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Sivik Psychosomaticism Test and Test of Operational Style: Relationship with State-Trait Anxiety Inventory and Beck's Depression Inventory

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Abstract

Two interrelated personality tests, the Sivik Psychosomaticism test (SPS) and test of Operationality (OPER) are evaluated for construct validity. Ninty--eight employees at a university hospital and 285 patients at a psychosomatic clinic completed SPS and OPER tests and the State -Trait Anxiety Inventory (STAI) and Beck's Depression Inventory (BDI). Calculations of the correlation coefficients between SPS and OPER and BDI and STAI show that SPS and OPER assess depression and anxiety, demonstrating good construct validity. Correlation coefficients are overall higher for the patient group, thus verifying our hypotheses that projective tests are more suitable than structural ones for the assessment of personality profiles and coping styles of patients with at risk of developing of psychosomatic disorders.

Key-words*: Personality test, Psychosomaticism, Construct validity, STAI, BDI, SPS, OPER.*

The Sivik Psychosomaticism test (SPS) and test of Operationality (OPER) are projective-structural self--report questionnaires used to assess the personality traits and coping strategies associated with the risk of development of psychosomatic disease or syndromes. Their development and method of scoring have been described elsewhere (Sivik & Hösterrey, 1992; Sivik, Delimar & Schoenfeld, 1999 a). Evidence supporting the construct validity of SPS and OPER has been shown in several studies examining their relationship to other psychometric tests that assess constructs similar to those assessed by the SPS and OPER (Sivik *et al*, 1999 b--e). The instruments were constructed to measure both trait – and state features of the subject's usual style of coping with life events. They overlap conceptually with four MMPI variables (Alexithymia, Depression, Hysteria , and Hypochondriasis), and the results of a construct validity study showed that there are significant correlations between the SPS and OPER tests and all four MMPI

sub-scales (Butcher, 1990; Sivik *et al*, 1999 b).

The results supported the validity of the SPS and OPER personality constructs and showed that the tests are quite consistent, since the correlations obtained for normal and patient groups respectively show a very similar pattern.

In another validity study, the SPS and OPER tests were examined in relationship to the Karolinska Scale of Personality, or KSP. KSP has been proven useful in the assessment of neurotic traits related to the risk of development of psychosomatic diseases (Schalling, 1987). Previous studies have shown that in psychosomatic patients, particularly chronic pain patients, many KSP variables have a highly significant positive correlation to several of the MMPI variables (Calsyn *et al*, 1976; Ringsberg *et al*, 1993; Sivik, 1991; Sivik *et al*, 1992; Sivik & Delimar, 1994). The results of a Pearson correlation analysis show that in both a psychosomatic and a normal population, the SPS variables significantly correlate with at least one and as many as 12 KSP variables in both normal and psychosomatic population. The results between SPS and OPER and KSP revealed that our constructs cover most of the conceptualized psychological content (Sivik *et al*, 1999c).

The validation process of a personality assessment instrument is extensive and comparison with many different psychometric instruments is necessary. The aim of the present study was to investigate the validity properties, both convergent and divergent, of the SPS and OPER tests by examining the relationship of the two tests with measures of STAI and BDI, two often used and well validated instruments assessing anxiety and depression (Beck, Steer & Garbin, 1988; Spielberger, 1983). STAI is the most commonly used instrument for the assessment of state and trait anxiety, and it has been used for the assessment of anxiety among somatically disabled patients and as a predictor of the chronification, and BDI is the most commonly used measure of depressive symptomatology. Our hypothesis was that individuals suffering from psychosomatic diseases are likely to project their distress to a greater degree than a healthy control, thus we expected positive correlations between the SPS and BDI as well as between SPS and STAI, and that the correlation coefficients would be highest in the patient group.

METHOD

Participants

Patient group: 294 patients (239 women ages 20- 65, M: 41.1 SD: 8.536; 55 men ages 20-55, M: 40.3, SD: 8.32) referred for evaluation and/or treatment at the Institute of Psychosomatic Medicine (IPS) in Goteborg, Sweden, during the period 1994--1998. All patients were chronically disabled on long-term sick-leave, 96% with multiple diagnoses. The most

common diagnoses by the referring physician were fibromyalgia, various myalgias, somatoform pain disorder, autoimmune diseases, cardiovascular diseases, GI disorders, whiplash and low back pain. After a thorough investigation at IPS, many patients (64%) were also diagnosed as suffering from chronic or trauma related PTSD. Of the psychosomatic patients, 97 were classified as sub-emotional (Sivik *et al*, 1999f). The classification was done by two independent clinicians; a psychiatrist and a psychologist, both trained in psychodynamic psychotherapy and psychosomatic medicine. If both clinicians were in agreement, the patient was classified as sub-emotional, i.e., alexithymic.

Patients were diagnosed as psychosomatic according to the basic theoretical standpoint that the above mentioned diseases involve substantial psychodynamic and psychological distress, either etiologically and/or in the sense of being a chronic disease and as such affect the psychological well-being of a person.

Control group: 88 employees at a university hospital, 84 completed BDI and 88 completed STAI: 58 women (M 44 years, SD 8.4) and 30 men (M 45, SD 10.3).

Of the total number of participants, 9 did not complete STAI and 11 did not complete BDI. These participants were excluded from the study.

Instruments

In order to evaluate the construct validity (convergent and divergent) of SPS, Pearson correlation coefficients between SPS scales and sub-scales and the STAI and BDI personality assessment instruments were calculated.

The SPS test consists of 5 pictures, and OPER is assessed in the first picture. The pictures are accompanied by a total of 66 statements, and the respondent indicates to what degree he/she agrees with each statement on a four point scale (do you agree: completely, quite a lot, a little, or not at all).

STAI is a self-report measure which assesses the two separate dimensions of state and trait anxiety. The State Anxiety Scale consists of 20 (10 negatively and 10 positively worded items) items on a 4 point intensity scale. The Trait Anxiety Scale also consists of 20 items on a 4 point scale (9 positively and 11 negatively worded items).

BDI is a 21 item self-report measure of the affective, behavioral, cognitive and somatic symptoms of depression. Each item has four self-evaluative statements with intensity scale ranging from 0 to 3.

Procedure

Though the testing was done at different times, the conditions were the same: the healthy subjects completed the tests immediately preceding a lecture on psychosomatic medicine presented at their work place; the psychosomatic subjects completed the tests during their initial

in-depth investigation at IPS. All participants were seated and the first page of the test containing instructions for how to complete the test was read to ensure that all participants understood the instructions.

RESULTS

Correlations between BDI and SPS and OPER in the psychosomatic patient group are displayed in Table 1. BDI is positively correlated to Emotional Coping Style and all its sub-scales as well as to Nurturance, Sexuality Conflict, Existential Trust, Relational Style, Locus of Control, Assertiveness and the total SPS score. Table 2 shows the correlations between SPS and OPER with BDI for the normal sample. BDI is positively correlated with the construct Emotional Coping Style, its subscales Emotional Sensitivity and Sadness, and for Assertiveness and the total SPS score.

In the patient population, STAI was found to be significantly positively correlated to Emotional Coping Style and all its subscales, as well as to the scales Sexuality Conflict, Existential Trust, Relational Style, Locus of Control, Assertiveness and the total SPS score (Table 3). Table 4 shows the significant correlations in the normal group. Positive correlations were found for Emotional Coping Style, its subscales Emotional Sensitivity, and Sadness, as well as for OPER. Sexuality Conflict and Existential Trust were negatively correlated to STAI.

Table 1. **Pearsons' correlation coefficient between SPS and OPER with BDI for a psychosomatic patient population (N=298)**

	r	*p*
ECS	.42	.0001
ESENS	.38	.0001
SAD	.45	.0001
AGG	.34	.0001
TRUST	-.11	ns
SUCC	.06	ns
NUR	.12	.05
SEXC	.20	.001
EXTRU	.13	.05
RELST	.20	.001
LoC	.24	.0001
ASS	.16	.01
SPS	.37	.0001
OPER	- .03	ns

Table 2. **Pearsons' correlation coefficient between SPS and OPER with BDI for a normal control group (N=84)**

	r	*p*
ECS	.26	.05
ESENS	.23	.05
SAD	.25	.05
AGG	.11	ns
TRUST	-.05	ns
SUCC	.16	ns
NUR	.02	ns
SEXC	-.05	ns
EXTRU	-.13	ns
RELST	.00	ns
LoC	.19	ns
ASS	23	.05
SPS	.21	.05
OPER	11	ns

Table 3. **Pearsons' correlation coefficient between SPS and OPER with STAI for a group of psychosomatic patients (N=298)**

	r	*p*
ECS	.38	.0001
ESENS	.35	.0001
SAD	.39	.0001
AGG	.32	.0001
TRUST	-.07	ns
SUCC	.09	ns
NUR	.09	ns
SEXC	.26	.001
EXTRU	.14	.05
RELST	.23	.001
LoC	.23	.001
ASS	.14	.05
SPS	.35	.0001
OPER	-.08	ns

Table 4. **Pearsons' correlation coefficient between SPS and OPER with STAI for a normal control group (N1=88)**

	r	*p*
ECS	.22	.05
ESENS	.27	.05
SAD	.20	.05
AGG	.09	ns
TRUST	-.05	ns
SUCC	.11	ns
NUR	-.02	ns
SEXC	-.31	.01
EXTRU	-.26	.05
RELST	-.20	.05
LoC	.02	ns
ASS	.10	ns
SPS	.03	ns
OPER	.21	.05

DISCUSSION

The results show that our constructs cover the intended and hypothesized areas of personality traits and coping styles respectively. Our expectations that SPS would mostly be positively correlated to both BDI and STAI were confirmed as well as our hypotheses that the correlations be strongest for the patient group. The results confirm our hypotheses and both the positive and negative correlations are in the concordance with our basic theoretical assumptions and clinical findings.

SPS and OPER and BDI

The pattern of correlations in normal and patient populations is very similar which demonstrates good construct consistency of the SPS and OPER tests. The relatively low correlation coefficients between SPS and BDI found in the normal population was expected most people have the capacity to feel and act in a more or less balanced way without denying feelings or supressing the need for action.In addition, the number of individuals with under – and over--emotional coping styles are evenly distributed, as is denial as a defense mechanism. Since the SPS test measures both modalities of personalities at risk of developing psychosomatic disorders, i.e., both sub--emotional and over-emotional coping strategies, the projective component of the SPS seems to reveal masked depression which is not as

easily revealed with a structural test such as BDI (Sivik, T. 1991; Sivik, Gustavsson, & Klingberg-Olsson, 1992; Sivik *et al*, 1992; Lipowski, 1990; Murata, Vatterott & McHardy, 1989). The relatively low correlations between BDI and SPS for normal population further confirm our hypothesis and theoretical assumptions as well as clinical findings that egodefense mechanisms of projection and denial are linked to the development of psychosomatic and psychiatric symptoms (Sivik, 1990). Under normal circunstances, an individual is able to compensate for emotional shortcomings. For example, socially unacceptable emotions can be suppressed, but the price one must pay can be for instance in the form of a psychosomatic disorder (Sivik *et al* 1999a). It is thus not surprising that in a general population, BDI and the relevant SPS scales and subscales' correlation coefficients, although statistically significant, appear to be relatively low, since the compensatory mechanism functions fairly well.

For the patient group the situation is somewhat different. The compensatory process has been disrupted and the patient has, either somatically and psychologically (the over-emotional group) or just somatically (the sub-emotional group) "given up" (Bash, 1986; Engel, 1959). The results of this study show this pattern clearly. The low negative correlation found among patients for the scale Trust was in concordance with our theoretical assumptions, that is, high trust in others is not to be expected among depressed people. Most of the sub-scales of the construct Relational Style were positively correlated to BDI thus demonstrating that people with conflicted Relational Style also often are depressed and emotionally disturbed as well as prone to develop psychosomatic disorders. Locus of Control was significantly positively correlated to BDI which confirmed that external Locus of Control (which is reflected in high scores on the Locus of Control) is indeed a personality characteristic often found among depressed people in general, and among psychosomatic patients with depressive mood in particular. The positive correlation between BDI and Assertiveness demonstrates that patients with conversion symptoms often have elevated scores on the construct Assertiveness as well as on depression (Sivik, 1993; Sivik *et al* 1992; Sivik & Hosterey, 1992).

SPS and OPER and STAI

The patterns of correlation between SPS and STAI reveal several very interesting aspects of the SPS test. As expected and in concordance with the above reasoning stated about BDI, the correlations are lower for the normal population. The results for the scale Emotional Coping Style show positive correlations in both populations. However, the sub-scale Aggression does not correlate with STAI in the normal population while there is a positive correlation for the patient group. This confirms our hypotheses that individuals with difficulties

experiencing and accepting negative emotions, i.e., aggression, will deny the feeling, a psychodynamic process that both may lead to the elevation of anxiety and/or the development of the psychosomatic disease.

The lack of significant correlations between STAI and Trust, Succorance and Nurturance was expected, since the constructs are not directly related to anxiety, and can be either high or low among both anxious and non--anxious individuals. A very interesting difference between the two groups, however, was noted for the sub-scales Sexuality Conflicts and Existential Trust. The positive correlations in the patient population were in concordance with our theoretical assumptions. In this group most conflicts, even the most simple ones, may lead to higher levels of anxiety since one of the common features of the psychosomatic patients is the perception of any conflict or disagreement as dangerous (Cohen *et al*, 1994; Weiner, 1983; Wise & Mann, 1994). The negative correla-tion in the normal population between scales Sexuality Conflict and Existential Trust and STAI confirms our observations that healthy people experience conflicts as part of life and do not feel anxiety during a disagreement or even conflict. These results are in our opinion the most interesting and need further investigation to be confirmed.

As for the scale Existential Trust, the negative correlations with STAI confirm our theoretical assumption that healthy people who accept their mortality are not burdened by death anxiety as much as psychosomatic and/or psychoneurotic patients may be. Finally, the positive correlation between STAI anxiety and OPER found among normal subjects but not observed in the patient group also confirms our expectations. Anxiety in a healthy person is related to operationalization and a need to "act". In a patient group this variable may be more evenly distributed since a psychosomatic, sub-emotional (alexithymic) patient may be very operational while a psychosomatic over--emotional (psychoneurotic) patient may be very non-operational (Sivik *et al*, 1999 a). Again, the most probable explanation for the discrepancy between the patient group and the healthy subjects is that the projective technique is powerful in the assessment of subconscious psychodynamic processes.

In conclusion, previous studies and the above results demonstrate that the SPS and OPER tests show a meaningful pattern of correlations to conceptually related personality measures and support the validity of the tests. Nevertheless, further validation studies in a number of settings and countries are important, since the tests were developed in Sweden and there is always the possibility that the results are culture-dependent.

REFERENCES

• Bash K. Psychosomatic diseases and the Rorschach test. *J Personality Assessment* 1986; 50, 350-357.

- Beck AT. *Depression Inventory*. Philadelphia, PA: Center for Cognitive Therapy 1978.
- Butcher JN. *The MMPI-2 in Psychological Treatment*. New York, Oxford Press, 1990.
- Calsyn D, Lonks J, Freman C. The use of the MMPI with chronic low back patients with a mixed diagnoses. *J Clinical Psychology* 1976; 32, 532-536.
- Cohen K, Auld F, Brooker H. Is alexithymia related to psychosomatic disorder and somatizing? *J Psychosomatic Research* 1994; 38, 119-27.
- Engel G. Psychogenic Pain and the Pain Prone Patient. *Am J Med* 1959; 26, 899--918.
- Lipowski Z. Chronic Idiopathic Pain Syndrome. *Ann Med* 1990; 22, 213-217.
- Murata T, Vatterott M, McHardy M. Pain management as an Antidepressant: long-term resolution of pain-associated depression. *Pain* 1989; 36, 335-7,
- Schalling D, Åsberg M, Edman G, Oveland L. Makers for vulnerability to psychopathology: Temperament traits associated with platelet MAO activity. *Acta Psychiatrica Scandinavica* 1987; 76, 172-182.
- Ringsberg K, Löwhagen O, Sivik T. Psychological Differences Between Asthmatics and Patients Suffering from an Asthma-Like Condition, Functional Breathing Disorder: A Comparison Between the Two Groups Concerning Personality, Psychosocial and Somatic Parameters. *Integrative Physiological and Behavioural Science* 1993; 28, 358-367.
- Ringsberg K, Wetterqvist H, Sivik T, Löwhagen O. Physical capacity and dyspnoea in patients with asthma-like symptoms but negative asthma tests. *Allergy* 1997; 52, 532-540.
- Rose G, Sivik T, Delimar N. Gender, Psychological well-being and Somatic Cardiovascular Risk Factors. *Integrative Physiological and Behavioural Science* 1994; 29, 423-430.
- Sivik T. *Dynamisk psykoterapi, del II: Diagnos – psykopatologi – behandlingsteknik*. Lund: Studentlitteratur, 1990.
- Sivik T. Personality Traits in Patients with Acute Low-Back Pain. Comparison with Chronic Low-Back Pain Patients. *Psychotherapy and Psychosomatics* 1991; 56, 135-140.
- Sivik T. Psychological reactions to severe traumatic experiences. *Fiz Med Rehab* 1992a; 1-2, 27-41.
- Sivik T. Education of general practitioners in psychosomatic medicine. Effects of a Training Programme on the Daily Work at Primary Health Care Centres. *General Hospital Psychiatry* 1992b; 14, 375-379.
- Sivik T. Alexithymia and hypersensitivity to touch and palpation. *Integrative Physiological and Behavioural Science* 1993; 28, 130-136.
- Sivik T. Since we have both body and mind we are all psychosomatic. *Advances in Mind-Body Medicine* 1998; 14, 223-233.
- Sivik T. Integrative medicine, loving openness, and the need for wisdom. *Advances in Mind-Body Medicine* 1999; 15, 29-32.
- Sivik T, Delimar D. Characteristics of patients who attribute chronic pain to minor injury. *Scandinavian J Rehabilitation Medicine* 1994; 26, 27-31.
- Sivik T, Delimar D, Korenjak P, Delimar N. The Role of Prolactine, Cortisol and Blood Pressure among injured Soldiers in War 1991-1993 in Croatia. *Integrative Physiological and Behavioural Science* 1997; 32, 364-372.
- Sivik T, Delimar N, Schoenfeld R. Assessment of Psychosomatic Personality Profile and Coping Style: the Sivik Psychosomaticism Test and Test of Operational Style. Factor Analysis and Reliability Testing. *J Psychological Assessment* accepted for publication, 1999a.

- Sivik T, Delimar N, Schoenfeld R. Construct Validity of the Sivik Psychosomaticism Test and Test of Operationality Style: Correlations with Four Minnesota Multiphasic Personality Inventory. *Integrative Physiological and Behavioural Science*, accepted for publication, 1999b.
- Sivik T, Delimar N, Schoenfeld R. Construct Validity of the Sivik Psychosomaticism Test and Test of Operationality Style: Correlations Karolinska Scheme of Personality. *Integrative Physiological and Behavioural Science*, accepted for publication, 1999c.
- Sivik T, Delimar N, Schoenfeld R. Construct Validity of the Sivik Psychosomaticism Test and Test of Operationality Style: Correlations with Toronto Alexithymia Scaled – Revised (TAS-r), *submitted* for publication, 1999d.
- Sivik T, Delimar N, Schoenfeld R. Sivik Psychosomaticism Test and Test of Operationality Style: Relationship with MACL, *submitted* for publication, 1999e.
- Sivik T, Delimar N, Schoenfeld R. Prevalence of sub emotional, alexithymic coping style among patients at a psychosomatic clinic. *Unpublished* results, 1999 f.
- Sivik T, Gustavsson E, Klingberg-Olsson K. Differential diagnosis of low-back pain patients; A simple quantification of the pain drawing. *Nordic J Psychiatry* 1992; 46, 55-62.
- Sivik T, Hösterrey U. The Thematic Apperception Test as an aid in understanding the psychodynamics of development of chronic idiopathic pain syndrome. *Psychotherapy and Psychosomatics* 1992; 57, 57-60.
- Sivik T, Röjwall S, Gustafsson E, Klingberg-Olsson K, Wagner A, Delimar N. Relationship between back pain and personality. Psychological vulnerability as risk factors for development of chronic back pain. *Nordic J Psychiatry* 1992; 46, 188-193.
- Spielberger C. *Manual for the State-Trait Anxiety Inventory STAI- form Y*. Consulting Press: Palo Alto, 1983.
- Weiner H. Health, illness, and disease: An integrative approach. In: *Expanding definitions and models of health*, ed. M. Lipkin & A. Etzioni. New York: Rockefeller Press, 1983.
- Wise TN, Mann LS. The relationship between somatosensory amplification, alexithymia, and neuroticism. *J Psychosomatic Research* 1994; 38, 515-21.

APPENDIX

The SPS and OPER tests: Scales and subscales.

The SPS test

Emotional coping style (ECS).

Emotional sensitivity (Esens): high scores (>95th percentile) reflect anxiety.

Sadness and Grief (Sad): high scores (>95th percentile) reflect depression.

Aggression (Agg): high scores (>95th percentile) reflect overt aggression.

Pathology can be suspected only if scores are very low (<10th percentile) on all three subscales.

High scores on ***ECS*** indicate a tendency to react over-emotionally and is often found among patients with functional disorders, particularly if accompanied with high scores on ***RelSt*** and ***Ass***. Isolated elevation of the scores may indicate a reaction to an acute stress, conflict or trauma.

Low scores, particularly if accompanied with high scores on ***OPER*** and low scores on ***RelSt***, indicates an alexithymic under-emotional coping style.

Trust in others (Trust)

Trust reflects perceptions regarding trust, sexual orientation (overt or latent) and the quality of important personal relationships.

Relational style (RelSt)

Sexuality conflicts (SexC): high scores(> 95th percentile) reflect unresolved past or present sexual conflicts.

Nurturance (Nurt): ability to feel compassion for others, an essential part of the capacity to feel empathy. High scores (>95th percentile) reflect pathological denial of one's own needs, low scores (<5th percentile) reflect narcissictic disinterest in others.

Succorance (Succ): reflects the need for help and consolation; need to be taken care of. ***Succ*** is directly related to oral dependency and self-(bodily or/and mental) - preoccupation.

Very high or very low scores on ***Succ*** and ***Nurt*** may reflect a pathologic inclination, but age and gender are very important in the evaluation of the scores of this subscale.

Existential Trust (ExTru): tendency to place one's life in the hands of higher powers (religious, government etc.). Very low scores on this variable are not common in a normal population.

Locus of control (LoC)

LoC covers both Internal and External Locus of Control. High scores reveal ***External LoC***; coping with difficulties by expecting help from the outside. Low scores reveal ***Internal LoC***; inability to ask for and accept help from other people. Both extremely high and low scores indicate an inadequate coping strategy.

Assertiveness (Ass)

Ass mirrors one's inclination to put forward ones own needs and opinions; to insist on ones rights even in the opposition to others; not to be afraid of conflicts. Low scores may indicate denial of aggression, which can be a sign of an alexithymic non--perception and/or denial of emotions; extremely high scores indicate possible presence of conversion hysteria. Scores on this scale must be interpreted in relation to the other scales and subscales.

Psychosomatic Personality Profile (PPP)

Total ***PPP*** score is useful for quick screening of a persons coping strategy: extremely low scores are not found in a normal population and indicate an alexithymic, under--emotional coping strategy. Extremely high scores are also not found in a normal population, and indicate a neurotic, over-emotional coping strategy. ***PPP*** can be used both as a

screening instrument for coping strategy of an individual and as an evaluation of personality profile. For the judgment of a psychosomatic personality profile, a professional psy-chological background is required.

The OPER test

Operationality (Oper)

Both extremely high and extremely low values indicate an insufficient coping strategy but only in particular combinations with the rest of personality traits. In a normal population and under normal living conditions this trait reflects an ability to be activity oriented and is not correlated to SPS. On the other hand, ***OPER*** is strongly correlated to SPS if a person is neurotic or alexithymic or if he/she lives under (di)stress or has been traumatised.

Extremely high scores (>12) indicate alexithymia if it appears with low scores on: ECS, Trust, ExTrust, Ass, RelSt (but sometimes high on the subscale SexC), PPP and high scores on Succ. Extremely low scores (<8) indicate a neurotic over-emotional coping strategy seen among patients with functional disorders when appearing with high scores on ECS and RelSt.

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