 tests whether Model 5a can be improved upon by introducing latent order factors.

To identify significant higher order factors of the LOS scales, a series of regression analyses were performed with the aim of removing shared variance with Demoralization, Low Positive Emotions, and Dysfunctional Negative Emotions that could otherwise obfuscate other factors. This was done by regressing each LOS scale on RCd Demoralization, RC2 Low Positive Emotions, and RC7 Dysfunctional Negative
Emotions using the enter method and saving the residual scores. The residualized LOS scales were then analyzed using both principal factor analysis and correlational analysis.

Principal factor analysis was performed using Promax rotation. Two significant factors were identified accounting for 52.89% of the variance in the residualized LOS scales (see Tables 48 and 49). These two factors were then correlated with external scales (see Table 50). These external scales are the Repression scale (R) (Welsh, 1956), the Bizarre Mentation (BIZ) and Cynicism (CYN) scales from Wiggins’ Content Scales (1966), and the Aggression (PSY-5 AGG), Psychoticism (PSY-5 PSY), and Constraint (PSY-5 CON) scales from the Personality Psychopathology Five (PSY-5) scales (Harkness & McNulty, 1994).
Table 48

*Principal Factor Analysis for Model 6*

<table>
<thead>
<tr>
<th>Factor</th>
<th>Total</th>
<th>% of Variance</th>
<th>Cumulative %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1.876</td>
<td>31.260</td>
<td>31.260</td>
</tr>
<tr>
<td>2</td>
<td>1.298</td>
<td>21.632</td>
<td>52.892</td>
</tr>
</tbody>
</table>

*Note.* Promax rotation. Non-significant factors omitted.
Table 49

*Factor Matrix for Model 6*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Factor 1</th>
<th>Factor 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residualized RC1 Somatic Complaints</td>
<td>0.343</td>
<td>-0.189</td>
</tr>
<tr>
<td>Residualized RC3 Cynicism</td>
<td>0.363</td>
<td>0.163</td>
</tr>
<tr>
<td>Residualized RC4 Antisocial Behavior</td>
<td>-0.213</td>
<td>0.632</td>
</tr>
<tr>
<td>Residualized RC6 Ideas of Persecution</td>
<td>0.575</td>
<td>-0.056</td>
</tr>
<tr>
<td>Residualized RC8 Aberrant Experiences</td>
<td>0.578</td>
<td>0.014</td>
</tr>
<tr>
<td>Residualized RC9 Hypomanic Activation</td>
<td>0.162</td>
<td>0.688</td>
</tr>
</tbody>
</table>

*Note.* Principal factor analysis. Promax rotation.
Table 50

*Correlations of Model 6 Factors with External Scales*

<table>
<thead>
<tr>
<th>External Scales</th>
<th>Factor 1</th>
<th>Factor 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>R</td>
<td>-0.180</td>
<td>-0.420</td>
</tr>
<tr>
<td>BIZ</td>
<td>0.543</td>
<td>0.207</td>
</tr>
<tr>
<td>CYN</td>
<td>0.407</td>
<td>0.277</td>
</tr>
<tr>
<td>PSY-5 AGG</td>
<td>0.381</td>
<td>0.446</td>
</tr>
<tr>
<td>PSY-5 PSY</td>
<td>0.485</td>
<td>0.200</td>
</tr>
<tr>
<td>PSY-5 CON</td>
<td>-0.124</td>
<td>-0.558</td>
</tr>
</tbody>
</table>

*Note*. Pearson correlation. R = Repression, BIZ = Bizarre Mentation Content Scale, CYN = Cynicism Content Scale, PSY-5 AGG = Personality Psychopathology Five Aggression, PSY-5 PSY = Personality Psychopathology Five Psychoticism, PSY-5 CON = Personality Psychopathology Five Constraint.
Based on the principal factor and correlational analyses, two general factors were hypothesized to contribute to the correlations in the LOS scales (see Figure 11). The first factor appears to describe psychotic content and has its highest factor loadings and beta weights with RC6 PER (Ideas of Persecution) and RC8 ABX (Aberrant Experiences) and, to a lesser extent, RC1 SOM (Somatic Complaints) and correlates most highly with BIZ and PSY-5 PSY. The second factor appears to describe hostility and dyscontrol content and has its highest factor loadings and beta weights with RC4 ASB (Antisocial Behavior) and RC9 HPM (Hypomanic Activation) and, to a lesser extent, RC1 SOM (Somatic Complaints) and correlates most highly with PSY-5 CON, PSY-5 AGG, and R.

SR modeling of Model 6 fails to produce a converged solution. Possible reasons for these outcomes are offered in the Discussion section (Chapter 5).
Figure 11.

Model 6

LATENT HIGHER ORDER FACTORS OF THE LOS SCALES

PSYCHOTIC

HOSTILITY-DYSCONTROL

SOM

CYN

ASB

PER

ABX

HPM

DEM

LPE

DNE
CHAPTER 5: DISCUSSION

Summary and Interpretation of Results

The aims of this investigation were to assess the fit of items to their respective Restructured Clinical scales, to identify items that may not fit well, and to illuminate the nature of the correlations between the scales by identifying latent factors in the scales.

Item-Scale Analyses

The aims of the item-scale analyses were to assess the fit of items to their respective Restructured Clinical scales and to identify items that may not fit well. Because of the preliminary nature of the validation research of the Restructured Clinical scales, no specific hypotheses were offered as to which item-scale analyses would show good fit with the sample data. Rather an exploratory descriptive approach was adopted.

Models that fit well with the sample data show good internal consistency. This means that the items fit together well and reflect a cohesive underlying factor. Models that do not fit well with the sample data show poor internal consistency. This means that the items do not fit together well and likely measure different underlying factors. With models that fit well with the sample data, clinicians and researchers can have confidence that a scale’s items are measuring the same factor. With models that do not fit well with the data, clinicians and researchers cannot be sure whether elevated scores reflect high levels of one factor or are the cumulative result of the presence of diffuse factors.

In addition to providing information on the overall fit of the scale models, this investigation also provides information regarding the fit of individual items, including identification of potentially problematic items that do not appear to fit well with their
respective scales. This information is important to those interested in refining the scales. If the results of this investigation are replicated in other studies, it will suggest that removal of these items will lead to improvements in the scales' internal consistency. Items identified as potentially problematic are those which have one of the five smallest standardized factor loadings in both male and female samples and small observed R-square values, which suggest that the factor explains only a small proportion of the variance in the items. Items that persistently fail to fit well with other items as evidenced by large residual covariances are also identified. Replication of these findings would suggest that deletion of problematic items would improve the internal consistency of the scales.

In general, it was found that RCd Demoralization, RC1 Somatic Complaints, RC3 Cynicism, RC6 Ideas of Persecution, RC7 Dysfunctional Negative Emotions, and RC8 Aberrant Experiences show good overall fit with the sample data, while RC2 Low Positive Emotions, RC4 Antisocial Behavior, and RC9 Hypomanic Activation show poor overall fit with the sample data. Detailed descriptions for each scale are presented below.

**RCd Demoralization**

The model for RCd Demoralization shows good overall fit with the sample data with all three of the fit statistics meeting cutoff criteria for both male and female samples. Factor loading / standard error ratios show that the factor explains a statistically significant amount of variance in every item. Additionally, standardized factor loading estimates and observed R-square values suggest that the factor explains a moderate to large proportion of the variance in every item. These findings should encourage
clinicians and researchers to have confidence that the items in this scale fit well together and measure a cohesive factor.

RC1 Somatic Complaints

The model for RC1 Somatic Complaints generally shows good overall fit with the sample data. For both male and female samples, two of the three fit statistics meet cutoff criteria and the third comes close. The failure of the CFI fit statistic to meet cutoff criteria may be explained by this statistic’s sensitivity to low correlations between indicators. For the male sample, the mean correlation between items is 0.275 while for the female sample, the mean correlation between items is 0.250.

Factor loading / standard error ratios show that the factor explains a statistically significant amount of variance in every item. Standardized factor loading estimates and observed R-square values suggest, however, that the factor explains only a small amount of variance in some items.

Items SOM13 (which assesses whether the subject’s hands and feet have been warm enough), SOM14 (which assesses whether the subject has constipation complaints), SOM18 (which assesses whether the subject’s rate of speech has changed or whether there has been slurring or hoarseness), and SOM26 (which assesses whether the subject has heard ringing or buzzing in his or her ears) are among the five items with the smallest standardized factor loadings in both male and female samples and have small observed R-square values. Additionally, items SOM13 and SOM18 appear in two of the five largest residual covariances in both samples. Consequently, these items should be considered to be potentially problematic.
Because these items are conceptually similar to other items that have more of their variance explained by the factor and because a meaningful proportion of subjects endorse these items in both directions (see Appendices C and D), it is unclear why these potentially problematic items have modest standardized factor loading estimates and observed R-square values. Since all of the items identified as potentially problematic in this scale are keyed false, response bias presents itself as one possibility.

Although these findings should encourage clinicians and researchers to have confidence that the most of the items in RC1 Somatic Complaints fit well together and measure a cohesive factor, some items may not fit well in this scale.

**RC2 Low Positive Emotions**

The model for RC2 Low Positive Emotions shows poor overall fit with the sample data. For the male sample, only one of the three fit statistics meet cutoff criteria. For the female sample, none of the fit statistics meet cutoff criteria. Although factor loading / standard error ratios show that the factor explains a statistically significant amount of variance in every item, standardized factor loading estimates and observed R-square values suggest that the factor explains only a small amount of variance in some items.

Items LPE4 (which assesses whether the subject feels like an important person), LPE9 (which assesses whether the subject finds it easy to make decisions), and LPE 16 (which assesses whether the subject enjoys making decisions and delegating responsibility) are among the five items with the smallest standardized factor loadings in both male and female samples and have small observed R-square values. Additionally, item LPE13 (which assesses whether the subject predicts that he or she will succeed in
endeavors) is one of the five items with the smallest standardized factor loadings in the female sample and appears in one of the five largest residual covariances in the male sample and in three of the five largest residual covariances in the female sample. Consequently, these items should be considered to be potentially problematic.

Because these items seem conceptually similar to other items that have more of their variance explained by the factor and because a meaningful proportion of subjects are endorsing these items in both directions (see Appendices E and F), it is unclear why these potentially problematic items have modest standardized factor loading estimates and observed R-square values. Additionally, since all items in this scale are keyed in the same direction, response style does not explain these potentially problematic items.

Given its poor fit with the sample data, interpretations of RC2 Low Positive Emotions should be made cautiously. Because of its suspect internal consistency, high scores in this scale may reflect elevated levels of one factor or the cumulative effects of multiple diffuse factors.

RC3 Cynicism

The model for RC3 Cynicism shows good overall fit with the sample data. For the male sample, one of the three fit statistics meet cutoff criteria while the other two come close. For the female sample, three of the fit statistics meet cutoff criteria and the third comes close. The failure of the CFI fit statistic to meet cutoff criteria may be explained by this statistic’s sensitivity to low correlations between indicators. For the male sample, the mean correlation between items is 0.285 while for the female sample, the mean correlation between items is 0.237. Factor loading / standard error ratios show that the factor explains a statistically significant amount of variance in every item.
Additionally, standardized factor loading estimates and observed R-square values suggest that the factor explains at least a moderate proportion of the variance in every item. Few items, however, have high standardized loading estimates or observed R-square values. This low ceiling is likely responsible for the lack of better overall fit with the sample data.

It is also notable that items CYN14 (which assesses whether the subject believes that partners in marriages are happy) and CYN15 (which assesses whether the subject perceives that partners in marriages show affection) often appear in the five largest residual covariances in both male and female samples. Item CYN14 appears in two of the five largest residual covariances in the male sample and three of the five largest residual covariances in the female sample. Item CYN15 appears in four of the five largest residual covariance in the male sample and two of the five largest residual covariances in the female sample. These residual covariances, however, are not large and both items have above average mean and median standardized factor loadings and observed R-square values in the scale.

Although these findings should encourage clinicians and researchers to have confidence that the most of the items in RC3 Cynicism fit well together and measure a cohesive factor, some items may not fit well in this scale.

RC4 Antisocial Behavior

The model for RC4 Antisocial Behavior shows poor overall fit well with the sample data. For both the male and female samples, only one of the three fit statistics meet cutoff criteria.
Factor loading / standard error ratios show that the factor explains a statistically significant amount of variance in every item. Standardized factor loading estimates and observed R-square values, however, suggest that the factor explains only a small amount of variance in some items.

Items ASB17 (which assesses whether the subject has a history of conflict related to sexual behaviour), ASB18 (which assesses whether there has been a high amount of conflict in the subject’s family), and ASB22 (which assesses whether the subject’s family was socially cohesive) are among the five items with the smallest standardized factor loadings in both male and female samples and have small observed R-square values. Consequently, these items should be considered to be potentially problematic.

It is notable that items ASB18 and ASB22 both reflect family content. Another item with family content, ASB9 (which assesses whether the subject experienced severe physical punishment as a child) also has low standardized factor loadings and small observed R-square values, especially with the female sample. In contrast, items that have high standardized factor loadings and observed R-square values reflect historical reports of antisocial behavior (which assesses whether the subject has a childhood history of theft). It is therefore hypothesized that RC4 Antisocial Behavior contains a factor that reflects family discord as well as one reflecting antisocial behavior. Because items ASB18 and ASB22 are endorsed by a meaningful proportion of subjects in both directions (see Appendices I and J), low base rate responding does not adequately explain these problematic items. Since all of the potentially problematic items in this scale are keyed false, it is possible that response style plays a role in the low standardized factor loadings and observed R-square values in these items. Several other items which are also
keyed false, however, have high standardized factor loadings and observed R-square values.

Given its poor fit with the sample data, interpretations of RC4 Antisocial Behavior should be made cautiously. Because of its suspect internal consistency, high scores in this scale may reflect elevated levels of one factor or the cumulative effects of multiple diffuse factors.

**RC6 Ideas of Persecution**

The model for RC6 Ideas of Persecution generally shows good overall fit with the sample data. For the male sample, all three of the fit statistics meet cutoff criteria. For the female sample, two of the three fit statistics meet cutoff criteria and the third comes close. Surprisingly, given the large sample size, the factor loading path to item PERI2 (which assesses whether the subject believes that others have had control over his or her mind) is barely statistically significant in the male sample and not statistically significant in the female sample. All other factor loading / standard error ratios show that the factor explains a statistically significant amount of variance in every other item. Standardized factor loading estimates and observed R-square values, however, suggest that the factor explains only a small amount of variance in some items.

Items PERI2 and PERI6 (which assesses whether the subject believes that ghosts or spirits can affect behaviour) are among the five items with the smallest standardized factor loadings in both male and female samples and have small observed R-square values. Additionally, item PERI2 appears in four of the five largest residual covariances in both the male and female samples. Item PERI16 appears in one of the five largest
residual covariances in the male sample. Consequently, these items should be considered to be potentially problematic.

Unlike most of the items in RC6 Ideas of Persecution, which reflect reality-based persecutory ideation, item PER12 clearly reflects bizarre thinking. It is possible that the extreme quality of the symptom underlying this item is responsible for its lack of fit in this scale. Also, item PER12 is endorsed in the pathological direction by a very small proportion of subjects, approximately 1% in both male and female samples (see Appendices K and L). Item PER16 may not fit well in RC6 Ideas of Persecution because of its spiritual content. The other item in this scale with spiritual content, item PER1 (which assesses whether the subject believes that he or she has been possessed by evil spirits) fits reasonably well in the male sample but does not fit well in the female sample. Although both items PER12 and PER16 are keyed true, response bias does not appear to explain their small standardized factor loadings and observed R-square values since most items in this scale, which have acceptable standardized factor loadings and observed R-square values, are keyed in the same direction.

Although these findings should encourage clinicians and researchers to have confidence that the most of the items in this scale fit well together and measure a cohesive factor, some items, including those that reflect spiritual content, may not fit well in this scale.

*RC7 Dysfunctional Negative Emotions*

The model for RC7 Dysfunctional Negative Emotions generally shows good overall fit with the sample data. For the male sample, all three of the fit statistics meet cutoff criteria. For the female sample, two of the three fit statistics meet cutoff criteria.
and the third comes close. Factor loading / standard error ratios show that the factor explains a statistically significant amount of variance in every item. Additionally, standardized factor loading estimates and observed R-square values suggest that the factor explains a moderate to large proportion of the variance in almost every item.

Item DNE10 (which assesses whether the subject has unfounded fears of things or people) is among the five items with the smallest standardized factor loadings in both male and female samples and has an acceptable observed R-square value in the male sample but a small observed R-square value in the female sample. Item DNE13 (which assesses whether the subject is afraid on a daily basis) appears in one of the five largest residual covariances in the male sample and three of the five largest residual covariances in the female sample. Consequently, these items should be considered to be potentially problematic.

Because item DNE10 seems conceptually similar to other items that have more of their variance explained by the factor, because a meaningful proportion of subjects are endorsing this items in both directions (see Appendices M and N), and because it is keyed in the same direction as the other items in the scale, it is unclear why it has modest standardized factor loading estimate and observed R-square value. Although item DNE13 seems conceptually similar to other items that have more of their variance explained by the factor, only a small proportion of subjects (approximately 6% in both male and female samples) endorse this item in the pathological direction. Given that all items in the scale are keyed in the same direction, omitting response bias as an explanation for this item's poor fit, the relative infrequency with which subjects endorse
this item is likely responsible for its low standardized factor loading estimate and observed R-square value.

These findings should encourage clinicians and researchers to have confidence that the most of the items in RC7 Dysfunctional Negative Emotions fit well together and measure a cohesive factor. Some items, however, may not fit well in this scale.

RC8 Aberrant Experiences

The model for RC8 Aberrant Experiences generally shows good overall fit with the sample data. For the male sample, all three of the fit statistics meet cutoff criteria. For the female sample, one of the fit statistics meet cutoff criteria but the other two come close. Although factor loading / standard error ratios show that the factor explains a statistically significant amount of variance in every item, standardized factor loading estimates and observed R-square values suggest that the factor explains only a small amount of variance in some items.

Items ABX15 (which assesses whether the subject believes that others can tell what he or she is thinking) and ABX18 (which assesses whether the subject has ever seen a vision) are among the five items with the smallest standardized factor loadings in both male and female samples and have small observed R-square values. Additionally, ABX5 (which assesses whether there have been long periods of activity that the subject could not later recall) appears in two of the five largest residual covariances in both samples. Consequently, these items should be considered to be potentially problematic.

Unlike many of the other items in RC8 Aberrant Experiences, which assess unusual perceptual and cognitive processes, item ABX15 appears relatively innocuous and may be interpreted as reflecting projection or non-verbal communication. For this
reason, it may not fit well with the other scale items. As with some items in RC6 Ideas of Persecution, item ABX18 seems to reflect spiritual content and cultural beliefs. For this reason, it may not fit well with the other scale items. Because all of these items are endorsed by a meaningful proportion of subjects in both directions (see Appendices O and P), low base rate responding does not adequately explain these problematic items. Because item ABX18 is the only item in the scale that is keyed false, it is possible that response style may play a role in its low standardized factor loadings and observed R-square values. Items ABX5, ABX15, and ABX18, however, are keyed in the same direction as the other items in the scale and therefore response style likely is not a factor in their low standardized factor loadings and observed R-square values.

Although these findings should encourage clinicians and researchers to have confidence that the most of the items in this scale fit well together and measure a cohesive factor, some items may not fit well in this scale.

RC9 Hypomanic Activation

The model for RC9 Hypomanic Activation shows poor overall fit well with the sample data. For the male sample, all three of the fit statistics fail to meet the cutoff criteria. For the female sample, only one of the three fit statistics meet the cutoff criteria. Factor loading / standard error ratios show that the factor explains a statistically significant amount of variance in every item. Standardized factor loading estimates and observed R-square values suggest, however, that the factor explains only a small amount of variance in some items.

Items HPM2 (which assesses whether the subject perceives that he or she has had to obey others with less knowledge or skill), HPM4 (which assesses whether the subject
enjoys loud social behaviour), HPM19 (which assesses whether the subject believes that he or she could accomplish a great task if given the chance), and HPM28 (which assesses whether the subject has a history of dangerous, thrill-seeking behaviour) are among the five items with the smallest standardized factor loadings in both male and female samples and have small observed R-square values. Additionally, the residual covariance between Items HPM9 (which assesses whether the subject enjoys flirting) and HPM10 (which assesses whether the subject enjoys talking about sex) are among the five largest residual covariances in both samples. Consequently, these items should be considered to be potentially problematic.

In general, RC9 Hypomanic Activation appears to contain a range of content areas including interpersonal hostility, stimulus-seeking behaviour, activation, and positive mood. It is possible that this diversity in content is responsible for the small standardized factor loadings and observed R-square values.

It is notable that many of the items with the highest standardized factor loadings and R-square values in RC9 Hypomanic Activation reflect interpersonal hostility content. These items include HPM6 (which assesses whether the subject at times feels like engaging in physical fights), HPM18 (which assesses whether the subject enjoys intimidating others), HPM22 (which assesses whether the subject perceives that others view him or her as having a temper), HPM26 (which assesses whether the subject is competitive with others that he or she perceives as non-cooperative), and HPM27 (which assesses whether the subject has felt that his or her anger is out of control). In contrast, items that reflect elevated mood and activation have lower standardized factor loadings and R-square values. These items include HPM4 (which assesses whether the subject
enjoys loud, social behaviour), HPM8 (which assesses whether the subject engages in stimulation-seeking behaviour), HPM13 (which assesses whether the subject experiences uncued or incongruent positive activation), and HPM16 (which assesses whether the subject experiences uncued positive activation). Consequently, RC9 Hypomanic Activation may be more of a measure of hostility and dyscontrol than hypomanic activation.

It should also be noted that in their validation research, Tellegen et al. (2003) state that they did not have criterion measures that would have allowed them to establish the convergent validity of RC9 Hypomanic Activation by comparing it with another scale whereas they were able to perform such analyses with almost all of the other Restructured Clinical scales.

Given the poor overall fit of its models with the sample data, range of content areas, apparent focus on interpersonal hostility, and limited validation research, interpretations of RC9 Hypomanic Activation should be made cautiously. Because of its suspect internal consistency, high scores in this scale may reflect elevated levels of one factor or the cumulative effects of multiple diffuse factors.

**Inter-Scale Analyses**

The aim of the inter-scale analyses is to illuminate the nature of the scale correlations by identifying latent factors in the scales. While the correlations between Demoralization, Low Positive Emotions, and Dysfunctional Negative Emotions are explained and predicted by the theory behind the scales, the reasons for the other scale correlations were not clear. To investigate the nature of these correlations, models
representing different explanations for the correlations were tested to determine which explanation represents the best fit with the sample data.

These analyses suggest that a model in which the correlations between many scales can be accounted for by latent negative emotionality in several of the LOS scales best fits with the sample data. Additionally, post hoc exploratory analyses suggest that a latent psychotic factor may account in part for the correlations between RC6 Ideas of Persecution and RC8 Aberrant Experiences and a latent hostility-dyscontrol factor may account in part for the correlations between RC4 Antisocial Behavior and RC9 Hypomanic Activation.

*Model 1*

The first model to be tested (Model 1) allows all of the scales to covary with one another but carries little explanatory weight. This ‘measurement model’ is designed to assess the fit of the indicator subscales to their respective factors. Poor fit between Model 1 and the sample data would mean that more restrictive models with greater explanatory power would not fit well with the sample data. Because existing research shows meaningful correlations between many of the Restructured Clinical scales, it was hypothesized that this model would fit well with the sample data. As expected, Model shows good overall fit with the sample data suggesting that almost all of the scales have significant relations with one another. Inspection of the model results shows that the covariance path between Low Positive Emotions and Hypomanic Activation is not statistically significant. A subsequent model was tested restricting this relation to zero (Model 1a). This model produced identical overall results to Model 1.

*Model 2*
The next model to be tested (Model 2) restricts all relations between the scales to zero. Tellegen et al. (2003) have not claimed that the Restructured Clinical scales should be unrelated with one another and such a model is incongruent with the theoretical basis of the scales. Based on the existing validation research which shows meaningful correlations between the scales, it was hypothesized that this model would fit poorly with the sample data. As expected, Model 2 shows poor overall fit with the sample data. Modification indices from Model 2 suggest that allowing almost all of the factors to covary with each other would improve the overall fit of the model. Such a model, however, would simply replicate Models 1 and 1a and not further an understanding of the relations behind the scales.

**Model 3**

Model 3 allows direct effects from Demoralization to Low Positive Emotions and Dysfunctional Negative Emotions and models latent Demoralization factor in the affective scales, RC2 Low Positive Emotions and RC7 Dysfunctional Negative Emotions. These are the relations suggested by the theory underlying the Restructured Clinical scales; specifically, that a general pleasantness-unpleasantness factor overlays relatively independent positive emotionality and negative emotionality factors. Because Tellegen et al. (2003) do not explicitly state that there should be any other relations between the scales, all other relations between factors (direct effects and covariances) in this model are restricted to zero. It should be noted, however, that Tellegen et al. (2003) do not claim that any of the Restructured Clinical scales should be unrelated. Instead, they are silent as to the hypothesized relations between the LOS scales and Demoralization, Low Positive Emotions, and Dysfunctional Negative Emotions and the relations within the scales.
LOS scales. Model 3 can therefore be considered a very stringent test of the Restructured Clinical scales. Based on the existing validation research which shows meaningful correlations between most of the Restructured Clinical scales, it was hypothesized that this model would fit poorly with the sample data. As expected, Model 3 shows poor overall fit with the sample data, suggesting that there are other significant relations between the scales besides the direct effects of Demoralization on Low Positive Emotions and Dysfunctional Negative Emotions. Additionally, a modification index from this analysis suggests that the overall fit of the model would be improved by allowing Low Positive Emotions and Dysfunctional Negative Emotions to covary with one another. This suggests that the covariance between Low Positive Emotions and Dysfunctional Negative Emotions is not entirely accounted for by their shared relations with Demoralization (see ‘Directions for Future Research’ in Chapter 5).

**Model 4**

Model 4 regresses all of the factors of the syndrome Restructured Clinical scales on Demoralization. This model tests whether residual Demoralization in the syndrome Restructured Clinical scales can by itself account for scale correlations. Because Tellegen et al. (2003) focused their work on removing Demoralization from the syndrome Restructured Clinical scales it was hypothesized that this model would fit poorly with the sample data. As expected, Model 4 shows poor fit with the sample data suggesting that Demoralization alone cannot account for the scale correlations in the syndrome Restructured Clinical scales. The modification indices and residual covariances from Model 4 suggest that allowing relations between Hypomanic Activation and several factors: Low Positive Emotions, Cynicism, Antisocial Behavior,
Dysfunctional Negative Emotions, and Aberrant Experiences would improve overall model fit. Because Hypomanic Activation is common in all of these pairings, it was hypothesized that the second order factor of the Clinical Scales, commonly called Repression and highly correlated with RC9 Hypomanic Activation’s Clinical Scale counterpart, Scale 9 Ma (Hypomania), could account for the correlations between these scales.

To investigate the possibility that latent Repression factor in the syndrome Restructured Clinical scales could account for the scale correlations, another model (Model 4a) was tested in which a higher order factor was regressed on RC2 Low Positive Emotions, RC3 Cynicism, RC4 Antisocial Behavior, RC7 Dysfunctional Negative Emotions, RC8 Aberrant Experiences, and RC9 Hypomanic Activation. Unfortunately, this model did not produce a converged solution. Possible reasons for this are discussed in the ‘Limitations’ section in this chapter. An exploratory factor analysis was performed on RC2 Low Positive Emotions, RC3 Cynicism, RC4 Antisocial Behavior, RC7 Dysfunctional Negative Emotions, RC8 Aberrant Experiences, and RC9 Hypomanic Activation after variance from Demoralization was extracted using multiple regression. This analysis identifies one significant factor that loads moderately on the affective scales, RC2 Low Positive Emotions and RC7 Dysfunctional Negative Emotions, and less so on the other scales. This factor loads only modestly on RC4 Antisocial Behavior and RC9 Hypomanic Activation. The low loadings on RC4 Antisocial Behavior and RC9 Hypomanic Activation are notable because these scales’ Clinical Scales counterparts correlate highly with Repression. The factor identified in Model 4a was also correlated with external scales. The factor correlates most highly, but modestly, with the R scale.
(which is a measure of the Repression factor of the Clinical Scales) and PSY-5 AGG, a measure of aggression. Based on the factor loadings from the exploratory factor analysis and the correlational analysis, it does not appear that latent Repression in some of the syndrome Restructured Clinical scales is playing a large role in the scale correlations. This possibility, however, was overlooked in considering a priori models for this investigation.

Model 5

Because the a priori explanatory models did not fit well with the sample data, an exploratory approach was adopted that would allow for further investigation of the correlations in the Restructured Clinical scales. Recall that direct effects of Demoralization on Low Positive Emotions and Dysfunctional Negative Emotions are predicted by the theory behind the scales and can account for the correlations between these scales. Recall further that it is the correlations between the LOS scales and Demoralization, Low Positive Emotions, and Dysfunctional Negative Emotions and the correlation within the LOS scales that are not explained.

To determine whether latent Demoralization, positive emotionality, or negative emotionality play the most significant role in each LOS scales’ correlations, a series of multiple regression analyses were performed using the enter method and regressing each LOS scale on RCd Demoralization, RC2 Low Positive Emotions, and RC7 Dysfunctional Negative Emotions.

These analyses suggest that latent Demoralization is a larger factor than positive emotionality or negative emotionality in Somatic Complaints but that negative emotionality is a larger factor than Demoralization or positive emotionality in the
remainder of the LOS scales. Based on these analyses, in Model 5, Somatic Complaints is regressed onto Demoralization and all other LOS scales are regressed onto Dysfunctional Negative Emotions. Model 5 generally shows good fit with the sample data suggesting that a hierarchical model of the scales can account for their correlations.

In some cases, latent negative emotionality in the LOS scales likely reflects genuine comorbidity between a more general construct of psychopathology and its specific manifestations. For example, it is not difficult to accept that the general anxiety and worry characteristic of elevations in RC7 Dysfunctional Negative Emotions may find expression in the cynical views of others characteristic of elevations in RC3 Cynicism or in the interpersonal mistrust characteristic of elevations in RC6 Ideas of Persecution.

In other cases, negative emotionality may be conceptually separate from the constructs of interest in the LOS scales. For example, the anxiety and worry characteristic of elevations in RC7 Dysfunctional Negative Emotions may co-occur but do not seem centrally related to the antisocial history characteristic of elevations in RC4 Antisocial Behavior, odd perceptual and cognitive experiences characteristic of elevations in RC8 Aberrant Experiences, or elevated mood, impulsiveness, and interpersonal hostility characteristic of elevations in RC9 Hypomanic Activation. In these cases, it is plausible that content reflecting negative emotionality contributes to those scales' correlations with RC7 Dysfunctional Negative Emotions and that removal of such items would improve the specificity of the scales.

In either case, there are important implications for clinicians and researchers interested in the domains of interest assessed by the LOS scales. It suggests that clinicians and researchers should not simply accept that subjects that produce elevations
in these scales are manifesting the domain of interest. Instead clinicians and researchers should evaluate whether elevations in RC7 Dysfunctional Negative Emotions may be contributing to the elevations in the LOS scale of interest. For example, a clinician who suspects that their client has a history of antisocial behaviour should not simply accept elevations in RC4 Antisocial Behavior as confirmation of their hypothesis. Instead, the clinician should assess whether the client’s score on the scale is elevated in part by a high score on RC7 Dysfunctional Negative Emotions. This assessment would involve careful examination of the endorsement of the items in RC4 Antisocial Behavior.

The large proportion of variance in RC7 Dysfunctional Negative Emotions that is explained by the direct effect of RCd Demoralization raises the question of whether Dysfunctional Negative Emotions is fully- or partially-mediating the effect of Demoralization on the LOS scale factors. In the hierarchical models presented in this investigation, the effects of Demoralization on Cynicism, Antisocial Behavior, Ideas of Persecution, Aberrant Experiences and Hypomanic Activation are modeled as being fully mediated by Dysfunctional Negative Emotions, and in the case of Hypomanic Activation, Low Positive Emotions. Whether Demoralization also has direct, unmediated effects on these LOS scales was not assessed. Further research, however, is required to answer this question (see ‘Directions for Future Research’ in Chapter 5).

Model 5a.

Patterns of residual covariances in Model 5 suggest that allowing covariances between Demoralization and Low Positive Emotions, Low Positive Emotions and Hypomanic Activation, and Antisocial Behavior and Hypomanic Activation would improve the fit of the model. Modification indices suggest that allowing covariances
between Demoralization and Hypomanic Activation and Low Positive Emotions and Hypomanic Activation would improve the fit of the model. Based on these results, another model (Model 5a) was tested in which the direct effect of Low Positive Emotions on Hypomanic Activation was added to the structure of Model 5. This model shows slightly better overall fit with the sample data suggesting that Low Positive Emotions and Dysfunctional Negative Emotions both have direct effects on Hypomanic Activation.

**Model 6**

Analysis of residual covariances in Model 5a suggest that allowing relations between RC4 Antisocial Behavior and RC9 Hypomanic Activation and between RC3 Cynicism and RC9 Hypomanic Activation to zero may improve the fit of the model to sample data. To investigate the possibility that higher order factors for these scales may account for some of the correlations between the LOS scales, a series of multiple regression, principal factor, and correlational analyses were performed on the LOS scales. First, variance from Demoralization, Low Positive Emotions, and Dysfunctional Negative Emotions was removed from the LOS scales using multiple regression and saving residual scores. This was done to reduce the variance from Demoralization, Low Positive Emotions, and Dysfunctional Negative Emotions that could otherwise obfuscate other factors. The residualized scores were then analyzed using principal factor analysis. This analysis led to the identification of two significant factors. The first factor loads most highly on the residualized RC6 Ideas of Persecution scale and residualized RC8 Aberrant Experiences scales. The second factor loads most highly on the residualized RC4 Antisocial Behavior and residualized RC9 Hypomanic Activation scales. Next, these two factors were correlated with external scales. The first factor correlates most highly with
measures of psychoticism. The second factor correlates most highly with measures of aggression and (negatively) with measures of restraint and control. Based on these finding, it is hypothesized that a higher order factor of psychoticism contributes to correlations between RC6 Ideas of Persecution and RC8 Aberrant Experiences and another higher order factor of hostility-dyscontrol contributes to correlations between RC4 Antisocial Behavior and RC9 Hypomanic Activation. These higher order factors were added to the structure of Model 5a to produce Model 6. Model 6, unfortunately, failed to produce a converged solution. Possible reasons for this are discussed in the ‘Limitations’ section in this chapter).

**Summary of Inter-Scale Analyses**

The aim of Tellegen et al. (2003) was to remove a general factor of psychopathology from the Clinical Scales that they believe is responsible for scale correlations. To the extent that validation research shows that the syndrome Restructured Clinical scales have lower correlations with RCd Demoralization and with each other, compared with their Clinical Scale counterparts, their endeavor should be considered a success. What is missing from their work, however, are clear statements regarding how the LOS scales should relate with RCd Demoralization, the scales that assess emotionality (specifically, RC2 Low Positive Emotions and RC7 Dysfunctional Negative Emotions), and with each other. Clearly, some relations should be expected. Given that Demoralization is a measure of general hedonic valence, it is difficult to conceptualize of psychopathology that is unrelated to ‘feeling bad.’ Similarly, it is difficult to imagine some forms of psychopathology, such as persecutory ideation, that do not involve negative emotionality and activation.
This investigation presents evidence for a hierarchical structure with Demoralization as a general factor, positive and negative emotionality as intermediate, mediating factors, and other specific constructs of psychopathology bound together primarily by negative emotionality. As stated in the discussion on Model 5 above, in some cases, the presence of latent negative emotionality in the LOS scales may reflect genuine comorbidity, while in other cases, negative emotionality may be conceptually separate from the constructs of interest in the LOS scales. In the latter cases, removal of items highly correlated with negative emotionality would likely improve the specificity of the scales. This information is important to those who use the Restructured Clinical scales because it provides a framework for interpreting scale elevations. It suggests that several of the LOS scales are sensitive to high levels of negative emotionality and that the positive emotionality, negative emotionality, and somatic complaints scales are in turn sensitive to high levels of Demoralization.

While this structure denies a perhaps naïve psychometric ideal in which each scale assesses only one construct, it also suggests that the scales assess psychopathology across different and clinically-relevant levels. They provide measures of an individual’s general hedonic experience, intermediate positive and negative emotional functioning, and specific manifestations of clinical problems. This multi-dimensionality provides rich and meaningful ways to understand and compare individuals’ experiences. For example, two people with similar, high levels of Demoralization may have very different ways of expressing their distress. One individual may show diffuse elevations across many of the syndrome Restructured Clinical scales while another may selectively express somatic complaints. Alternatively, two people who show similarly elevated scores on RC4
Antisocial Behavior may experience very different levels of negative emotionality. One individual may show high anxiety while another may report feeling relatively calm. Insofar as diagnosis is used as the basis for intervention, these distinctions have important clinical implications.

Limitations

Four general limitations of this investigation have been identified. The first limitation involves the sample data. Because the Caldwell Clinical Dataset consists only of subjects’ gender and MMPI-2 responses, there is no information regarding the demographic characteristics of the sample or means of assessing whether subjects whose data was excluded from analysis differ in a meaningful way from subjects whose data was used for analysis.

The second limitation involves use of the sample data. Ideally, one sample is used to develop a model and a different sample is used to evaluate the fit of the model (Kline, 2005). Use of different samples is preferred because model development is often an iterative process that can lead to significant findings through chance. Additionally, replication with a different sample increases the external validity of the results. Given the large sample sizes required for SEM, however, replication is still relatively rare in SEM.

The third limitation of this investigation involves the failure of two models to produce converged solutions. There are numerous possible reasons for why a model will fail to produce a converged solution including linear dependency of the variables, errors in the data, and missing data. Inspection of the data suggests that none of these common causes are responsible in this investigation. It is notable that both of the models that fail
to produce a converged solution involve fully latent variables (i.e. those with no indicators). The mechanism by which these factors may affect model convergence are not yet understood. One plausible explanation is that a larger sample size is required because of the non-normal distribution of the data.

Finally, the fourth limitation of this investigation involves SEM methods in general. Readers should be reminded that even models that show excellent fit with the sample data are not proof that the posited relations between variables are correct. Rather, such models are one possible explanation for the data and alternative models are likely to fit just as well. For this reason, SEM should be informed by a theoretical understanding of how the variables should relate.

**Directions for Future Research**

Three general directions for further research are suggested by this investigation. In the present investigation, several models present positive emotionality (measured by Low Positive Emotions) and negative emotionality (measured by Dysfunctional Negative Emotions) as being independent factors but having a common direct cause, Demoralization. Although some of these models show good fit with the sample data, these models involve other factors and are not direct tests of independence of these two factors. Whether positive emotionality and negative emotionality are independent or parts of a bipolar factor is a question that continues to be debated in the literature and is one deserving of further attention. Path analysis of Demoralization, Low Positive Emotions, and Dysfunctional Negative Emotions comparing mutual effects and spurious effects caused by Demoralization could help to illuminate the issue.
Reich and Zautra (2002) have recently provided one hypothesis for reconciling the conflicting evidence. They suggest that individuals under conditions of low stress are able to process positive and negative emotionality separately whereas individuals under conditions of high stress may revert to low complexity, simplified information processing strategies and process emotional information as a bipolar continuum. Validation research by Tellegen et al (2003) which shows lower correlations between RC2 Low Positive Emotions and RC7 Dysfunctional Negative Emotions with a normative sample compared with clinical samples supports this hypothesis.

The second area for further research involves exploration of the role of factors in mediating other factors. In two models in this investigation, Dysfunctional Negative Emotions is modeled as fully mediating between Demoralization and some of the LOS scales. Whether Demoralization also has direct effects on these scales was not assessed. Mediational analyses using multiple regression techniques could be used to illuminate this issue.

Finally, at the onset of this investigation, it was decided that interpretation of the data should as much as possible focus on gender-invariant results. This was not intended to detract or to minimize from the importance of gender but simply to set parameters for the investigation. In the course of analyzing the data, however, interesting observations regarding the interface between personality and gender have presented themselves.

First, in the item-scale analyses, it was observed that the male sample tends to show better fit with the sample data compared with the female sample. Although this difference is not large, it does seem fairly consistent. Second, again in the item-scale analyses, it was observed that R-square values for some items appear meaningfully
different between male and female samples. For example, the proportion of variance explained in item PER1 (which assesses whether the subject believes that he or she has been possessed by evil spirits) by Ideas of Persecution was almost three times larger for the male sample compared with the female sample. This relationship was reversed for item PER7 (which assesses whether the subject believes that someone is trying to poison him or her).

Second, in the inter-scale analyses, it was observed that for RC8 Aberrant Experiences, all of the fit statistics meet cutoff criteria for the male sample, whereas with the female sample, the CFI, TLI, and SRMR fit statistics fail to meet cutoff criteria.

These observations suggest that male and female subjects respond differentially to some items and that some scale factors may not be gender invariant. The issue of how gender affects response to items and experiences and expressions of psychopathology is an important question that should be addressed in subsequent studies.
REFERENCES


Harris, R., & Lingoes, J. (1968) *Subscales for the Minnesota Multiphasic Personality Inventory*. Unpublished manuscript. University of California.


## Appendix A

### RCd Demoralization Male Sample

<table>
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<tr>
<th>Estimator</th>
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### SUMMARY OF CATEGORICAL DATA PROPORTIONS

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**SAMPLE STATISTICS**

**ESTIMATED SAMPLE STATISTICS**

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**SAMPLE TETRACHORIC CORRELATIONS**

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| DEM14 | 0.619 | 0.596 | 0.733 | 0.626 | 0.534 |
| DEM15 | 0.663 | 0.712 | 0.778 | 0.796 | 0.663 |
| DEM16 | 0.750 | 0.667 | 0.776 | 0.674 | 0.529 |
| DEM17 | 0.629 | 0.660 | 0.758 | 0.652 | 0.559 |
| DEM18 | 0.720 | 0.684 | 0.719 | 0.760 | 0.596 |
| DEM19 | 0.588 | 0.744 | 0.668 | 0.757 | 0.626 |
| DEM20 | 0.676 | 0.572 | 0.665 | 0.692 | 0.604 |
| DEM21 | 0.681 | 0.644 | 0.729 | 0.652 | 0.594 |
| DEM22 | 0.682 | 0.668 | 0.804 | 0.765 | 0.623 |
| DEM23 | 0.707 | 0.770 | 0.880 | 0.666 | 0.479 |
| DEM24 | 0.642 | 0.690 | 0.810 | 0.686 | 0.529 |

**SAMPLE TETRACHORIC CORRELATIONS**

| DEM11 | 0.718 |
| DEM12 | 0.683 | 0.706 |
| DEM13 | 0.608 | 0.571 | 0.590 |
| DEM14 | 0.501 | 0.711 | 0.667 | 0.557 |
| DEM15 | 0.666 | 0.778 | 0.781 | 0.583 | 0.639 |
| DEM16 | 0.695 | 0.704 | 0.653 | 0.675 | 0.550 |
| DEM17 | 0.646 | 0.725 | 0.664 | 0.557 | 0.660 |
| DEM18 | 0.594 | 0.696 | 0.654 | 0.561 | 0.641 |
| DEM19 | 0.658 | 0.852 | 0.726 | 0.587 | 0.680 |
| DEM20 | 0.566 | 0.706 | 0.729 | 0.581 | 0.651 |
| DEM21 | 0.575 | 0.709 | 0.780 | 0.576 | 0.636 |
| DEM22 | 0.707 | 0.717 | 0.737 | 0.555 | 0.682 |
| DEM23 | 0.638 | 0.718 | 0.655 | 0.555 | 0.601 |
| DEM24 | 0.603 | 0.663 | 0.666 | 0.515 | 0.570 |
| DEM25 | 0.618 | 0.652 | 0.655 | 0.608 | 0.572 |
| DEM26 | 0.591 | 0.732 | 0.733 | 0.644 | 0.688 |
| DEM27 | 0.604 | 0.690 | 0.772 | 0.558 | 0.639 |
| DEM28 | 0.587 | 0.642 | 0.701 | 0.533 | 0.592 |

**SAMPLE TETRACHORIC CORRELATIONS**

| DEM12 | 0.748 |
| DEM13 | 0.760 | 0.642 |
| DEM14 | 0.702 | 0.677 | 0.678 |
| DEM15 | 0.798 | 0.754 | 0.772 | 0.784 |
| DEM16 | 0.797 | 0.667 | 0.642 | 0.644 | 0.686 |
| DEM17 | 0.761 | 0.692 | 0.712 | 0.646 | 0.743 |
| DEM18 | 0.733 | 0.680 | 0.694 | 0.685 | 0.722 |
| DEM19 | 0.674 | 0.617 | 0.627 | 0.592 | 0.806 |
| DEM20 | 0.697 | 0.544 | 0.605 | 0.698 | 0.690 |
| DEM21 | 0.755 | 0.650 | 0.669 | 0.625 | 0.709 |
| DEM22 | 0.753 | 0.689 | 0.744 | 0.825 | 0.816 |
| DEM23 | 0.794 | 0.734 | 0.684 | 0.622 | 0.683 |
| DEM24 | 0.756 | 0.654 | 0.605 | 0.637 | 0.653 |

**SAMPLE TETRACHORIC CORRELATIONS**

| DEM16 | 0.712 |
| DEM17 | 0.642 | 0.634 |
| DEM18 | 0.557 | 0.577 | 0.704 |
| DEM19 | 0.617 | 0.669 | 0.815 | 0.671 |
| DEM20 | 0.642 | 0.683 | 0.688 | 0.660 | 0.710 |
| DEM21 | 0.718 | 0.682 | 0.719 | 0.745 | 0.737 |
| DEM22 | 0.733 | 0.708 | 0.636 | 0.607 | 0.557 |
| DEM23 | 0.677 | 0.669 | 0.658 | 0.599 | 0.627 |

**SAMPLE TETRACHORIC CORRELATIONS**

| DEM21 | DEM22 | DEM23 | DEM24 |

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### RESIDUAL OUTPUT

**ESTIMATED MODEL AND RESIDUALS (OBSERVED - ESTIMATED)**

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Model Estimated Covariances/Correlations/Residual Correlations

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MODEL MODIFICATION INDICES

Minimum M.I. value for printing the modification index 0.000

M.I. E.P.C. Std E.P.C. StdYX E.P.C.

No modification indices above the minimum value.
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RCd Demoralization Female Sample

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**Sample Statistics**

**Estimated Sample Statistics**

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**Sample Thresholds**

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**Sample Thresholds**

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**Sample Tetrachoric Correlations**

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### SAMPLE TETRACHORIC CORRELATIONS

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### MODEL RESULTS

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### Variances

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### RESIDUAL OUTPUT

#### ESTIMATED MODEL AND RESIDUALS (OBSERVED - ESTIMATED)

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Model Estimated Covariances/Correlations/Residual Correlations

| DEM6 | DEM7 | DEM8 | DEM9 | DEM10 |
| DEM7 | 0.608 |
| DEM9 | 0.536 | 0.607 |
| DEM9 | 0.434 | 0.492 | 0.433 |
| DEM10 | 0.534 | 0.605 | 0.533 | 0.432 |
| DEM11 | 0.611 | 0.692 | 0.610 | 0.494 | 0.607 |
| DEM12 | 0.627 | 0.710 | 0.626 | 0.507 | 0.623 |
| DEM13 | 0.540 | 0.612 | 0.539 | 0.437 | 0.537 |
| DEM14 | 0.602 | 0.682 | 0.601 | 0.487 | 0.599 |
| DEM15 | 0.593 | 0.672 | 0.592 | 0.480 | 0.590 |
| DEM16 | 0.539 | 0.611 | 0.538 | 0.436 | 0.536 |
| DEM17 | 0.616 | 0.699 | 0.615 | 0.498 | 0.612 |
| DEM18 | 0.528 | 0.598 | 0.527 | 0.427 | 0.525 |
| DEM19 | 0.557 | 0.631 | 0.556 | 0.450 | 0.554 |
| DEM20 | 0.539 | 0.611 | 0.538 | 0.436 | 0.536 |
| DEM21 | 0.517 | 0.586 | 0.516 | 0.418 | 0.514 |
| DEM22 | 0.577 | 0.653 | 0.576 | 0.466 | 0.573 |
| DEM23 | 0.649 | 0.736 | 0.648 | 0.525 | 0.646 |
| DEM24 | 0.581 | 0.658 | 0.580 | 0.470 | 0.577 |

Model Estimated Covariances/Correlations/Residual Correlations

| DEM11 | DEM12 | DEM13 | DEM14 | DEM15 |
| DEM12 | 0.713 |
| DEM13 | 0.614 | 0.631 |
| DEM14 | 0.685 | 0.703 | 0.606 |
| DEM15 | 0.674 | 0.692 | 0.597 | 0.665 |
| DEM16 | 0.613 | 0.630 | 0.543 | 0.605 | 0.596 |
| DEM17 | 0.700 | 0.719 | 0.620 | 0.691 | 0.680 |
| DEM18 | 0.601 | 0.617 | 0.533 | 0.592 | 0.583 |
| DEM19 | 0.633 | 0.650 | 0.560 | 0.625 | 0.615 |
| DEM20 | 0.613 | 0.629 | 0.542 | 0.605 | 0.596 |
| DEM21 | 0.588 | 0.604 | 0.520 | 0.580 | 0.571 |
| DEM22 | 0.655 | 0.673 | 0.580 | 0.647 | 0.637 |
| DEM23 | 0.738 | 0.758 | 0.653 | 0.729 | 0.717 |
| DEM24 | 0.660 | 0.678 | 0.584 | 0.652 | 0.642 |

Model Estimated Covariances/Correlations/Residual Correlations

| DEM16 | DEM17 | DEM18 | DEM19 | DEM20 |
| DEM17 | 0.619 |

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<thead>
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### MODEL MODIFICATION INDICES

- **Minimum M.I. value for printing the modification index**: 0.000
- **M.I. E.P.C. Std E.P.C. StdYX E.P.C.**

No modification indices above the minimum value.
## Appendix C

**RC1 Somatic Complaints Male Sample**

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SOM26
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SOM27
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SAMPLE STATISTICS
ESTIMATED SAMPLE STATISTICS
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SAMPLE THRESHOLDS
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SAMPLE THRESHOLDS
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SAMPLE TETRACHORIC CORRELATIONS
SOM1 SOM2 SOM3 SOM4 SOM5

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
| SOM1 | 0.510 | 0.674 |
| SOM2 | 0.638 | 0.482 | 0.670 | 0.629 |
| SOM3 | 0.510 | 0.638 | 0.674 |
| SOM4 | 0.663 | 0.552 | 0.608 | 0.819 | 0.734 |
| SOM5 | 0.561 | 0.693 | 0.851 | 0.545 | 0.527 |
| SOM6 | 0.618 | 0.473 | 0.580 | 0.771 | 0.585 |
| SOM7 | 0.558 | 0.447 | 0.442 | 0.631 | 0.520 |
| SOM8 | 0.407 | 0.441 | 0.393 | 0.427 | 0.328 |
| SOM9 | 0.550 | 0.181 | 0.463 | 0.715 | 0.501 |
| SOM10 | 0.439 | 0.576 | 0.602 | 0.603 | 0.281 |
| SOM11 | 0.224 | 0.303 | 0.229 | 0.303 | 0.223 |
| SOM12 | 0.210 | 0.315 | 0.295 | 0.331 | 0.184 |
| SOM13 | 0.457 | 0.454 | 0.351 | 0.443 | 0.297 |
| SOM14 | 0.451 | 0.383 | 0.537 | 0.638 | 0.399 |
| SOM15 | 0.539 | 0.547 | 0.535 | 0.505 | 0.395 |
| SOM16 | 0.373 | 0.319 | 0.373 | 0.369 | 0.244 |
| SOM17 | 0.506 | 0.253 | 0.481 | 0.491 | 0.449 |
| SOM18 | 0.524 | 0.390 | 0.485 | 0.613 | 0.531 |
| SOM19 | 0.652 | 0.554 | 0.708 | 0.853 | 0.621 |
| SOM20 | 0.412 | 0.325 | 0.343 | 0.482 | 0.400 |
| SOM21 | 0.488 | 0.533 | 0.406 | 0.517 | 0.486 |
| SOM22 | 0.512 | 0.357 | 0.448 | 0.400 | 0.382 |
| SOM23 | 0.583 | 0.529 | 0.642 | 0.617 | 0.424 |
| SOM24 | 0.362 | 0.261 | 0.287 | 0.421 | 0.325 |
| SOM25 | 0.235 | 0.380 | 0.423 | 0.388 | 0.261 |

**SAMPLE TETRACHORIC CORRELATIONS**

| SOM6 | SOM7 | SOM8 | SOM9 | SOM10 |
| SOM7 | 0.560 | | | |
| SOM8 | 0.748 | 0.638 | | |
| SOM9 | 0.605 | 0.477 | 0.662 | | |
| SOM10 | 0.406 | 0.444 | 0.539 | 0.517 | |
| SOM11 | 0.620 | 0.524 | 0.614 | 0.568 | 0.347 |
| SOM12 | 0.497 | 0.683 | 0.421 | 0.488 | 0.395 |
| SOM13 | 0.179 | 0.331 | 0.376 | 0.418 | 0.305 |
| SOM14 | 0.255 | 0.363 | 0.257 | 0.217 | 0.232 |
| SOM15 | 0.455 | 0.465 | 0.496 | 0.347 | 0.394 |
| SOM16 | 0.555 | 0.475 | 0.503 | 0.441 | 0.457 |
| SOM17 | 0.555 | 0.600 | 0.601 | 0.566 | 0.599 |
| SOM18 | 0.368 | 0.270 | 0.392 | 0.345 | 0.342 |
| SOM19 | 0.438 | 0.511 | 0.492 | 0.481 | 0.479 |
| SOM20 | 0.597 | 0.457 | 0.645 | 0.491 | 0.497 |
| SOM21 | 0.807 | 0.623 | 0.714 | 0.486 | 0.422 |
| SOM22 | 0.462 | 0.388 | 0.469 | 0.529 | 0.588 |
| SOM23 | 0.479 | 0.495 | 0.648 | 0.485 | 0.673 |
| SOM24 | 0.430 | 0.432 | 0.434 | 0.301 | 0.284 |
| SOM25 | 0.624 | 0.598 | 0.576 | 0.554 | 0.699 |
| SOM26 | 0.337 | 0.302 | 0.351 | 0.330 | 0.314 |
| SOM27 | 0.290 | 0.466 | 0.513 | 0.358 | 0.603 |

**SAMPLE TETRACHORIC CORRELATIONS**

| SOM11 | SOM12 | SOM13 | SOM14 | SOM15 |
| SOM12 | 0.495 | | | |
| SOM13 | 0.345 | 0.441 | | |
| SOM14 | 0.355 | 0.249 | 0.296 | | |
| SOM15 | 0.464 | 0.351 | 0.370 | 0.363 | |
| SOM16 | 0.413 | 0.476 | 0.351 | 0.342 | 0.468 |
| SOM17 | 0.397 | 0.524 | 0.456 | 0.368 | 0.574 |
| SOM18 | 0.097 | 0.352 | 0.338 | 0.211 | 0.208 |
| SOM19 | 0.465 | 0.406 | 0.353 | 0.236 | 0.404 |
| SOM20 | 0.513 | 0.349 | 0.394 | 0.362 | 0.483 |
| SOM21 | 0.622 | 0.542 | 0.320 | 0.238 | 0.447 |

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### RESIDUAL OUTPUT

**ESTIMATED MODEL AND RESIDUALS (OBSERVED - ESTIMATED)**

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MODEL MODIFICATION INDICES

Minimum M.I. value for printing the modification index 0.000

M.I.  E.P.C. Std E.P.C. StdYX E.P.C.

No modification indices above the minimum value.

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SAMPLE STATISTICS

ESTIMATED SAMPLE STATISTICS

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**SAMPLE TETRACHORIC CORRELATIONS**

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**MODEL RESULTS**

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RESIDUAL OUTPUT

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Residuals for Covariances/Correlations/Residual Correlations

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MODEL MODIFICATION INDICES
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M.I. E.P.C. Std E.P.C. StdYX E.P.C.
No modification indices above the minimum value.
Appendix E

RC2 Low Positive Emotions Male Sample

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LPE17 0.290

MODEL RESULTS

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RESIDUAL OUTPUT

ESTIMATED MODEL AND RESIDUALS (OBSERVED - ESTIMATED)

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Model Estimated Covariances/Correlations/Residual Correlations

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Model Estimated Covariances/Correlations/Residual Correlations

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Residuals for Covariances/Correlations/Residual Correlations

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Residuals for Covariances/Correlations/Residual Correlations

**MODEL MODIFICATION INDICES**

Minimum M.I. value for printing the modification index 0.000

M.I.  E.P.C.  Std E.P.C.  StdYX  E.P.C.

No modification indices above the minimum value.
Appendix F

RC2 Low Positive Emotions Female Sample

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**SUMMARY OF CATEGORICAL DATA PROPORTIONS**

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### SAMPLE STATISTICS

#### ESTIMATED SAMPLE STATISTICS

#### SAMPLE THRESHOLDS

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### RESIDUAL OUTPUT

**ESTIMATED MODEL AND RESIDUALS (OBSERVED - ESTIMATED)**

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Residuals for Covariances/Correlations/Residual Correlations

MODEL MODIFICATION INDICES
Minimum M.I. value for printing the modification index 0.000

M.I. E.P.C. Std E.P.C. StdYX E.P.C.

No modification indices above the minimum value.
Appendix G

RC3 Cynicism Male Sample

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CYN11 0.494 0.369 0.618 0.844 0.813

SAMPLE TETRACHORIC CORRELATIONS
CYN1 CYN2 CYN3 CYN4 CYN5
CYN1 0.508
CYN2 0.557 0.527
CYN3 0.381 0.376 0.444
CYN4 0.574 0.492 0.715 0.516
CYN5 0.397 0.475 0.514 0.396 0.537
CYN6 0.369 0.466 0.354 0.522 0.537
CYN7 0.391 0.396 0.586 0.515 0.569
CYN8 0.436 0.521 0.487 0.449 0.552
CYN9 0.513 0.539 0.531 0.408 0.542
CYN10 0.269 0.431 0.383 0.355 0.483
CYN11 0.533 0.482 0.442 0.408 0.559
CYN12 0.399 0.392 0.534 0.360 0.561
CYN13 0.399 0.495 0.479 0.400 0.551
CYN14 0.322 0.433 0.355 0.359 0.414
CYN15

SAMPLE TETRACHORIC CORRELATIONS
CYN6 CYN7 CYN8 CYN9 CYN10
CYN7 0.466
CYN8 0.473 0.400
CYN9 0.479 0.426 0.427
CYN10 0.457 0.419 0.478 0.502
CYN11 0.440 0.337 0.435 0.377 0.377
CYN12 0.453 0.444 0.450 0.525 0.426
CYN13 0.520 0.456 0.492 0.520 0.410
CYN14 0.448 0.427 0.422 0.488 0.466
CYN15 0.389 0.322 0.379 0.423 0.396

SAMPLE TETRACHORIC CORRELATIONS
CYN11 CYN12 CYN13 CYN14 CYN15
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MODEL RESULTS

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Variances
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**Residual Output**

**Estimated Model and Residuals (Observed - Estimated)**

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**Residuals for Covariances/Correlations/Residual Correlations**

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Residuals for Covariances/Correlations/Residual Correlations

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Residuals for Covariances/Correlations/Residual Correlations

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MODEL MODIFICATION INDICES
Minimum M.I. value for printing the modification index 0.000
M.I. E.P.C. Std E.P.C. StdYX E.P.C.
No modification indices above the minimum value.
Appendix H

RC3 Cynicism Female Sample

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SAMPLE STATISTICS

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SAMPLE THRESHOLDS

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SAMPLE TETRACHORIC CORRELATIONS

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SAMPLE TETRACHORIC CORRELATIONS

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SAMPLE TETRACHORIC CORRELATIONS

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MODEL RESULTS

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Variances

| CYN | 0.357 | 0.044 | 8.144 | 1.000 | 1.000 |

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### R-SQUARE

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### RESIDUAL OUTPUT

**ESTIMATED MODEL AND RESIDUALS (OBSERVED - ESTIMATED)**

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**Residuals for Covariances/Correlations/Residual Correlations**

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### Residuals for Covariances/Correlations/Residual Correlations

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### Residuals for Covariances/Correlations/Residual Correlations

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### MODEL MODIFICATION INDICES

Minimum M.I. value for printing the modification index: 0.000

M.I.  E.P.C.  Std E.P.C.  StdYX E.P.C.

No modification indices above the minimum value.
Appendix I
RC4 Antisocial Behavior Male Sample

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### SAMPLE STATISTICS

#### ESTIMATED SAMPLE STATISTICS

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Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
| ASB10  | 0.395 | 0.369 | 0.235 | 0.351 |
| ASB11  | 0.396 | 0.370 | 0.179 | 0.496 |
| ASB12  | 0.140 | 0.625 | 0.317 | 0.311 |
| ASB13  | 0.376 | 0.628 | 0.262 | 0.267 |
| ASB14  | 0.395 | 0.494 | 0.359 | 0.178 |
| ASB15  | 0.454 | 0.599 | 0.158 | 0.509 |
| ASB16  | 0.523 | 0.378 | 0.365 | 0.419 |
| ASB17  | 0.407 | 0.145 | 0.177 | 0.174 |
| ASB18  | 0.165 | 0.079 | 0.222 | 0.188 |
| ASB19  | 0.330 | 0.306 | 0.222 | 0.253 |
| ASB20  | 0.137 | 0.418 | 0.371 | 0.231 |
| ASB21  | 0.159 | 0.447 | 0.371 | 0.274 |
| ASB22  | 0.131 | 0.171 | 0.161 | 0.369 |

**SAMPLE TETRACHORIC CORRELATIONS**

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**MODEL RESULTS**

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### Variances

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### RESIDUAL OUTPUT

#### ESTIMATED MODEL AND RESIDUALS (OBSERVED - ESTIMATED)

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Model Estimated Covariances/Correlations/Residual Correlations

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Model Estimated Covariances/Correlations/Residual Correlations

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Model Estimated Covariances/Correlations/Residual Correlations

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ASB17 0.138  0.036 -0.227 -0.148 -0.059
ASB18 0.210 -0.004 -0.124  0.030  0.088
ASB19 0.008 -0.022 -0.010 -0.099  0.080
ASB20 -0.007  0.107 -0.026 -0.015  0.053
ASB21 -0.011 -0.114 -0.139 -0.248 -0.020
ASB22  0.075  0.012 -0.201  0.048  0.026

Residuals for Covariances/Correlations/Residual Correlations
ASB6  ASB7  ASB8  ASB9  ASB10
ASB7 -0.167
ASB8 -0.004  0.017
ASB9  0.094 -0.028 -0.039
ASB10  0.060 -0.052 -0.070 -0.017  0.078
ASB11 -0.198  0.199  0.010 -0.061 -0.144
ASB12  0.012 -0.170 -0.069 -0.133  0.133
ASB13  0.049  0.059  0.044 -0.202  0.001
ASB14  0.070  0.117 -0.191  0.088  0.043
ASB15  0.183 -0.050  0.056  0.046 -0.041
ASB16  0.275 -0.021  0.078  0.030 -0.072
ASB17 -0.026 -0.161  0.003 -0.022 -0.026
ASB18  0.064 -0.028 -0.020 -0.039  0.162
ASB19 -0.137  0.073 -0.018  0.031 -0.020
ASB20 -0.156  0.050  0.084 -0.072 -0.074
ASB21 -0.049 -0.056 -0.003  0.171 -0.041

Residuals for Covariances/Correlations/Residual Correlations
ASB11  ASB12  ASB13  ASB14  ASB15
ASB12 -0.096
ASB13 -0.063  0.101
ASB14 -0.034  0.124  0.058
ASB15 -0.010 -0.030  0.074 -0.018
ASB16  0.031  0.035 -0.188 -0.065  0.141
ASB17 -0.131  0.029  0.026  0.068 -0.027
ASB18  0.016 -0.127 -0.075 -0.052 -0.070
ASB19  0.089 -0.100 -0.073 -0.024  0.072
ASB20 -0.031  0.007  0.067 -0.094 -0.088
ASB21 -0.115  0.235  0.079  0.234 -0.098
ASB22 -0.007 -0.006 -0.038  0.023 -0.156

Residuals for Covariances/Correlations/Residual Correlations
ASB16  ASB17  ASB18  ASB19  ASB20
ASB17  0.031
ASB18 -0.022  0.160
ASB19 -0.006 -0.022  0.049
ASB20  0.003  0.095 -0.048 -0.082
ASB21 -0.047  0.000 -0.032  0.020 -0.037
ASB22 -0.079 -0.079  0.275 -0.043  0.011

Residuals for Covariances/Correlations/Residual Correlations
ASB21  ASB22
ASB21 -0.014

MODEL MODIFICATION INDICES
Minimum M.I. value for printing the modification index  0.000
M.I.  E.P.C.  Std E.P.C.  StdYX E.P.C.
No modification indices above the minimum value.
Appendix J

RC4 Antisocial Behavior Female Sample

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MODEL MODIFICATION INDICES

Minimum M.I. value for printing the modification index 0.000

M.I. E.P.C. Std E.P.C. StdYX E.P.C.

No modification indices above the minimum value.
Appendix K

RC6 Ideas of Persecution Male Sample

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#### ESTIMATED SAMPLE STATISTICS

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### Residuals for Covariances/Correlations/Residual Correlations

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### MODEL MODIFICATION INDICES

Minimum M.I. value for printing the modification index: 0.000

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<th>E.P.C.</th>
<th>Std E.P.C.</th>
<th>StdYX E.P.C.</th>
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No modification indices above the minimum value.
**Appendix L**

**RC6 Ideas of Persecution Female Sample**

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**SUMMARY OF CATEGORICAL DATA PROPORTIONS**

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SAMPLE STATISTICS

ESTIMATED SAMPLE STATISTICS

SAMPLE THRESHOLDS

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SAMPLE THRESHOLDS

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SAMPLE THRESHOLDS

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SAMPLE THRESHOLDS

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SAMPLE TETRACHORIC CORRELATIONS

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SAMPLE TETRACHORIC CORRELATIONS

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SAMPLE TETRACHORIC CORRELATIONS

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MODEL RESULTS

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**Variances**

| PER | 0.150 | 0.072 | 2.073 | 1.000 | 1.000 |

**R-SQUARE**

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**RESIDUAL OUTPUT**

**ESTIMATED MODEL AND RESIDUALS (OBSERVED - ESTIMATED)**

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### Model Estimated Covariances/Correlations/Residual Correlations

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#### MODEL MODIFICATION INDICES

Minimum M.I. value for printing the modification index: 0.000

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No modification indices above the minimum value.
Appendix M

RC7 Dysfunctional Negative Emotions Male Sample

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| Category 2 | 0.276 |
| DNE3 | Category 1 | 0.797 |
| Category 2 | 0.203 |
| DNE4 | Category 1 | 0.772 |
| Category 2 | 0.228 |
| DNE5 | Category 1 | 0.782 |
| Category 2 | 0.218 |
| DNE6 | Category 1 | 0.740 |
| Category 2 | 0.260 |
| DNE7 | Category 1 | 0.770 |
| Category 2 | 0.230 |
| DNE8 | Category 1 | 0.708 |
| Category 2 | 0.292 |
| DNE9 | Category 1 | 0.897 |
| Category 2 | 0.103 |
| DNE10 | Category 1 | 0.859 |
| Category 2 | 0.141 |
| DNE11 | Category 1 | 0.901 |
| Category 2 | 0.099 |
| DNE12 | Category 1 | 0.772 |
| Category 2 | 0.228 |
| DNE13 | Category 1 | 0.936 |
| Category 2 | 0.064 |
| DNE14 | Category 1 | 0.670 |
| Category 2 | 0.330 |
| DNE15 | Category 1 | 0.819 |
| Category 2 | 0.181 |
| DNE16 | Category 1 | 0.885 |
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**SAMPLE STATISTICS**

**ESTIMATED SAMPLE STATISTICS**

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**Residual Output**

**Estimated Model and Residuals (Observed - Estimated)**

Model Estimated Covariances/Correlations/Residual Correlations

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Model Estimated Covariances/Correlations/Residual Correlations

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Model Estimated Covariances/Correlations/Residual Correlations

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MODEL MODIFICATION INDICES
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M.I.  E.P.C. Std E.P.C. StdYX E.P.C.
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Appendix N

RC7 Dysfunctional Negative Emotions Female Sample

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**ESTIMATED SAMPLE STATISTICS**

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Residuals for Covariances/Correlations/Residual Correlations

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**MODEL MODIFICATION INDICES**

Minimum M.I. value for printing the modification index 0.000

M.I. E.P.C. Std E.P.C. Std YX E.P.C.

No modification indices above the minimum value.
Appendix O
RC8 Aberrant Experiences Male Sample

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**SUMMARY OF CATEGORICAL DATA PROPORTIONS**

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### Sample Statistics

#### Estimated Sample Statistics

| Category 1 | 0.765 |
| Category 2 | 0.235 |

#### Sample Thresholds

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**ABX6$1 ABX7$1 ABX8$1 ABX9$1 ABX10$1**

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**ABX11$1 ABX12$1 ABX13$1 ABX14$1 ABX15$1**

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#### Sample Tetrachoric Correlations

| **ABX1** | 0.369 |
| **ABX2** | 0.517 |
| **ABX3** | 0.351 |
| **ABX4** | 0.527 |
| **ABX5** | 0.423 |
| **ABX6** | 0.445 |
| **ABX7** | 0.474 |
| **ABX8** | 0.350 |
| **ABX9** | 0.417 |
| **ABX10** | 0.404 |
| **ABX11** | 0.444 |
| **ABX12** | 0.609 |
| **ABX13** | 0.553 |
| **ABX14** | 0.235 |
| **ABX15** | 0.307 |
| **ABX16** | 0.441 |
| **ABX17** | 0.356 |

**ABX1 ABX2 ABX3 ABX4 ABX5**

| **ABX6** | 0.584 |
| **ABX7** | 0.636 |
| **ABX8** | 0.474 |
| **ABX9** | 0.420 |
| **ABX10** | 0.385 |
| **ABX11** | 0.389 |
| **ABX12** | 0.584 |
| **ABX13** | 0.544 |
| **ABX14** | 0.311 |
| **ABX15** | 0.406 |
| **ABX16** | 0.506 |
| **ABX17** | 0.398 |

**ABX6 ABX7 ABX8 ABX9 ABX10**

| **ABX11** | 0.521 |
| **ABX12** | 0.503 |
| **ABX13** | 0.572 |
| **ABX14** | 0.325 |
| **ABX15** | 0.330 |
| **ABX16** | 0.491 |
| **ABX17** | 0.455 |

**ABX11 ABX12 ABX13 ABX14 ABX15**

| **ABX16** | 0.276 |
| **ABX17** | 0.395 |
| **ABX18** | 0.460 |
### Sample Tetrachoric Correlations

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### Model Results

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### Residual Output

ESTIMATED MODEL AND RESIDUALS (OBSERVED - ESTIMATED)

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Model Estimated Covariances/Correlations/Residual Correlations

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Appendix P

RC8 Aberrant Experiences Female Sample

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#### SAMPLE STATISTICS

**ESTIMATED SAMPLE STATISTICS**

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### Sample Tetrachoric Correlations

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#### Residual Output

**Estimated Model and Residuals (Observed - Estimated)**

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Model Estimated Covariances/Correlations/Residual Correlations

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Model Estimated Covariances/Correlations/Residual Correlations

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Residuals for Covariances/Correlations/Residual Correlations

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### Residuals for Covariances/Correlations/Residual Correlations

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### Residuals for Covariances/Correlations/Residual Correlations

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### Residuals for Covariances/Correlations/Residual Correlations

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### MODEL MODIFICATION INDICES

Minimum M.I. value for printing the modification index 0.000

M.I.  E.P.C. Std E.P.C. StdYX E.P.C.

No modification indices above the minimum value.
Appendix Q

RC9 Hypomanic Activation Male Sample

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**RESIDUAL OUTPUT**

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Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
| HPML8  | -0.014 | -0.078 | -0.066 | -0.058 | -0.073 |
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No modification indices above the minimum value.
Appendix R

RC9 Hypomanic Activation Female Sample

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**SUMMARY OF CATEGORICAL DATA PROPORTIONS**

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| Category 2 | 0.091 |
| HPM2 | Category 1 | 0.565 |
| Category 2 | 0.435 |
| HPM3 | Category 1 | 0.737 |
| Category 2 | 0.263 |
| HPM4 | Category 1 | 0.633 |
| Category 2 | 0.367 |
| HPM5 | Category 1 | 0.295 |
| Category 2 | 0.705 |
| HPM6 | Category 1 | 0.932 |
| Category 2 | 0.068 |
| HPM7 | Category 1 | 0.730 |
| Category 2 | 0.270 |
| HPM8 | Category 1 | 0.758 |
| Category 2 | 0.242 |
| HPM9 | Category 1 | 0.519 |
| Category 2 | 0.481 |
| HPM10 | Category 1 | 0.748 |
| Category 2 | 0.252 |
| HPM11 | Category 1 | 0.829 |
| Category 2 | 0.171 |
| HPM12 | Category 1 | 0.718 |
| Category 2 | 0.282 |
| HPM13 | Category 1 | 0.792 |
| Category 2 | 0.208 |
| HPM14 | Category 1 | 0.704 |
| Category 2 | 0.296 |
| HPM15 | Category 1 | 0.909 |
| Category 2 | 0.091 |
| HPM16 | Category 1 | 0.556 |
| Category 2 | 0.444 |
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| Category 2 | 0.392 |</p>
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**SAMPLE STATISTICS**

**ESTIMATED SAMPLE STATISTICS**

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MODEL MODIFICATION INDICES
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**SAMPLE STATISTICS.**

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| **2.664** | 3.183 | 2.003 | 1.172 | 0.834 |
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| **3.48** | 3.348 | 1.051 | 0.747 | 0.427 |
| **2.810** | 1.823 | 1.473 | 1.048 | 0.454 |
| **1.425** | 2.003 | 0.592 | 0.421 | 0.266 |
| **4.16** | 0.876 | 0.584 | 0.416 | 0.266 |
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| **1.04** | 0.754 | 0.754 | 0.636 | 0.276 |
| **2.36** | 2.037 | 1.328 | 0.736 | 0.427 |
| **1.52** | 1.960 | 1.244 | 0.736 | 0.427 |
| **2.01** | 2.825 | 0.787 | 0.427 | 0.276 |
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| **2.26** | 2.825 | 0.787 | 0.736 | 0.427 |

**Model Estimated Covariances/Correlations/Residual Correlations**

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MODEL MODIFICATION INDICES

Minimum M.I. value for printing the modification index 50.000

M.I.  E.P.C.  Std E.P.C.  StdYX E.P.C.

No modification indices above the minimum value.
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|     | DEMS3C | SOM   | LPE   | CYN   | ASB   | PER   | DNE   | ABX   | HPM   | LPE   | SOM   | CYN   | ASB   | PER   | HPM   | LPE   | SOM   | CYN   | ASB   | PER   |
|-----|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|     | 0.950  | 0.018 | 51.937| 1.649 | 0.885 |
| SOM | 1.000  | 0.000 | 0.000 | 2.159 | 0.919 |
|     | 0.711  | 0.018 | 38.657| 1.536 | 0.822 |
|     | 0.839  | 0.019 | 44.716| 1.811 | 0.876 |
| LPE | 1.000  | 0.000 | 0.000 | 1.404 | 0.845 |
|     | 0.585  | 0.020 | 29.653| 0.822 | 0.746 |
|     | 0.674  | 0.021 | 32.440| 0.947 | 0.751 |
| CYN | 1.000  | 0.000 | 0.000 | 0.827 | 0.749 |
|     | 1.331  | 0.044 | 30.383| 1.101 | 0.794 |
|     | 1.866  | 0.059 | 31.468| 1.544 | 0.837 |
| ASB | 1.000  | 0.000 | 0.000 | 1.117 | 0.814 |
|     | 0.987  | 0.037 | 26.396| 1.102 | 0.763 |
|     | 1.014  | 0.038 | 26.804| 1.132 | 0.774 |
| PER | 1.000  | 0.000 | 0.000 | 0.647 | 0.739 |
|     | 0.630  | 0.038 | 16.584| 0.408 | 0.715 |
|     | 1.308  | 0.063 | 20.662| 0.846 | 0.829 |
| DNE | 1.000  | 0.000 | 0.000 | 1.502 | 0.862 |
|     | 0.915  | 0.023 | 39.894| 1.375 | 0.838 |
|     | 1.319  | 0.034 | 39.239| 1.982 | 0.894 |
| ABX | 1.000  | 0.000 | 0.000 | 0.825 | 0.793 |
|     | 1.111  | 0.043 | 25.603| 0.916 | 0.831 |
|     | 0.864  | 0.040 | 21.450| 0.713 | 0.712 |
| HPM | 1.000  | 0.000 | 0.000 | 1.562 | 0.780 |
|     | 1.195  | 0.037 | 31.952| 1.866 | 0.834 |
|     | 0.586  | 0.024 | 24.259| 0.915 | 0.621 |
| LPE | 0.000  | 0.000 | 0.000 | 0.000 | 0.000 |
|     | 2.057  | 0.093 | 22.174| 0.844 | 0.844 |
|     | 1.975  | 0.109 | 18.053| 0.652 | 0.652 |
| SOM | 2.754  | 0.135 | 20.359| 0.735 | 0.735 |
| CYN | 0.790  | 0.050 | 15.811| 0.550 | 0.550 |
|     | 0.765  | 0.059 | 12.912| 0.428 | 0.428 |
|     | 0.320  | 0.031 | 10.297| 0.276 | 0.276 |
| ASB | 0.902  | 0.066 | 13.648| 0.465 | 0.465 |
|     | 0.561  | 0.072 | 7.754 | 0.233 | 0.233 |
|     | 0.419  | 0.046 | 9.057 | 0.267 | 0.267 |
|     | 0.370  | 0.035 | 10.689| 0.401 | 0.401 |
| PER | 0.599  | 0.045 | 13.258| 0.533 | 0.533 |

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RESIDUAL OUTPUT

ESTIMATED MODEL AND RESIDUALS (OBSERVED - ESTIMATED)

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| Model Estimated Covariances/Correlations/Residual Correlations |
|---------------|----------|----------|----------|----------|
| PERSS1C       | 0.765    |          |          |          |
| PERSS2C       | 0.264    | 0.325    |          |          |
| PERSS3C       | 0.547    | 0.345    | 1.042    |          |
| DNESS1C       | 0.614    | 0.387    | 0.803    | 3.040    |
| DNESS2C       | 0.562    | 0.354    | 0.735    | 2.066    | 2.695    |
| DNESS3C       | 0.810    | 0.510    | 1.059    | 2.977    | 2.725    |
| ABXSS1C       | 0.376    | 0.237    | 0.492    | 0.952    | 0.971    |
| ABXSS2C       | 0.418    | 0.263    | 0.547    | 1.057    | 0.968    |
| ABXSS3C       | 0.325    | 0.205    | 0.425    | 0.822    | 0.753    |
| HPMSS1C       | 0.523    | 0.330    | 0.684    | 1.523    | 1.394    |
| HPMSS2C       | 0.625    | 0.394    | 0.818    | 1.820    | 1.666    |
| HPMSS3C       | 0.307    | 0.193    | 0.401    | 0.892    | 0.817    |

| Model Estimated Covariances/Correlations/Residual Correlations |
|---------------|----------|----------|----------|----------|
| HPMSS2C       |          |          |          |          |
| HPMSS3C       |          |          |          |          |

<p>| Residuals for Covariances/Correlations/Residual Correlations |
|---------------|----------|----------|----------|----------|
| DEMSS1C       | 0.054    |          |          |          |
| DEMSS2C       | 0.124    | 0.153    |          |          |
| DEMSS3C       | 0.041    | 0.062    | 0.049    | 0.041    |
| SMOSS1C       | 0.094    | -0.249   | 0.292    | 0.046    |
| SMOSS2C       | 0.184    | 0.143    | 0.302    | -0.014   | 0.023    |
| SMOSS3C       | -0.076   | -0.331   | 0.118    | 0.070    | 0.034    |
| LPESS1C       | -0.057   | 0.060    | 0.077    | 0.071    | 0.052    |
| LPESS2C       | -0.016   | -0.019   | 0.085    | 0.169    | 0.103    |
| LPESS3C       | 0.010    | 0.096    | 0.063    | -0.157   | -0.056   |
| CYNSS1C       | 0.144    | 0.235    | 0.096    | 0.047    | 0.157    |
| CYNSS2C       | -0.018   | -0.042   | -0.020   | -0.019   | 0.115    |
| CYNSS3C       | 0.006    | 0.023    | -0.029   | -0.041   | -0.222   |
| ASBSS1C       | 0.116    | 0.264    | 0.034    | 0.039    | 0.181    |
| ASBSS2C       | -0.100   | -0.162   | -0.174   | -0.202   | -0.006   |
| ASBSS3C       | 0.114    | 0.165    | -0.008   | 0.098    | 0.260    |
| PERS1C        | 0.073    | 0.135    | 0.099    | 0.132    | 0.134    |
| PERS2C        | 0.001    | -0.004   | -0.007   | -0.006   | 0.003    |
| PERS3C        | -0.005   | -0.013   | -0.031   | -0.011   | 0.041    |
| DNESS1C       | 0.027    | 0.026    | -0.083   | 0.009    | 0.274    |
| DNESS2C       | 0.072    | 0.037    | -0.054   | -0.058   | 0.185    |
| DNESS3C       | 0.160    | 0.365    | 0.067    | 0.070    | 0.311    |
| ABXSS1C       | 0.014    | -0.043   | -0.060   | 0.002    | 0.045    |
| ABXSS2C       | 0.112    | 0.017    | 0.055    | -0.015   | 0.052    |
| ABXSS3C       | 0.056    | 0.067    | 0.041    | 0.071    | 0.122    |
| HPMSS1C       | 0.242    | 0.227    | 0.082    | 0.082    | 0.291    |</p>
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Residuals for Covariances/Correlations/Residual Correlations

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Residuals for Covariances/Correlations/Residual Correlations

| CYNSS2C  | 0.012    |         |         |         |
| CYNSS3C  | 0.016    | 0.024   |         |         |
| ASBSS1C  | -0.064   | 0.032   | 0.011   |         |
| ASBSS2C  | -0.068   | 0.097   | -0.003  | 0.011   |
| ASBSS3C  | 0.038    | 0.124   | 0.011   | 0.030   |
| PERS1C   | -0.010   | 0.024   | 0.040   | 0.024   |
| PERS2C   | -0.050   | -0.053  | -0.020  | -0.044  |
| PERS3C   | 0.060    | 0.051   | -0.006  | -0.058  |
| DNESS1C  | 0.047    | 0.019   | 0.026   | -0.069  |
| DNESS2C  | 0.067    | -0.003  | 0.079   | -0.024  |
| DNESS3C  | -0.052   | -0.007  | 0.075   | -0.021  |
| ABXSS1C  | -0.040   | -0.056  | -0.057  | -0.084  |
| ABXSS2C  | 0.002    | 0.030   | 0.051   | 0.026   |
| ABXSS3C  | -0.028   | -0.205  | -0.001  | 0.010   |
| HPMS1C   | 0.155    | 0.235   | -0.097  | 0.005   |
| HPMS2C   | 0.042    | 0.191   | 0.016   | 0.069   |
| HPMS3C   | -0.213   | -0.243  | 0.124   | 0.167   |

Residuals for Covariances/Correlations/Residual Correlations

| PERS1C   | 0.004    |         |         |         |
| PERS2C   | 0.015    | 0.001   |         |         |
| PERS3C   | -0.006   | 0.002   | 0.006   |         |
| DNESS1C  | 0.061    | -0.006  | -0.009  | 0.047   |
| DNESS2C  | -0.014   | -0.036  | -0.048  | 0.127   |
| DNESS3C  | 0.125    | 0.022   | 0.050   | 0.050   |
| ABXSS1C  | -0.038   | 0.007   | 0.031   | 0.064   |
| ABXSS2C  | 0.009    | 0.007   | 0.010   | 0.014   |
| ABXSS3C  | -0.003   | -0.005  | 0.012   | 0.013   |
| HPMS1C   | 0.093    | -0.018  | 0.151   | 0.127   |
| HPMS2C   | 0.026    | -0.028  | 0.045   | 0.079   |
| HPMS3C   | -0.084   | -0.075  | -0.102  | -0.158  |

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MODEL MODIFICATION INDICES
Minimum M.I. value for printing the modification index 50.000

M.I.  E.P.C.  Std E.P.C.  StdYX E.P.C.
No modification indices above the minimum value.
## Appendix U

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**Residual Output**

**Estimated Model and Residuals (Observed - Estimated)**

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**Model Estimated Covariances/Correlations/Residual Correlations**

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**SAMPLE STATISTICS**

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- DEMSS3C: 0.000 0.086 0.000 0.000 0.000
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- SOMSS3C: 0.000 0.056 0.000 0.000 0.000
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**Residual Output**

**Estimated Model and Residuals (Observed - Estimated)**

**Model Estimated Means/Intercepts/Thresholds**

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**Residuals for Means/Intercepts/Thresholds**

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Model Estimated Covariances/Correlations/Residual Correlations

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Model Estimated Covariances/Correlations/Residual Correlations

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Model Estimated Covariances/Correlations/Residual Correlations

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**Intercepts**

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|--------|-----------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|--------|--------|
|        |           | 0.000   | 0.052   | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   | 0.015  |</p>
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### RESIDUAL OUTPUT

#### ESTIMATED MODEL AND RESIDUALS (OBSERVED - ESTIMATED)

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|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| DEMSS1C | 0.000  | 0.126  | 0.042  | 0.066  | 0.137  | -0.121 | 0.075  | 0.087  | 0.089  | 0.005  | -0.172 | 0.200  | 0.032  | 0.166  | 0.012  | -0.042 | -0.064 | -0.090 | -0.099 | -0.032 | -0.022 | -0.109 | -0.027 | -0.058 | -0.006 | -0.160 | -0.345 |
| DEMSS2C |        | 0.000  | 0.109  | -0.284 | 0.096  | -0.369 | 0.312  | 0.170  | 0.249  | 0.017  | -0.279 | -0.296 | 0.137  | -0.257 | 0.011  | -0.045 | -0.105 | -0.142 | -0.148 | -0.102 | -0.111 | -0.232 | -0.198 | -0.109 | -0.166 | -0.624 |        |
| DEMSS3C |        |        | 0.000  | 0.271  | 0.075  | 0.067  | 0.220  | 0.192  | 0.150  | -0.027 | -0.155 | -0.210 | -0.037 | -0.228 | -0.095 | -0.003 | -0.064 | -0.104 | -0.181 | -0.133 | -0.077 | -0.167 | -0.128 | -0.421 | -0.454 |        |
| SOMSS1C |        |        |        | 0.000  | 0.121  | -0.184 | 0.004  | -0.018 | -0.080 | 0.113  | -0.167 | -0.219 | 0.108  | 0.004  | 0.010  | 0.000  | -0.028 | -0.016 | -0.171 | -0.122 | -0.077 | -0.167 | -0.092 | -0.118 | -0.411 | -0.151 |        |
| SOMSS2C |        |        |        |        | 0.123  | -0.420 | 0.000  | 0.082  | -0.082 | -0.067 | -0.059 | 0.004  | 0.004  | 0.002  | -0.004 | 0.000  | -0.082 | -0.082 | 0.000  | -0.126 | -0.171 | -0.122 | -0.167 | -0.166 | -0.104 | -0.121 | -0.411 | 0.000  |        |
| SOMSS3C |        |        |        |        |        |        | 0.000  | -0.000 | -0.000 | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  |        |

Residuals for Covariances/Correlations/Residual Correlations

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ABXS3C 0.171 0.179 0.047 0.635 0.078
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Residuals for Covariances/Correlations/Residual Correlations

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ABXS3C 0.115 0.072 0.184 0.133 0.155
HPMSS1C 0.302 0.118 0.453 0.587 0.664
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Residuals for Covariances/Correlations/Residual Correlations

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Residuals for Covariances/Correlations/Residual Correlations

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MODEL MODIFICATION INDICES
Minimum M.I. value for printing the modification index 50.000

BY Statements

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LPE BY DEMSS3C 63.510 0.422 0.594 0.317

ON/BY Statements

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LPE ON DNE /
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LPE ON ABX /
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R-SQUARE

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### RESIDUAL OUTPUT

**ESTIMATED MODEL AND RESIDUALS (OBSERVED - ESTIMATED)**

#### Model Estimated Means/Intercepts/Thresholds

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Latent Variable R-Square

| SOM       | 0.555 |
| LPE       | 0.690 |
| CYN       | 0.529 |
| ASB       | 0.321 |
| PER       | 0.457 |
| DNE       | 0.724 |
| ABX       | 0.634 |
| HPM       | 0.738 |

RESIDUAL OUTPUT

ESTIMATED MODEL AND RESIDUALS (OBSERVED - ESTIMATED)

Model Estimated Means/Intercepts/Thresholds

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Model Estimated Means/Intercepts/Thresholds

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Residuals for Means/Intercepts/Thresholds

| DEMSS1C | DEMSS2C | DEMSS3C | SOMSS1C | SOMSS2C | SOMSS3C | LPESS1C | LPESS2C | LPESS3C | CYNSS1C | CYNSS2C | CYNSS3C | ASBSS1C | ASBSS2C | ASBSS3C |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 3.733   | 5.164   | 2.940   | 2.840   | 2.027   | 2.394   | 2.055   | 1.187   | 1.395   | 0.916   | 1.201   | 1.677   | 0.948   | 0.920   | 0.980   |

Model Estimated Covariances/Correlations/Residual Correlations

| DEMSS1C | DEMSS2C | DEMSS3C | SOMSS1C | SOMSS2C | SOMSS3C | LPESS1C | LPESS2C | LPESS3C | CYNSS1C | CYNSS2C | CYNSS3C | ASBSS1C | ASBSS2C | ASBSS3C |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 3.733   | 5.164   | 2.940   | 2.840   | 2.027   | 2.394   | 2.055   | 1.187   | 1.395   | 0.916   | 1.201   | 1.677   | 0.948   | 0.920   | 0.980   |

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## Model Estimated Covariances/Correlations/Residual Correlations

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## Model Estimated Covariances/Correlations/Residual Correlations

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VITA AUCTORIS

Michael Kin-Fun Cheng was born in Hong Kong in 1974. He received his B.A. (Honours) (Majoring in Psychology and Minoring in Sociology and Political Science) from the University of Toronto in 1999 and his M.Ed. (Counselling Psychology for Psychology Specialists) from the Ontario Institute for Studies in Education of the University of Toronto (OISE/UT) in 2001. He is currently a doctoral candidate in the Adult Clinical Track of the Clinical Psychology Program at the University of Windsor. He completed his predoctoral internship at the University Counseling Center at the University of Rochester in 2006.