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THE RELATIONSHIPS BETWEEN ALEXITHYMIA, THE MINNESOTA  
MULTIPHASIC PERSONALITY INVENTORY, AND RECOVERY TIME IN PAIN  
PATIENTS

by

Gordon Cole

B.A. (Honours), The University of Ottawa, 1982

THESIS SUBMITTED IN PARTIAL FULFILLMENT OF  
THE REQUIREMENTS FOR THE DEGREE OF

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of

Psychology

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The relationships between alexithymia, the Minnesota

Multiphasic Personality Inventory, and recovery time

in pain patients

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## ABSTRACT

The hypothesis that the presence of alexithymic characteristics (including an inability to express emotions verbally, a poor fantasy life, and an obsessional-concrete thinking style) in pain patients would be associated with longer recovery times, clinic treatment periods, and a greater number of doctors seen was tested in a sample of 49 (37 male, 12 female) pain patients from the Workers' Compensation Board. Higher scores on the Minnesota Multiphasic Personality Inventory (MMPI) alexithymia scale were associated with longer recovery times and a greater number of different types of doctors seen. These findings were significant for females only. Length of clinic treatment correlated significantly with alexithymia for all subjects combined, and females alone, but not for males alone. For all subjects, alexithymia scores correlated significantly with the number of surgeries performed. Severity of injury did not correlate significantly with any of the recovery variables, and thus, alexithymia may be a better variable for predicting length of recovery from injuries than the severity of the injury. Significant correlations between alexithymia scores and MMPI validity and clinical scales add to the construct validity of the concept of alexithymia. Implications for treatment and further research are discussed.

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## I. Introduction

### The Concept of Alexithymia

Alexithymia, a term which means "no words for emotions", has been used to describe a cognitive-affective disturbance which has been observed in patients with psychosomatic disorders (Sifneos, 1973), hypertension (Gage & Egan, 1984), somatoform disorders (Plannery, 1977; Lesser, Ford, & Friedman, 1977; Shipko, 1982), psychogenic pain disorders (Blumer & Heilbronn, 1982; Demers-Desrosiers, Cohen, Catchlove, & Ramasay, 1983; Mendelson, 1982), violent offenders (Keltikanqas-Jarvinen, 1982), patients with post-traumatic stress disorder (Shipko, Alveras, & Noviello, 1983), and in general, a large number of patients who seek help from mental health professionals (Lesser & Lesser, 1983).

As well as exhibiting an inability to describe feelings with words and a poor vocabulary with which to describe their moods, people with alexithymic characteristics tend to complain at length of physical symptoms without reference to their emotional experience. They tend to be preoccupied with trivial environmental details to the exclusion of thoughts concerning feelings and instinctual drives, a characteristic Marty and De Muzan (1963) called *pensee operateire*. They exhibit an inability

to fantasize and to recall their dreams (Nemiah, 1975), and an obsessional-concrete thinking style (Apfel & Sifneos, 1979). They also appear to be unhypnotizable (Frankel, Apfel-Savitz, Nemiah, & Sifneos, 1977), and tend to use the defence mechanisms of repression and denial (Sifneos, Apfel-Savitz, & Frankel, 1977), eliciting negative counter-transferences from psychotherapists who report finding them 'dull and boring' (Taylor, 1977). Krystal (1982) suggests that alexithymia is "possibly the most important single factor diminishing the success of psychoanalysis and psychodynamic psychotherapy" (p.375).

As well as exhibiting difficulty in recognizing and describing their feelings, alexithymics have difficulty in discriminating between emotional states and bodily sensations (Nemiah, Freyberger, & Sifneos, 1976). Shipko (1982) suggests that in a situation that calls for awareness of feelings, the alexithymic remains stimulus bound, and unaware of the tension escalating in his/her body. If this is a chronic way of responding to such situations, physical symptoms may result in people with vulnerable peripheral organs. While some may withdraw from the situation, others may take impulsive action in an attempt to alleviate the resulting inner turmoil. Krystal (1979) suggests that alexithymics have an impaired capacity for empathy given their difficulty in recognizing their own feelings let alone those of others.

Alexithymia is not necessarily an all or none phenomenon given that all people, at times, have difficulty expressing their emotions, discriminating between their emotional states and bodily sensations, and other alexithymic characteristics. With some, though, this appears to be an enduring trait. Freyberger (1977) has suggested that a distinction can be made between two types of alexithymia: primary and secondary. Primary alexithymia is thought to be due to genetic or neurophysiological deficits, while secondary alexithymia is thought to be a functional, reversible condition caused by psychodynamic, developmental, or sociocultural factors.

### Etiological Explanations

Attempts have been made to explain the etiology of alexithymia from the following theoretical viewpoints: neuropsychological (Buchanan, Waterhouse, & West, 1980; Hoppe & Bogen, 1977; Kaplan & Woqan, 1976/77; Nemiah, 1975; Shipko, 1982), psychodynamic (Krystal, 1979, 1982; McDougal, 1974, 1982, and Taylor, 1977), social-learning (Borens, Grosse-Schultz, Jaensch, & Korteme, 1977), developmental (Nemiah, 1977), and genetic (Heiberg & Heiberg, 1977, 1978). While each explanation may be equally tenable, alexithymia most likely results from the interaction of a number of factors (Nemiah, 1977).

Nemiah (1977) reviewed these models and suggested that alexithymia and its possible psychosomatic influences is best

explained by one of three models: the denial, the deficit, or the structural model.

The Denial Model. This model suggests that alexithymia is a psychological defense associated with the inhibition of affect and fantasy. Theoretically, a reversal of the defensive process and a subsequent disappearance of alexithymic characteristics and somatic symptoms is possible.

The Deficit Model. Alexithymic characteristics are thought to be due to irreversible ego deficits: "in particular an absence of the capacity for the formation of fantasy, and for experiencing feelings" (Nemiah, 1977, p.201).

The Structural Model. With this model Nemiah (1977) proposes that alexithymia results from an absence of, or a deficit in, the pathways between structures underlying affect, or from an absence or deficit in the neuronal centers underlying affect, with disturbances possibly:

(1) in the pathway between the center for psychic elaboration and that for consciousness; (2) in the pathway between the center underlying emotion and that for psychic elaboration; or (3) in the center for psychic elaboration itself. The first and third possibilities are for theoretical interest only, since our current knowledge of neuroanatomy gives us no clues as to the anatomical structures that underlie repression or the ego functions involved in psychic elaboration.  
(p.200)

The deficit and structural models account for primary alexithymia whereas the denial model accounts for secondary alexithymia.

The structural model has received some support from studies associating alexithymia with a right hemisphere deficit or an

inhibition or a defect of the corpus callosum. Buchanan et al., (1980) suggest that there are similarities between patients with right hemisphere lesions and alexithymics. Similarities in the cognitive style and affective expression between alexithymic patients and patients having neuroanatomical lesions of the corpus callosum have led Hoppe and Bogen (1977) to hypothesize that alexithymia may be due to a functional disconnection of the cerebral hemispheres by the inhibition of the corpus callosum.

Hemisphericity and lateralization research gives evidence of a relationship between right hemisphere functioning, alexithymic characteristics, and some cognitive abilities thought to be impaired in alexithymia. This information may be useful in the conceptualization of all three models of alexithymia.

Hemisphericity is a term coined by Bogen (1969) referring to the tendency of individuals to rely on either the left or right cerebral hemisphere in their overall psychological functioning. Bakan (1969) hypothesized that the direction of the conjugate lateral eye movements (CLEM) that people characteristically make when thinking about a question is indicative of relatively greater activation of one hemisphere over the other. A predominance of CLEMs in one direction is thought to indicate hemisphericity. In Bakan's typology (Bakan, 1971), people showing a predominance of left CLEMs are called "left movers", while people showing a predominance of right CLEMs are called "right movers". Bakan (1969) found that left

rovers were more hypnotically susceptible than right movers and suggested that CLEM direction may account for some individual differences in cognition and personality.

A significant positive correlation between CLEM direction and alexithymia was found by Cole (1982). The Schalling-Sifneos Personality Scale was used to measure the alexithymic characteristics of a sample of normal university students. It was found that left moving females reported significantly more alexithymic characteristics than right moving females. This relationship also existed for males, though it was not significant. This finding gives some evidence for a link between right hemisphere functioning and alexithymic characteristics with females.

Some of the cognitive abilities and psychological processes thought to be impaired in alexithymics have been associated with right hemisphere functioning. Left movers, when compared to right movers, have been found to: (1) use the defense mechanisms of denial and repression more often (Gur & Gur, 1975); (2) be more hypnotically susceptible and have clearer imagery (Bakan, 1969); and (3) recall a greater number of dreams (Van Nuys, 1979-80). Given that alexithymics have been found to be un hypnotizable (Frankel et al., 1977), and to have an inability to fantasize and recall their dreams (Newiah, 1975), Cole's (1982) findings, indicating a relationship between right hemisphere functioning and alexithymia, seem to be contradictory. Although these abilities associated with right

hemisphere functioning may be found in normals, alexithymics may have a functional (i.e. an inhibition of cognitive functions due to right hemisphere overactivation) or structural impairment of the structures mediating them.

Tucker (1981) reviewed the literature on brain damage and emotional functioning and found consistent evidence of right hemisphere involvement in the comprehension and expression of emotion through voice inflection and in lateralization of facial expression. Weintraub and Mesulam (1983) found that patients with neurologic and neuropsychological signs consistent with right hemisphere dysfunction had difficulty conveying their feelings (although there was no evidence that they were unable to experience affect) and lacked the gestures and prosody that normally accompany speech.

These findings suggest the possible existence of a relationship between right hemisphere functioning, alexithymic characteristics, and some of the cognitive abilities thought to be impaired in alexithymics. More extensive studies of people with right hemisphere damage may reveal cognitive deficits that have been associated with alexithymia.

Research on the relationship between right hemisphere functioning and conversion and pain symptoms may have implications for the study of the neural pathways involved in the psychosomatic processes thought to result from alexithymia. Galin, Diamond, and Braff (1977) found a preponderance of left-sided physical symptoms in a group of patients with

unilateral conversion symptoms. This finding was significant for females only, and was confirmed by Ley (1980) in an archival study of hysterical patients treated between 1885 and 1937. Left sided pain symptoms were found to predominate in a number of different pain populations (primarily comprised of psychiatric patients) reviewed by Merskey and Watson (1979). This finding led them to hypothesize that the "right hemisphere may play a special role in producing pain, conversion symptoms, and disorders of emotional expression" (p.278). Evidence contrary to Merskey and Watson's findings comes from Hall, Hayward and Chapman (1981) who found that pain was predominantly bilaterally distributed.

The majority of these studies suggest that the right hemisphere may play a role in the development and maintenance of physical symptoms. Alexithymia has also been found to be involved in the development and maintenance of physical symptoms.

#### Alexithymia, Psychomaintenance, and Pain

Psychomaintenance is defined as the prolongation of a patient's recovery from an illness due to psychological as opposed to strictly physical reasons (Dirks, 1978).

A study of the role that alexithymia may play in psychomaintenance of disease was done by Kleiger and Jones (1980). They found that alexithymic chronic respiratory illness patients had a higher rate, and longer duration, of



rehospitalization than non-alexithymic patients. They also found that these relationships existed independently of illness severity. Kleiger and Dirks (1980), in a study of chronic asthmatics, found that alexithymic patients, relative to non-alexithymic patients, were judged to have more severe illnesses, and that they had higher rates of rehospitalization. They also found that alexithymia was independent of an objective measure of illness severity. Dirks, Robinson, and Dirks (1981) showed that, in a large sample of asthmatic patients, alexithymia was associated with longer periods of hospitalization and higher rates of subsequent rehospitalization. Gage and Egan (1984) found that hypertensive alexithymic patients had more severe symptoms than non-alexithymic hypertensives, and suggested that alexithymia may play a role in the etiology of hypertension.

Given the role that alexithymia may play in psychomaintenance and given that pain is the reason why medical help is most often sought (Fromm, 1984), the role that alexithymia may play in prolonging pain warrants investigation. Few studies to date have been done on the relationship between pain and alexithymia. Flannery (1978) found that undiagnosed pain was the most frequent presenting complaint in a group of patients referred for psychological assessment and showing alexithymic traits. Demers-Desrosiers *et al.*, (1983) found that, in a group of 30 pain patients, as the severity of alexithymia increased, the degree of disorganization of symbolic activity

increased. Mendelson (1982), using the MMPI alexithymia scale to measure alexithymia, found that alexithymic chronic pain patients had a significantly longer history of pain than non-alexithymic chronic pain patients. He did not, however, find any differences in the groups with respect to measures of pain relief.

An important study for the link between hemispheric functioning and pain perception, and relief from pain, comes from Kaplan and Woqan (1982). They used EEG alpha power ratios to measure cerebral activation of normal subjects with experimentally induced pain. They found that left hemisphere activation was associated with a reported increase in painful sensation when pain was induced, while right hemisphere activation was associated with a decrease in reported pain. They suggested that a lack of right hemisphere processing of painful stimulation may play a causal role in the alexithymic's development of psychosomatic disorders. While their study indicates left hemisphere involvement in the perception of pain and right hemisphere involvement in relief from pain, they did not measure the alexithymic characteristics of their subjects nor did they use alexithymic pain patients.

The research reviewed on brain functioning and alexithymia tends to support a link between right hemisphere dysfunction, alexithymia, and pain symptoms. Given that pain relief appears to be associated with right hemisphere activation (Kaplan & Woqan, 1982), alexithymics may experience less pain relief than

non-alexithymics and, as a result, they may seek out, or elicit, more treatment by the medical profession. The role that alexithymia may play in the prolongation of pain warrants investigation.

Given the importance of recovery from pain, the purpose of the present study was to see if alexithymia was related to recovery variables in a sample of pain patients. Specifically, it was hypothesized that alexithymic characteristics would be associated with longer recovery and clinic treatment periods, and with a greater number of different types of doctors consulted.

#### The Measurement of Alexithymia

The most widely used measure of alexithymia is the Beth Israel Psychosomatic Questionnaire (BIQ) (Apfel & Sifneos, 1979), a 17 item forced-choice questionnaire which is completed by an interviewer who is trained in the assessment of alexithymic characteristics. Included in this measure are 8 questions based on defined aspects of alexithymia:

does the patient:

- (1) describe endless details rather than feelings;
- (2) use appropriate words to describe emotions;
- (6) have a rich fantasy life;
- (7) use action to express emotions;
- (12) tend to describe circumstances surrounding an event rather than feelings;
- (13) have difficulty communicating;
- (16) Is the thought content associated more with external events than with fantasy or emotion? (Apfel and Sifneos, 1979, pp.184-185)

The inter-rater reliability of this measure is between .76 and

.78 according to Kleiger and Dirks (1980) and .85 according to Apfel and Sifneos (1979). Lolas, de la Parra, Aronson, and Collins (1980), Schneider (1977), and Wolff (1977) all report that the scoring of the BIQ is highly dependent on the experience, bias, and style of the interviewer. Taylor, Doody, and Newman (1981) found unacceptable inter-rater reliability with the BIQ in a study of patients with inflammatory bowel disease.

Another widely used measure of alexithymia is the Shalling-Sifneos Personality Scale (SSPS). The self-report nature of the SSPS was thought to eliminate the interactional problems associated with the BIQ. The SSPS is a 20 item scale, with the items rated by the subject on a five point scale ranging from "Does not apply at all" to "Applies completely". Some samples of items are: "I find it hard to find the right words for my feelings; One might say that I lack imagination; I prefer taking action rather than thinking" (Apfel and Sifneos, 1979, p.189). The questionnaire also contains a checklist of psychosomatic, addictive, and psychotic disorders that the test taker may have. Apfel and Sifneos (1979) stated that, with the SSPS, results are erratic and do not correlate with observers' assessments (using the BIQ) of some people. Kleiger and Jones (1980) also found no correlation between BIQ and SSPS scores. Blanchard et al., (1981) found that SSPS scores correlated with a psychosomatic checklist and that the SSPS was generally orthogonal to other measures such as the State-Trait Anxiety

Inventory, the Beck Depression Inventory, the Rathus Assertiveness Scale, and a questionnaire designed to detect evidence of Briquet's syndrome. They found that, in a sample of 230 undergraduates, SSPS scores were normally distributed for both sexes and that 8.2% of males and 1.8% of females were in the clinically alexithymic range. They conclude that "Sifneos has developed a useful screening measure for alexithymia which can identify alexithymic individuals in a general population" (p.70). Shipko and Noviello (1984) tested the reliability of the SSPS by administering it to a group of 46 students twice, at a two week interval, and found that the test-retest reliability coefficient was .76.

An alexithymia measure which has been found to predict BIQ alexithymia scores with 82% accuracy and which correlates with the BIQ significantly ( $r=.66$ ,  $p<.001$ ) is a 22 item MMPI subscale developed by Kleiger and Kinsman (1980). They used a sample of 112 hospitalized patients with respiratory diseases which was divided into three groups, matched for age, sex, and disease type. They were rated independently on the BIQ by three judges, with the BIQ score being the average of these three ratings. They then used the MMPI responses of the subjects (SS) to form a pool of candidate MMPI items to measure alexithymia. For each MMPI item, SS were grouped according to their true-false responses. Scores of SS responding true were compared with those responding false by t-tests. The candidate MMPI items were those for which the two response groups differed on BIQ alexithymia

scores at the .25 level of probability. The same procedure was followed for the second group. Then, all Ss were combined and the same comparisons were made. MMPI items were selected if they differed on average BIQ alexithymia scores between true and false responders at the .05 level of probability. The items that ended up comprising the MMPI Alexithymia scale, and their scoring direction are: True; 72, 131, 198, and 262; False: 38, 39, 87, 149, 181, 204, 221, 238, 239, 248, 283, 308, 322, 340, 400, 430, 438, 474. The relationship between the new MMPI alexithymia scale and the average BIQ score was evaluated, using the same sample the scale was derived on, to provide an index of validity. With a score of 6 on the BIQ used as the cut-off point for alexithymia the following regression equation was constructed for the purpose of establishing a corresponding cut-off point on the MMPI alexithymia scale:  $BIQ \text{ score} = .3405 (\text{MMPI score}) + 1.3675$ . With this equation a score of 14 on the MMPI scale yields a BIQ score of 6.00 and yields an 82% hit rate for predicting BIQ scores. They found the test-retest reliability of this new measure to be fairly high ( $r = .84$ ,  $p < .001$ ).

Kleiger and Kinsman (1980) suggest that, with the MMPI alexithymia scale responses:

...one is struck by the degree of global denial reflected in the response pattern of the alexithymic subjects. This denial of impulses and socially acceptable limitations appears to be a manifestation of the alexithymic characteristic called "pseudo-normality". Impoverished fantasy is reflected in at least one of the scale items (item 198), and denial of affect appears to be represented on at least two

items (items 131 and 248). Finally, there are two items (items 72 and 474) which clearly reflect the alexithymic subject's preoccupation with somatic cues - possibly affect equivalents. (pp.22-23)

In a study of the symbolic function (the ability to symbolize) of 30 pain patients, Demers-Desrosiers *et al.*, (1983) found that MMPI alexithymia scores did not correlate with BIQ scores, while the archetypal test (a measure of symbolic function) did. They suggested that the MMPI scale does not measure the capacity to fantasize, a major feature of alexithymia.

Federman and Mohns (1984) did a validity study of the MMPI scale using migraine patients and found that BIQ scores and MMPI scores were negatively correlated (though the correlation was not significant). They suggest that their findings question the validity of the MMPI scale with respect to its use with other patient populations than the one used to derive the scale. In their study, though, they had only 16 percent of their patients in the alexithymic range compared to Kleiger and Kinsman's (1980) 72.3 percent. Thus, their criticisms may be invalid given the differences in the proportion of alexithymics found in the samples used in the two studies.

Other methods used to quantify alexithymic characteristics include the use of projective tests (Defourny, Hubin & Luminet, 1976/77) and verbal content analysis (Von Rad & Lolas, 1982).

## The MMPI and its use with pain patients

The MMPI is the most widely used psychometric instrument in studies on pain (Strassberg, Reidmerr, Ward, Russell, & Cole, 1981). See Dahlstrom, Welsh, and Dahlstrom (1972) for information on the construction of the MMPI, its reliability, and its validity. The MMPI contains 566 binary choice statements relating to various aspects of mood, behavior, self-concept, and personal preferences. Individual questions have been used to develop standardized clinical subscales to provide information on specific dimensions of psychological functioning: hypochondriasis (Hs), depression (D), hysteria (Hy), psychopathic deviance (Pd), paranoia (Pa), psychasthenia (Pt), schizophrenia (Sc), mania (Ma), social introversion (Si), and ego strength (Es). Three validity subscales (L, P, K) were developed to measure evasive, atypical, and defensive response sets. The MMPI has been used in : (1) descriptive studies where the profile of the average pain patient (Gentry, Shoers, & Thomas, 1974) or the average workers' compensation case (Repko & Cooper, 1983) is examined; (2) diagnostic studies where it is used to discriminate patients whose pain is functional in nature from patients whose pain has an organic etiology (Sternbach, Wolf, Murphy, & Akeson, 1973(a); 1973(b)); (3) outcome studies where it is used to predict response to various types of treatment (Blumetti & Modesti, 1976). Most studies using the MMPI with pain patients have reported that elevations on the



neurotic triad scales (Hypochondriasis, Depression, and Hysteria) are associated with poor response to treatment, while lower scores on the neurotic triad are associated with better outcome. A problem with these studies is that they rely on the use of one measure of outcome: a unidimensional rating by the attending physician of global response to treatment.

### Hypotheses

The purpose of this study was to determine whether or not alexithymia, as measured by Kleiger and Kinsman's (1980) MMPI alexithymia scale, in pain patients is associated with: (1) longer recovery from pain; (2) longer periods of clinic treatment; (3) a greater number of different types of doctors seen. As well, from an exploratory perspective, the relationships between alexithymia and the validity and clinical scales of the MMPI were examined.

## II. Method

### Subjects

The subjects were 49 workers' compensation claimants randomly chosen from a sample of claimants who had been referred to the psychology department at the Workers' Compensation Board (WCB) in Richmond, B.C. for assessment of their psychological functioning within a year of the date of their injury. There were 37 males with an average age of 38.08 years (standard deviation=11.26), and 12 females with an average age of 40.25 years (standard deviation=12.18). The average time between injury and assessment was 19.24 weeks for all subjects (standard deviation=10.13), 20.27 weeks for males (standard deviation=11.16), and 16.08 weeks for females (standard deviation=5.11). Twenty nine subjects (22 males, 7 females) had back injuries, 1 male and 1 female had both a neck and back injury, 7 (5 males, 2 females) had neck and shoulder injuries, 4 (all males) had head injuries, 4 (3 male, 1 female) had contusions, 1 female had tendonitis in her arm, 1 male had a fractured pelvis, and 1 male had a face injury. Thirty two percent of the males and 25% of the females were single. Fifty seven percent of the males and 67% of the females were married. Eight percent of both males and females were either separated or divorced.

### Procedure

The data collection entailed a review of each claimant's psychology and claims file. The computerized MMPI protocol was contained in the psychology file, and each was scored for the alexithymia scale (see the section on the measurement of alexithymia), and the validity and clinical scale scores were recorded. Since some claimants (five in all) were given a short form of the MMPI, their alexithymia scores were prorated to make them equivalent to the score they would have obtained if all 22 items were given.

The claims files contained all the administrative and medical details of each claimant's claim. The information recorded included the claimant's age, sex, marital status, the location and severity of injury, the time interval between the injury and their assessment by a psychologist, the number of different types of doctors seen, whether surgery was performed, the amount of time spent in the WCB Clinic receiving treatment, and the amount of time spent on wage loss. The wage loss period was used as the measure of the length of time a subject took to recover from his/her injury since wage loss benefits are paid from the time of injury to the point at which the subject is deemed fit to return to work.

The severity of injury index was determined by Dr. J.P. Schmidt from the WCB using the following criteria:

A) Severity of Trauma: (1) no trauma, (2) "routine" trauma, (3)

unusual, life threatening trauma.

B) Whether the trauma affected a single body area or multiple areas.

C) Whether hospitalization was required at the time of injury.

D) Whether initial treatment was therapeutic or palliative in nature.

E) Whether there was evidence of tissue damage.

F) Whether there was a head injury.

The first criteria, severity of trauma, was rated on a three point scale with unusual life threatening trauma scored as three, routine trauma scored as two, and no trauma scored as one. The other criteria were scored as yes equals one and no equals zero. The severity index was calculated by summing the totals of these scores. Severity ratings were unavailable for three subjects, thus the results associated with severity are based on the ratings of 46 subjects.

### III. Results

The results were evaluated by a study of the intercorrelations between all the variables. Two tailed tests of significance were calculated for all findings. A summary of the correlations between alexithymia, recovery variables, and MMPI scores is displayed on Table 1. See Table 2 for the means and standard deviations of all the variables. Table 3 summarizes the correlations between wage loss and all the other variables. Table 4 summarizes the correlations between the injury-assessment interval, recovery variables, and alexithymia. Table 5 summarizes the correlations between injury severity, alexithymia, and recovery variables. Table 6 summarizes the correlations between K-scale scores, alexithymia, and recovery variables.

#### Prevalence of Alexithymia

Of the 49 SS, 17 (35%) had MMPI alexithymia scores of 14 or greater, indicating the presence of alexithymia. Of the 37 male SS, 13 (35%) were clinically alexithymic, while 4 (33%) of the 12 females SS were clinically alexithymic.

Table 1

## CORRELATIONS OF ALL VARIABLES WITH THE MMPI ALEXITHYMIA SCORES

VARIABLE	ALL SUBJECTS	MALES	FEMALES
Age	.44****	.49***	.35
Marital status	.47****	.40**	.67**
No. of surgeries	.28**	.29*	.26
Time in clinic	.29**	-.04	.63**
Wage loss	.28*	.18	.57**
No. of doctors seen	.12	-.10	.64**
Assess. interval	.14	.16	.08
Severity	-.05	-.11	.28
L	.52****	.55****	.50*
F	-.48****	-.40***	-.63**
K	.65****	.69****	.60**
Hs	.11	.17	-.08
D	-.17	-.17	-.26
Hy	.25*	.33**	-.04
Pd	-.12	-.07	-.31
Mf	-.26*	-.22	-.47
Pa	-.14	-.18	-.06
Pt	-.32**	-.34**	-.36
Sc	-.29**	-.23	-.48
Ma	-.30**	-.25	-.51*
SI	-.42***	-.43***	-.45
Ego	.47****	.48***	.45

\* .10 > P > .05    \*\* P < .05    \*\*\* P < .01    \*\*\*\* P < .001

Table 2

## MEANS AND STANDARD DEVIATIONS

VARIABLE	ALL SUBJECTS		MALES		FEMALES	
	MEAN	STD. DEV	MEAN	STD. DEV.	MEAN	STD. DEV.
Age	38.61	11.40	38.08	11.26	40.25	12.18
Surgeries	.18	.39	.19	.40	.17	.39
Time in clinic	9.57 wks	13.77	8.49	8.65	12.92	23.78
Wage loss	41.83 wks	31.41	45.14	32.30	31.67	27.27
Doctors seen	7.22	3.24	7.27	3.25	7.08	3.37
Assess. inter.	19.24	10.13	20.27	11.16	16.08	5.11
Severity	3.98	2.80	4.22	3.14	3.25	1.05
L	54.98	8.57	55.62	9.04	53.00	6.91
F	59.71	11.77	60.03	10.70	58.75	15.09
K	52.37	11.54	53.11	11.54	50.08	11.72
Hs	71.04	14.37	72.05	15.56	67.92	9.77
D	70.57	14.25	71.84	15.43	66.66	9.21
Hy	68.20	10.82	68.89	11.98	66.08	5.92
Pd	62.12	15.13	63.54	15.44	57.75	13.84
Mf:	57.61	10.10	60.08	8.84	50.00	10.32
Pa	59.16	12.44	59.59	12.58	57.83	12.42
Pt	62.96	13.13	64.38	13.84	58.58	9.89
Sc	67.71	16.42	69.54	16.34	62.08	16.00
Ma	59.80	9.06	60.70	9.20	57.00	8.36
SI	54.31	13.15	54.86	13.61	52.58	11.99
Ego	44.98	11.36	45.27	11.53	44.08	11.29
Alexithymia	11.71	2.77	11.76	2.58	11.58	3.42

Table 3

## CORRELATIONS OF ALL VARIABLES WITH WAGE LOSS

VARIABLE	ALL SUBJECTS	MALES	FEMALES
Sex	.19		
Age	.25	.24	.36
Marital status	.22	.20	.30
No. of surgeries	.42***	.34**	.76***
Time in clinic	.33**	.07	.93****
No. of doctors seen	.50****	.43***	.76***
Assess. interval	.52****	.50***	.59**
Severity	-.19	-.28*	.25
L	.02	.02	-.13
F	-.17	-.15	-.28
K	.30**	.28*	.32
Hs	.07	.04	.05
D	.09	.08	-.07
Hy	.15	.17	-.11
Pd	-.01	-.01	-.21
Mf	-.05	-.13	-.20
Pa	.13	.17	-.07
Pt	.05	.06	-.21
Sc	-.09	-.08	-.31
Ma	-.05	-.01	-.43
SI	-.20	-.18	-.33
Ego	-.07	.04	.19
Alexithymia	.28*	.18	.57**

\* .10 > P > .05    \*\* P < .05    \*\*\* P < .01    \*\*\*\* P < .001



Table 4

CORRELATIONS BETWEEN RECOVERY VARIABLES, MMPI ALEXITHYMIA SCORES,  
AND THE INJURY-ASSESSMENT INTERVAL

VARIABLE	ALL SUBJECTS	MALES	FEMALES
No. of surgeries	.32**	.27	.77***
Time in clinic	.21	.31*	.35
Wage loss	.52****	.50***	.59**
No. of doctors seen	.26*	.28*	.22
Severity	-.24*	-.28*	-.17
Alexithymia	.14	.16	.07

\*  $.10 > P > .05$  \*\*  $P < .05$  \*\*\*  $P < .01$  \*\*\*\*  $P < .001$

Table 5

CORRELATIONS BETWEEN RECOVERY VARIABLES, MMPI ALEXITHYMIA SCORES  
AND INJURY SEVERITY

VARIABLE	ALL SUBJECTS	MALES	FEMALES
No. of surgeries	.07	.10	-.11
Time in clinic	-.03	-.07	.17
Wage loss	-.19	-.27*	.25
No. of doctors seen	.20	.17	.55*
Alexithymia	-.05	-.11	.28

\* .10 > P > .05

Table 6

CORRELATIONS BETWEEN RECOVERY VARIABLES, MMPI ALEXITHYMIA SCORES  
AND K-SCALE SCORES

VARIABLE	ALL SUBJECTS	MALES	FEMALES
No. of surgeries	.11	.10	.14
Time in clinic	.07	-.09	.33
Wage loss	.30**	.28*	.32
No. of doctors seen	.10	-.03	.47
Severity	.03	.01	.04
Alexithymia	.65****	.69****	.60**

\*  $.10 > P > .05$     \*\*  $P < .05$     \*\*\*  $P < .01$     \*\*\*\*  $P < .001$

## Recovery variables and alexithymia

### Wage loss and alexithymia

It was hypothesized that high alexithymia scores would be associated with longer periods of wage loss benefit payment than low alexithymia scores. For all ss combined, the correlation between the length of the wage loss period and alexithymia scores approached significance ( $r=.28, .10 > p > .05$ ), indicating that there was a tendency for high alexithymia scores to be associated with a longer wage loss period. For male ss the correlation between wage loss and alexithymia was not significant although it was in the same direction. For female ss this correlation was significant ( $r=.57, p < .05$ ) indicating that high alexithymia scores were associated with a longer wage loss period for females.

### Length of WCB clinic treatment and alexithymia

It was hypothesized that high alexithymia scores would be associated with longer lengths of clinic treatment than low alexithymia scores. For all ss, the correlation between length of clinic treatment and alexithymia scores was significant ( $r=.29, p < .05$ ) indicating that longer clinic treatment periods

were associated with higher alexithymia scores. This relationship was significant with females ( $r=.63, p<.05$ ), but not with males.

#### Number of doctors seen and alexithymia

It was hypothesized that high alexithymia scores would be associated with a greater number of different types of doctors seen than low alexithymia scores. With females the correlation between the number of doctors seen and alexithymia scores was significant ( $r=.64, p<.05$ ), but not with males and all SS combined.

#### Number of surgeries performed and alexithymia

An interesting post-hoc finding was that with all SS combined the correlation between the number of surgeries performed and alexithymia scores was significant ( $r=.28, p<.05$ ). With males this correlation approached significance ( $r=.29, .10>p>.05$ ), while with females it did not approach significance.

#### Other relationships of interest

##### Wage loss and the K-scale

With all SS there was a significant correlation between K-scale scores and length of wage loss period ( $r=.30, p<.05$ )

indicating that high K-scale scores were associated with a longer wage loss period. This correlation did not approach significance for males or females alone. To determine whether the relationship between alexithymia scores and length of wage loss period was influenced by the effects of K-scale scores, a partial correlation was computed between alexithymia and wage loss, controlling for the effects of K-scale scores. For all SS, the correlation between alexithymia and wage loss was .30 ( $p < .05$ ). For females the correlation was .50 ( $p < .01$ ) and for males the correlation was  $-.04$  (non-significant). Thus, for females, with the effects of K-scale scores removed, there is a significant positive correlation between alexithymia scores and length of time receiving wage loss benefits.

#### Injury-assessment interval and wage loss

There was a significant correlation between the injury-assessment interval and wage loss for all SS ( $r = .52$ ,  $p < .001$ ), males ( $r = .50$ ,  $p < .01$ ), and females ( $r = .59$ ,  $p < .05$ ) indicating that the longer it took for a claimant to be assessed by a psychologist, the longer wage loss benefits were paid.

## Alexithymia and the MMPI Validity and Clinical Scales

No formal hypotheses were made concerning the relationships between alexithymia scores and MMPI validity and clinical scale scores.

### The validity scale configuration

The mean validity configuration obtained by all Ss had a moderate elevation on the F scale relative to the L and K scales. The validity scale scores were not in the clinically significant range (see table 2).

### The L-scale and alexithymia

With all Ss combined, the correlation between L-scale scores and alexithymia scores was significant ( $r=.52$ ,  $p<.001$ ) indicating that high L-scale scores were associated with high alexithymia scores. This relationship was significant for males ( $r=.55$ ,  $p<.001$ ), and approached significance for females ( $r=.50$ ,  $.10>p>.05$ ).

### The F-scale and alexithymia

With all Ss combined the correlation between F-scale scores and alexithymia scores was negative and significant ( $r= -.48$ ,  $p<.001$ ) indicating that low F-scale scores were associated with

high alexithymia scores. This relationship was stronger for males ( $r = -.63$ ,  $p < .05$ ) than females ( $r = -.49$ ,  $p < .01$ ).

#### The K-scale and alexithymia

With all SS combined the correlation between K-scale scores and alexithymia scores was significant ( $r = .65$ ,  $p < .001$ ) indicating that high K-scale scores were associated with high alexithymia scores. This relationship was stronger for males ( $r = .69$ ,  $p < .001$ ) than for females ( $r = .60$ ,  $p < .05$ ).

#### The clinical scale configuration

The clinical scale configuration obtained by all SS was a 1-2-3 profile, with the highest elevations found on the Hs, D, and Hy scales (see table 2).

#### The hysteria scale and alexithymia

With male SS, the correlation between hysteria scores and alexithymia scores was significant ( $r = .33$ ,  $p < .05$ ) indicating that, for males, high hysteria scores were associated with high alexithymia scores. With all SS combined this correlation approached significance ( $r = .25$ ,  $.10 > p > .05$ ) but with females it did not approach significance ( $r = -.04$ ).



#### The psychasthenia scale and alexithymia

With all SS the correlation between psychasthenia scores and alexithymia scores was negative and significant ( $r = -.32$ ,  $p < .05$ ) indicating that high alexithymia scores were associated with low psychasthenia scores. This correlation was significant with males ( $r = -.34$ ,  $p < .05$ ) but not with females ( $r = -.36$ ).

#### The schizophrenia scale and alexithymia

With all SS there was a significant negative correlation between alexithymia scores and schizophrenia scores ( $r = -.29$ ,  $p < .05$ ) indicating that high alexithymia scores were associated with low schizophrenia scores. This correlation did not approach significance for males ( $r = -.23$ ) or females ( $r = -.48$ ) alone.

#### The mania scale and alexithymia

With all SS there was a significant negative correlation between mania scores and alexithymia scores ( $r = -.30$ ,  $p < .05$ ) indicating that high alexithymia scores were associated with low mania scores. This correlation did not approach significance with males ( $r = -.25$ ) or females ( $r = -.51$ ) alone.

#### The social-introversion scale and alexithymia

For all SS, there was a significant negative correlation between social-introversion scores and alexithymia scores ( $r = -.42$ ,  $p < .01$ ) indicating that low social-introversion scores

were associated with high alexithymia scores. This correlation was significant for males ( $r = -.43, p < .01$ ) but not for females ( $r = -.45$ ).

#### The ego strength scale and alexithymia

With all  $\$$ s there was a significant correlation between ego strength scores and alexithymia scores ( $r = .48, p < .001$ ) indicating that high alexithymia scores were associated with high ego strength scores. This correlation was significant for males ( $r = .48, p < .01$ ) but not for females ( $r = .45$ ).

#### Item Overlap

To determine whether the correlations between alexithymia and the MMPI subscales could have been due to item overlap between the scales, the items of the alexithymia scale were compared with those of each of the MMPI scales. There was no overlap with the L and F scales. Two K-scale items overlapped in the same direction. One hysteria item overlapped negatively. Two psychasthenia items overlapped negatively. Three schizophrenia items overlapped: two positively, and one negatively. Two mania items overlapped negatively. Two social introversion items overlapped: one positively and one negatively. Three ego strength items overlapped negatively.

Given that there is little overlap of items, the correlations between alexithymia and the MMPI subscales do not

appear to be due to item overlap between the scales.

### Demographic variables and alexithymia

#### Age and alexithymia

With all SS there was a significant correlation between age and alexithymia ( $r=.44$ ,  $p<.001$ ) indicating that older SS had higher alexithymia scores than younger SS. This correlation was significant for males ( $r=.49$ ,  $p<.01$ ) but not for females.

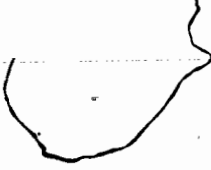
#### Sex and alexithymia

The correlation between sex and alexithymia did not approach significance. This is due to the fact that alexithymia scores did not vary significantly with regard to sex.

#### Marital status and alexithymia

With all SS there was a significant correlation between marital status and alexithymia ( $r=.47$ ,  $p<.001$ ) indicating that married SS had higher alexithymia scores than single SS. This correlation was significant for both males ( $r=.40$ ,  $p<.05$ ) and females ( $r=.66$ ,  $p<.05$ ). Kleiger and Jones (1980) found that, when age was controlled for, the relationship they found between marital status and age was not significant. To determine whether the relationship between marital status and alexithymia was due to the effects of age, a partial correlation was computed,

controlling for age. For all SS the partial correlation between marital status and alexithymia was .33 ( $p < .05$ ). For males the correlation was .50 ( $p < .01$ ), and for females it was .64 ( $p < .05$ ). Thus, for all SS, with the effects of age removed, being married was strongly associated with the presence of alexithymic characteristics.



#### IV. Discussion

##### Wage Loss and alexithymia

It was hypothesized that alexithymia scores would be correlated with length of wage loss period. Support for this hypothesis was found with all SS combined and with females, but not with males, indicating that workers' compensation claimants, especially females, with alexithymic characteristics take longer to recover from their injuries than those without alexithymic characteristics. Alexithymia scores and length of wage loss period were not correlated with an index of injury severity, and thus the presence of alexithymic characteristics may extend the length of recovery time more than the severity of the injury received.

A very strong correlation was found between the injury-assessment interval and wage loss. It appears that psychological assessment, and whatever treatment is implemented as a result, may be more important in determining length of recovery than injury severity, the presence of alexithymic characteristics, or K-scale scores.

The stronger relationship between alexithymia and wage loss with females compared to males is consistent with studies reporting sex differences in the relationship between alexithymia and physical symptoms. Cooper and Holmstrom (1984),

using the MMPI alexithymia scale and the Cornell Medical Index with a normal college sample, found a positive relationship between alexithymia and somatic complaints for females only. Cole (1982) found that females with psychosomatic disorders had significantly higher alexithymia scores than females without psychosomatic disorders. The opposite relationship was found with males: males with psychosomatic disorders had significantly lower alexithymia scores than males without psychosomatic disorders. He suggested that this may be due to a tendency for symptomatic males to deny having alexithymic characteristics, while symptomatic females may be more aware and/or truthful about their alexithymic characteristics. Apfel (1982), however, suggested that women, given their apparently greater autonomic expressiveness, might be expected to manifest an alexithymic pattern more often than men.

Other studies have failed to find a relationship between alexithymic characteristics and physical symptoms with male SS. Greenberg and Dattore (1983) tested the hypothesis that alexithymic characteristics lead to psychosomatic disorders. They compared the premorbid MMPI alexithymia scores of groups of men who did not develop physical illnesses, psychosomatic diseases, or psychiatric disorders within a ten year period with a group that did develop these conditions. They found no support for their hypothesis, and in fact found that the healthy control group had the highest percentage of alexithymic subjects.

These studies suggest that the measurement of alexithymia with a self-report inventory such as the MMPI alexithymia scale or the SSPS may be invalid, given the role that denial of symptoms may play, especially with males. More accurate assessment of the alexithymic characteristics of males could result from the use of the BIQ alexithymia questionnaire.

Length of clinic treatment, number of doctors seen, number of surgeries performed, and alexithymia

The hypothesis that alexithymia would be related to clinic treatment length was supported by the results of this study, but only with females. That alexithymia correlated significantly with clinic treatment length corroborates findings by Kleiger and Jones (1980) that alexithymic chronic respiratory illness patients averaged over twice as many days rehospitalized than did non-alexithymic patients. They found that differences in hospitalization could not be accounted for by differences in the objective assessment of illness severity. The present finding that injury severity was unrelated to length of clinic treatment is consistent with this finding, as well as those by Kleiger and Dirks (1980) and Dirks et al., (1981). The results of this study give more support for the hypothesis that medical patients with alexithymic characteristics spend more time being treated in the hospital than those without alexithymic characteristics.

The finding that, for females, there was a significant correlation between number of doctors seen and alexithymia may indicate that female alexithymic patients are sent from doctor to doctor to try and find an organic explanation for their prolonged recovery.

An interesting post-hoc finding was that, for all Ss, alexithymia was correlated significantly with the number of surgeries performed. Thus, alexithymics had more surgeries than non-alexithymics. Number of surgeries was independent of injury severity. Perhaps the alexithymic elicits the physician's orientation of looking for organic pathology, possibly resulting in unnecessary surgeries.

#### Sample Size Criticisms

One could criticize the generalizability of the findings of this study given the small sample of females used. However, significant results using a small sample may be indicative of the existence of a strong relationship according to Bakan (1967):

...rejecting the null hypothesis with a small N is indicative of a strong deviation from null in the population, the mathematics of the test of significance having already taken into account the smallness of the sample. Increasing the N increases the probability of rejecting the null hypothesis. (p.16)

Thus, the sex differences found may be a true reflection of the relationship between alexithymia and recovery variables.



The possible explanations for the sex differences in the relationship between alexithymia and recovery variables used in this study need to be addressed.

The prevalence rates of clinically significant alexithymia were 35% for males and 33% for females in this study, whereas in a normal population (with alexithymia being measured with the SSPS) the percentages are 8.2% for males and 1.8% for females (Blanchard, Arean, & Pallmeyer, 1981). Although age differences may play a role in the prevalence of alexithymia, the present findings indicate either that secondary alexithymia is manifested equally among males and females, or that the use of the MMPI alexithymia scale is invalid with males. Male alexithymia scores are close to one standard deviation lower than those of females. The smaller variability of male scores may indicate that they underestimate the degree of their alexithymic characteristics. The direction and magnitude of the correlations between alexithymia and the validity scales for males and females, though, are very similar, and thus, this explanation may be untenable. The use of the BIQ may provide a more valid estimate of the prevalence and degree of alexithymia among males, which may in turn yield a relationship between alexithymia and recovery variables with males.

The relationship between alexithymia and recovery variables among the females in this study may be explained from a socio-cultural perspective. Armitage, Schneiderman, and Bass (1979) studied the response of male physicians to medical

complaints in men and women and found that men got a more extensive workup for their complaints than women. They found that this was most significant for low back pain and headache complaints. After controlling for sex related complaints, they found no sex differences in the kind of complaints that men and women presented with. Armitage et al., (1979) suggest that their results may indicate that physicians

) ...tend to take illness more seriously in men than in women. In doing so, they might be responding to current stereotypes that regard the male as typically stoic and the female as typically hypochondriacal. (p.2187)

The findings of the present study may suggest that when a female patient presents herself to a physician, he takes her complaints more seriously than he would a non-alexithymic female. This may be due to her presenting with the stoicism that is characteristically thought to be a male characteristic. This may, to the physician, suggest the existence of a more serious injury requiring more extensive treatment. Thus, sex role stereotyping by physicians may be responsible for the sex differences found in this study between alexithymia and recovery variables.

Another possible explanation may come from research on cerebral lateralization. Research on the lateralization of conversion disorders (Galín et al., 1977; Ley, 1980) indicates that the preponderance of left sided symptoms (indicating right hemisphere involvement) is significant for females only. In a biofeedback study, in which the lateralization patterns of males and females were measured using right/left EEG alpha ratios,

Davidson and Schwartz (1976) found that all the females they tested showed right hemisphere activation in anger and relaxation conditions, while only 42% of the males tested showed this pattern of activation. They hypothesized that males process affect in the context of an analytic, propositional framework, while females may process affect in a more global and gestalt-like manner.

Cole (1982) found that there was a significant positive correlation between CLEM and alexithymia scores for females only, indicating that females exhibiting right hemisphericity reported more alexithymic characteristics than females exhibiting left hemisphericity. A similar relationship was found with males though it did not reach significance.

The right hemisphere-conversion-emotion-alexithymia pattern found among females, and the lack of one with males may be indicative of sex differences in the lateralization of emotional functions, and the functions associated with alexithymic characteristics. The assessment of the neuropsychological functioning of male and female alexithymics (using the BIQ to avoid the role that denial may play in the reporting of alexithymic characteristics on self-report measures) and normals, may reveal sex differences in psychological deficits associated with alexithymia.

If psychological deficits were found among male and/or female alexithymics the question of whether they are functional or structural may not be answerable with existing

neuropsychological assessment methods. This is an important distinction to be made given the implications it would have for treatment. If the deficit was caused by a psychogenic disturbance of function, then supportive and behavior therapy may facilitate a return of these functions by helping the patient cope with the stress associated with trauma. If alexithymia is due to structural deficits, then the rehabilitative model, emphasizing:

assessment of the to-be-remediated skill, selecting tasks appropriate for training in that skill, analysis of those tasks in terms of performance of daily and non-daily activities, and seeking neurological correlates... (Goldstien and Ruthven, 1983)

may be more appropriate. Clinical trials of these treatment modalities with alexithymics may help answer the structural (primary) versus functional (secondary) alexithymia question.

#### Prevalence of alexithymia

The finding that 35% of pain patients in this study were clinically alexithymic is a prevalence rate lower than that found with chronic pain patients. Mendelson (1982) found that, in a sample of 60 chronic pain patients, 28 (47%) obtained MMPI alexithymia scores in the clinically significant range. Given that the average interval between injury and assessment in this sample was 19.24 weeks, the subjects in this study could be considered to be more at the acute end of the acute-chronic distinction and thus the higher prevalence of alexithymia in

Mendelson's (1982) sample may be a reflection of the chronicity of his sample.

Demers-Desrosiers (1983) in a study of 30 pain patients (no acute-chronic distinction was made), found, using the BIQ, that 67% of their subjects were alexithymic while 28% were alexithymic using the MMPI scale. MMPI scores and BIQ scores did not correlate in their study.

Given the high prevalence of alexithymic characteristics among pain patients, it is a variable worthy of investigation in their assessment and treatment.

### Alexithymia and demographic variables

#### Age and alexithymia

The significant correlation between age and alexithymia indicates that older ss had more alexithymic characteristics than younger ss. This finding is consistent with those by Sifneos (1973) and Kleiger and Jones (1980) who found that older ss were rated as being more highly alexithymic than younger ss using the BIQ. Kleiger and Jones (1980) suggest that

...the strong relationship between age and alexithymia makes sense in light of the physical changes and accompanying defensive processes which are often associated with aging. (p.469)

Other researchers (Lolas & de la Parra, 1980; Pierloot & Vinck, 1979) who looked at the relationship between age and alexithymia

did not find any age related differences in alexithymia scores. With a large sample (N=476) of asthma patients ranging in age from 14 to 76 years, Peiguine, Hulihan, and Kinsman (1982) found a higher incidence of alexithymia among the upper age ranges (middle and late adulthood) than in adolescence and early adulthood. They suggest that aging may be associated with a deterioration of brain structures that mediate the cognitive and emotional processes involved in alexithymia.

The relationship between age and alexithymia warrants further research given that alexithymia may reflect aging processes, and a poorer response to treatment.

#### Marital status and alexithymia

The significant correlation between marital status and alexithymia indicates that married SS had more alexithymic characteristics than single SS. This is consistent with findings by Kleiger and Jones (1980) that married chronic respiratory illness patients were more alexithymic than non-married patients. They found, however, that, when age was controlled for, this relationship was not significant. Smith (1983) found no relationship between marital status and alexithymia in a sample of medical patients. In the present study, even with the effects of age controlled for, the relationship between marital status and alexithymia was significant. This may indicate that a married person suffering from an injury may report more

difficulty expressing their emotions verbally than a single person because they are in a situation (i.e. married life as opposed to single life) where interpersonal conflict is more likely to occur.

### The MMPI and Alexithymia

Reference was made to Dahlstrom, Welsh, and Dahlstrom (1972), Graham (1978), and Lachar (1974) for interpretation of the MMPI validity and clinical scale configurations, and the scale score elevations associated with alexithymia.

#### Validity scale configuration

The mean validity configuration obtained by all Ss had a moderate elevation on the F scale relative to the L and K scales. This configuration indicates that the Ss in this sample may be described as similar to people that have been described as having independence of thought and negativeness, and as being unconventional, moody, changeable, dissatisfied, and opinionated. This configuration has also been found among those with character disorders, and those with problems in social situations.

The L-scale and alexithymia

The significant correlation between L-scale and alexithymia scores indicates that ss with alexithymic characteristics tended to try and create a favourable impression by not being honest in responding to items. Other personality characteristics of people with high L-scale scores are: conventionality, rigidity, moralistic, and lacking in insight. This is consistent with findings by Kleiger and Jones (1980), and Shipko and Noviello (1984). Shipko and Noviello (1984) found a significant positive correlation between MMPI alexithymia and L-scale scores in a normal sample of undergraduates. Kleiger and Jones (1980) found that chronic respiratory illness patients with high BIQ alexithymia scores also scored high on the L-scale of the MMPI. They suggested that this finding may be associated with denial of impulses and "pseudo-normality". Pseudo-normality has been described by Jackson (1977) in ulcerative colitis patients and in psychoanalytic terms by McDougall (1974):

Instead of some form of psychic management of disturbing affects or unwelcome knowledge or fantasies, the ego may achieve complete destruction of the representations or feelings concerned, so that these are not registered. The result then may be a super-adaptation to external reality, a robot-like adjustment to inner and outer pressure which short circuits the world of the imaginary. This pseudo-normality is a widespread character trait and may well be a danger sign pointing to the eventuality of psychosomatic symptoms. (p.444)



McDouqall (1974) also suggests that pseudo-normality is a form of numbness created to block pain by ignoring the body's signs and the mind's distress signals. Thus alexithymic patients may present themselves to health practitioners as being "super adjusted to reality", a possible sign that the defense mechanism of denial may be being strongly used, or that pseudo-normality is a behavioral manifestation of a cerebral deficit. Thus, signs of pseudo-normality may necessitate the practitioner take a more vigilant approach in their assessment of alexithymics.

#### The F-scale and alexithymia

The significant negative correlation between F-scale scores and alexithymia scores is consistent with the relationship between L-scale and alexithymia scores. People with low F-scale scores have been found to be socially conforming, free of disabling psychopathology, and tend to try and create a favourable impression. This relationship was stronger for females than males and may indicate that female alexithymics tended to try and make a favourable impression more than male alexithymics.

## The K-scale and alexithymia

The significant correlation between K-scale and alexithymia scores indicates that alexithymia was associated with characteristics of defensiveness, inhibition, intolerance, and a lack of insight or psychological mindedness. This finding corroborates the finding by Shipko and Noviello (1984) that K-scale scores were positively correlated with MMPI alexithymia scores.

The relationships between alexithymia scores and L, F, and K scores may indicate some of the reasons (i.e. defensiveness, lack of psychological mindedness, pseudonormality) why alexithymics appear to have a "severe impairment to utilize psychodynamic psychotherapy" (Krystal, 1979, p.29).

## The MMPI Clinical Scales and Alexithymia

### Clinical scale configuration

A 1-2-3 clinical scale configuration was obtained by all Ss. This profile type is thought to reflect somatization, anxiety, and the appearance of physiological symptoms instead of affective signs. The use of repression is suggested, with the patient characteristically exhibiting a lack of insight and self understanding.

## Hysteria and alexithymia

The significant correlation between hysteria and alexithymia scores, for males only, suggests that alexithymic males may tend to have symptoms with a functional origin, and that they may tend to be lacking in insight, self-centered, and socially involved. This is the first report of a relationship between alexithymia and hysteria. According to Nemiah (1973), individuals with hysterical personalities can be differentiated from alexithymics on the basis that the absence of affect and fantasy in the hysteric is limited to the area of psychological conflict, while the alexithymic exhibits a more global absence of affect and fantasy.

## Psychasthenia and alexithymia

The significant negative correlation between psychasthenia scores and alexithymia scores indicates that alexithymic SS, and male alexithymic SS in particular, tended to be relatively free of disabling fears and to be self-confident. This finding is consistent with Kleiger and Jones (1980) who found a significant negative correlation between BIQ alexithymia scores and psychasthenia scores. They suggested that this was "possibly related to their diminished capacity to experience anxiety on a conscious feeling level" (p.469).

### The Schizophrenia Scale and alexithymia

The significant negative correlation found between alexithymia and schizophrenia scores is consistent with findings by Shipko and Noviello (1984) and indicates that people with alexithymic characteristics may tend to be unimaginative, conventional, and may avoid deep emotional involvement. This finding gives some support to Nemiah's (1975) hypothesis that alexithymia represents the "obverse of schizophrenia", and warrants further testing of this interesting hypothesis.

### The Mania scale and alexithymia

The significant negative correlation between mania and alexithymia scores for all SS is consistent with findings by Shipko and Noviello (1984) and indicates that people with alexithymic characteristics may tend to be over-controlled, conventional, responsible, apathetic, and may tend to have a low energy level. This finding has not been reported elsewhere in the literature, although it appears consistent with the clinical features of alexithymia.

### The Social Introversion scale and alexithymia

The significant negative correlation between alexithymia and social-introversion scores suggests that SS with alexithymic characteristics in this sample had a tendency to be socially

extroverted, active, and impulsive. This is consistent with the observation that alexithymics tend to take action impulsively to the extent that it is a predominant way of life (Apfel and Sifneos, 1979; Sifneos *et al.*, 1977). These findings are inconsistent with those of Pava *et al.*, (1980) who found that there was a significant positive correlation between alexithymia (as measured by the SSPS) and introversion as measured by the Maudsley Personality Inventory, and with those of Kleiger and Jones (1980) who found no relationship between social introversion scores and alexithymia in patients with respiratory disease. The relationship between alexithymia and extroversion warrants further research given that extroversion is thought to be associated with cortical inhibition (Eysenck, 1981). Perhaps alexithymia and extroversion are related syndromes with a similar neuropsychological etiologies.

#### The Ego Strength Scale and alexithymia

The significant positive correlation between alexithymia and the ego strength scale appears to be inconsistent with the suggestion that psychoanalytic psychotherapy is of little benefit to alexithymics (Krystal, 1979). Barron (1953) originally constructed the scale to predict response to psychotherapy. The two predominant pre-therapy characteristics of patients who were found to improve in therapy are: (1) good physical functioning, and (2) spontaneity and an ability to

share emotional experiences. The unimproved group: (1) had many and chronic physical ailments, and (2) were broody, inhibited, worrisome, and had a strong need for emotional seclusion. Given that the sample used in the present study was made up of people with physical injuries and that an inability to express emotions verbally is the most salient characteristic of alexithymia, one would expect alexithymia scores to correlate negatively with ego strength scores. The relationship may be a result of a style of responding characteristic of defensiveness and pseudonormality. Ego strength scores correlated with the validity scale scores in a pattern similar to the way that alexithymia scores correlated with the validity scores. With all SS ego strength scores correlated significantly with L scale scores ( $r=.42, p.<.01$ ), F scale scores ( $r= -.58, p. <.001$ ), and K scale scores ( $r=.56, p. <.001$ ). A similar pattern with correlations of similar magnitude was found for males and females. Thus, the positive significant correlation between alexithymia and ego strength may be due to the response style of the alexithymic.

The correlations between alexithymia and the MMPI clinical scales for female SS were not significant, although compared to the correlations found with male SS, they were of similar magnitude. The lack of significance may be due to the small sample of females used.

Many of the relationships found between alexithymia and the MMPI validity and clinical scales add to the construct validity

of the concept of alexithymia given that they are generally consistent with characteristics thought to be alexithymic. The creation of an MMPI alexithymia scale standardized with pain patients may yield a useful measure for the assessment of pain patients.

## V. Conclusions

With the females examined in this study, significant relationships were found between alexithymia and a number of recovery variables: length of wage loss period, length of clinic treatment, and number of different types of doctors seen. With all subjects there was also a significant relationship between alexithymia scores, length of clinic treatment, and number of surgeries performed. That these findings were independent of injury severity suggests that alexithymia may be a more important variable affecting a claimant's response to treatment than the severity of their injury.

A causal relationship between alexithymia and recovery variables cannot be inferred given that it cannot be determined whether alexithymic characteristics lead to a poorer response to treatment or whether a long recovery period leads to the development of alexithymic characteristics. Despite this problem, the findings of this study suggest that claimants with alexithymic characteristics may receive more treatment from the medical profession than necessary. Perhaps earlier psychological intervention with an emphasis on the assessment and treatment of claimants' alexithymic characteristics would lead to a better response to treatment.



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