

Relationship of Alexithymia and Poor Social Support to Ulcerative Changes on Gastrofiberscopy

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The effects of psychosocial factors on peptic ulceration and/or erosions were examined in a sample of 189 volunteers. Analysis of variance found that the severity of gastrofiberscopic findings was related to two psychosocial factors—poor social support and degree of alexithymia—and that both psychosocial factors were significantly correlated with one another. Analysis of covariance indicated that gastrofiberscopic findings remained significantly related to poor social support when alexithymia was controlled for. These findings suggest that in both healthy persons, and in persons with alexithymia, peptic ulceration or erosions tend to manifest when social support is low. Poor social support and alexithymia may be an especially high-risk combination for the development of peptic ulceration and/or erosions.

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In 1973, Sifneos proposed the term “alexithymia” to imply a cognitive-affective disturbance characteristic of persons who cannot describe their feelings or elaborate their fantasies.¹ Many studies have since indicated that patients with psychosomatic diseases are prone to display alexithymic features.^{1–3} Recent studies have even shown that persons with posttraumatic stress disorder may exhibit alexithymia.^{4,5} Several studies have used the term “primary

alexithymia” to indicate a personality trait for this condition and the term “secondary alexithymia” to connote a state reaction.^{6–8} Thus, although alexithymic characteristics are not necessarily specific to particular diseases (e.g., peptic ulcer) the role of alexithymia in psychosomatic disease etiology is a frequently researched topic. We have reported before on the relationship of primary alexithymia and coping styles in the etiology of peptic ulceration.^{9,10}

There have been other prior studies that have reported on the relationship between alexithymic traits and coping with stress, including social support.^{11–13}

One psychotherapeutic study suggested that the term “alexithymia” could be applied as a label for a set of poor coping behaviors.¹¹ One group of researchers pointed out that alexithymic traits are closely related to low degrees of coping (i.e., poor social support and negative responses to stress) in study samples of healthy subjects.¹² We hypothesized that poor social

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support, combined with alexithymic traits, contributes to the manifestation of peptic ulceration and/or erosions. To our knowledge, there are no prior reports that have studied the relationship between poor social support and alexithymic traits in persons with peptic ulceration and/or erosions. Therefore, the present study was designed to examine whether these two psychosocial factors comprise a significant predictor for the severity of ulcerative changes on gastrofiberscopy.

METHODS

Subjects

A total of 234 Japanese men and women who were undergoing routine physicals volunteered to participate in the study. They were admitted to the primary medical care health service at Takinomiya General Hospital between June 1994 and January 1995. The sample included 129 men and 105 women, whose ages ranged from 30 and 65 years, with a mean of 48.4 years. After obtaining informed consent, the two procedures described below were administered.

Procedures

1. Initial Procedure: Medical Examination and Psychiatric Interviews. Initially, all volunteers underwent an outpatient laboratory testing. Blood and urine samples were taken, along with cardiovascular, pulmonary function, and renal function studies. The subjects also had a physical examination by a physician. Next, the Structured Clinical Interview for DSM-III-R^{14,15} was administered by a psychiatrist and/or psychologist in order to ascertain the presence or absence of a current psychiatric disorder.

2. Second Procedure: Gastrofiberscopic Examination and Psychological Assessments. After the laboratory procedures, gastrofiberscopic examination and psychological assessments were done. A diagnosis of peptic ulceration and/or erosions was made on the basis of findings of a

gastrofiberscopy. The severity of the gastrofiberscopic findings was classified into four grades: Grade 0 was no mucosal abnormalities seen; Grade 1 was given when superficial erosions were detected on the mucosal surface; Grade 2 was given when erosions or ulceration of the submucosa were seen; and Grade 3 was assigned when erosions or ulceration extended into the muscularis of the stomach wall. Higher grades represented more severe ulceration/erosions.

Two psychological tests were administered to all subjects. These were the 26-item Toronto Alexithymia Scale (TAS)^{2,3} and the Stress and Coping Inventory (SCI).^{16,17} Both were translated into Japanese and were reviewed by a bilingual psychiatrist.^{18,19}

The TAS¹⁸ is the most valid measure of alexithymia available in Japan. The items are rated on a 5-point Likert-type scale, using score range of 1, 2, 3, 4, and 5 points for each item. The higher the subject's total score (range: 26–130 points), the stronger the person's alexithymic characteristics. Alexithymia was inferred if the total TAS score exceeded 74 out of 130 points.^{2,3}

The TAS has four alexithymia subscales: difficulty identifying and describing feelings (Factor 1), lack of ability to communicate feelings to other people (Factor 2), lack of daydreams (Factor 3), and preference for focusing on external events rather than on inner experiences (Factor 4).^{2,3}

The SCI is a self-report questionnaire battery compiled and edited by Richard Rahe.¹⁶ The SCI is a collection of newly developed and previously standardized scales to provide four stress indicators and four measures of coping with stress.¹⁶ Four coping subscale measures were used in the present study: health habits; social support; responses to stress (i.e., negative and positive responses to stress); and life satisfactions. Health habits consist of a collection of healthful attitudes and behaviors, including diet, exercise, restriction of tobacco and alcohol use, pace and optimism. Social support questions measure the existence of a person's social network, the use of this network, and a person's

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perception of that network's readiness to come to his/her aid.¹⁷ Responses to stress were measured with Folkman and Lazarus's Ways of Coping Questionnaire.²⁰ An example of a positive response to stress would be active problem solving, whereas an example of a negative response to stress would be avoidance of the problem. Life-satisfaction questions were created by Rahe to match the categories of his Recent Life Changes Questionnaire: health, work, home and family, personal and social, and financial.¹⁷ The total score on each coping subscale was reduced to a translation score on a Likert-type scale ranging from 0 to 3 points. The higher the score, the stronger the degree of adjudged coping. Construct validity and reliability have been shown to be high for these questionnaires.^{16,17,19} With the assistance of Rahe and his co-workers, the Japanese version of the SCI has been found to have a high construct validity and reliability in samples of healthy subjects.¹⁹

Statistical Analysis

We used analysis of variance (ANOVA), post hoc *t*-test (Fisher protected least square difference) and analysis of covariance (ANCOVA) to assess differences in mean scores on the psychological tests and in the demographic data. We also used chi-square analyses to examine differences in the frequency of peptic ulceration and erosions. Pearson product-moment correlation coefficients were used to explore relationships among the psychological test data and demographic variables. All differences were considered significant at $P < 0.05$. For statistical analysis, we used Systat software (Version 5.2) for the Macintosh.²¹

RESULTS

1. Initial Procedure: Medical Examination and Psychiatric Interviews

Of the 234 volunteers, 21 subjects with major somatic diseases (e.g., cancer, ischemic heart disease, and cerebrovascular disease) and 24 subjects with evidence of a DSM-III-R Axis

I or II psychiatric disorder were excluded from the study. The 189 remaining healthy volunteers included 106 men and 83 women, whose ages ranged from 31 and 65 years, with a mean of 47.0 years. The mean educational level of the participants was 12.7 years (range: 8–17).

2. Second Procedure: Gastrofiberscopic Examination and Psychological Assessments

Based on the gastrofiberscopic examination findings, the 189 subjects were divided into four groups: Grade 0 ($n = 87$), Grade 1 ($n = 57$), Grade 2 ($n = 29$), and Grade 3 ($n = 16$). The results for both gastrofiberscopic and psychological assessments are shown in Tables 1 and 2. Table 1 presents the mean scores \pm SDs for the psychological tests for the four groups of subjects classified by findings on gastrofiberscopic examination. TAS scores differed significantly across the groups, being highest in the Grade 3 group and lowest in the Grade 0 group ($\chi^2 = 8.3$, $df = 3$, $P < 0.05$).

A factorial ANOVA statistic for each psychological test dimension was calculated. Variances were found to be significant for five variables: total TAS scores, TAS Factor 3 and Factor 4 scores, and the SCI's social support and the existence of social support subscale measures. Of the four TAS subscales, the mean scores for Factors 2 and 3 differed significantly across the groups, being highest in the Grade 3 group and lowest in the Grade 0 group. Post hoc *t*-tests after factorial ANOVA statistics also found that these scores tended to be higher as the depth of peptic ulceration and/or erosions progressed. Psychological test scores showed no significant relationship with age or gender. These results indicated that depth of peptic ulceration and erosions was related to total TAS, TAS Factors 3 and 4, and SCI social support.

Next, we examined the relationship between TAS and SCI scores. Correlational analysis found four significant differences. As shown in Table 2, scores on the social support subscale of the SCI correlated significantly with overall TAS score and TAS Factors 2, 3, and 4.

That social support was related to depth of peptic ulceration and erosions on ANOVA testing may have been attributable to its significant relationship with TAS scores. To examine for this possible effect, the relationship between social support and depth of peptic ulceration and/or erosions was examined by using ANCOVA testing. Three TAS scores were used for each covariate: total score, Factor 3, and Factor 4. ANCOVA testing resulted in the elimination of the significant differences obtained by ANOVA testing, and no significant differences were noted (covariate: $F = 2.00$; $df = 3, 185$ $P = 0.115$ [total score]; $F = 2.32$; $df = 3, 185$, $P =$

0.07 [Factor 3]; $F = 2.16$, $df = 3, 185$, $P = 0.10$ [Factor 4]). Similar results were obtained when the social support subscale, existence of social supports, was used. Therefore, ANCOVA testing indicated that, when controlling for TAS scores, the depth of peptic ulceration and erosions was independently and significantly related to the social support scores.

DISCUSSION

The study's procedure had advantages. First, alexithymic-scoring persons seem to be derived from the primary alexithymia group rather than

TABLE 1. Relationships between psychological assessments and gastrofiberscopic findings

	Four Grades Classified by Gastrofiberscopic Findings				Statistical Analysis		
	Grade 0 (<i>n</i> = 87)	Grade 1 (<i>n</i> = 57)	Grade 2 (<i>n</i> = 29)	Grade 3 (<i>n</i> = 16)	ANOVA (<i>df</i> = 3,186)		Post hoc <i>t</i> -test (Fisher PLSD)
					<i>F</i>	<i>P</i>	
Toronto Alexithymia Scale (TAS)-26							
Over 74 points, <i>n</i> (%)	25 (29)	26 (46)	15 (52)	13 (81)	—	0.04	—
Total TAS score	69.4 ± 6.2	72.1 ± 8.1	72.9 ± 5.2	76.9 ± 5.8	7.3	0.0001	0 > 1* 0 > 3* 1 > 3*
Subscales							
Factor 1	28.1 ± 4.6	28.1 ± 5.1	28.1 ± 4.4	30.9 ± 3.8	1.2	NS	
Factor 2	22.5 ± 4.0	22.9 ± 5.1	21.9 ± 3.5	20.7 ± 1.5	0.9	NS	
Factor 3	13.3 ± 2.4	15.5 ± 2.3	15.6 ± 3.0	17.4 ± 2.2	7.9	0.0001	0 > 1* 0 > 2* 0 > 3* 1 > 3* 2 > 3*
Factor 4	15.2 ± 3.0	16.6 ± 2.8	16.7 ± 1.9	19.8 ± 3.0	7.8	0.0001	0 > 1* 0 > 2* 0 > 3* 1 > 3* 2 > 3*
Stress and Coping Inventory							
Health habits	18.1 ± 6.3	17.2 ± 6.0	16.7 ± 6.5	16.2 ± 5.5	0.5	NS	
Social support	33.3 ± 8.7	29.7 ± 9.7	28.4 ± 9.2	28.8 ± 5.5	2.9	0.04	0 > 1* 0 > 2*
Existence	9.7 ± 3.1	8.5 ± 3.5	8.0 ± 2.8	7.4 ± 1.3	2.9	0.04	0 > 1* 0 > 2*
Utilization	11.4 ± 3.2	10.4 ± 3.8	9.9 ± 3.3	10.8 ± 2.4	1.7	NS	
Perception of helpfulness	12.2 ± 3.7	10.8 ± 4.0	10.5 ± 4.0	10.6 ± 2.3	2.5	NS	
Negative responses to stress	19.5 ± 6.5	17.2 ± 7.5	18.8 ± 7.3	14.0 ± 5.2	2.9	NS	
Positive responses to stress	19.5 ± 6.5	17.2 ± 7.6	18.9 ± 7.3	14.0 ± 5.2	1.9	NS	
Life Satisfaction	36.8 ± 8.3	36.1 ± 8.0	34.3 ± 8.4	35.2 ± 3.7	0.7	NS	

Note: Results were expressed as mean ± SD or number of cases (%). 0 = Grade 0, 1 = Grade 1, 2 = Grade 2, 3 = Grade 3. NS = not significant. ANOVA = analysis of variance, significant differences among Grades 0, 1, 2, and 3. PLSD = protected least square difference.

* $P < 0.05$.

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the secondary alexithymia group. In this study, the subjects with major somatic illness (i.e., cancer, ischemic heart disease, and cerebrovascular disease) were excluded. The subjects in this study were largely physically and psychiatrically healthy, although we could not completely rule out a past history of psychiatric disorder. To a large extent, however, we feel we minimized the number of volunteers with secondary alexithymia associated with severe physical diseases and psychiatric disorders.^{7,9,13,22,23} Thus, scoring in the alexithymic range on the TAS would more likely indicate primary alexithymia as a personality trait. Second, possible influences of psychosocial factors on depth of peptic ulceration and/or erosions made in a healthy sample should have greater generalizability than if we had used an ill group of persons.

Several prior studies have shown a significant relationship between alexithymic traits and social support,^{11,12} although none studied peptic ulceration and erosions in particular. In this study, alexithymic traits were closely related to poor social support in the 87 subjects without abnormal gastrofiberscopic findings (Grade 0). The TAS total score vs. social support subscale was $r = -0.549$ ($P < 0.01$), supporting the two prior studies.

For all subjects, including the patients with abnormal gastrofiberscopic findings, alexithymic traits were significantly related to poor social support. Of the three components of social support (existence, utilization, and perception of helpfulness), the existence subscale most closely measured the traits indicating alexithymia. This subscale includes six questions

which primarily measure the degree of one's social network (e.g., I have several close family members, I am a member of several social groups, I often feel lonely with no one to whom I can reach out, I don't know anyone I can confide in about my troubles). It seems logical that social supports, especially the existence of social support, tended to decrease with increasing alexithymia. This could be explained by alexithymic persons tending to isolate themselves from others, including family members. A recent study also indicated a significant relationship between these two factors in a sample of healthy subjects, suggesting that primary alexithymia as a personality trait might be a predictor for, or possibly contribute to, poor social support.¹²

Two statistical analyses, a factorial ANOVA statistic and correlational analysis, indicated that depth of peptic ulceration and erosions was closely related to poor social support and degree of alexithymic traits, which were also significantly correlated with one another. As just discussed, when alexithymic traits were controlled for, depth of peptic erosion and ulceration was independently and significantly related to poor social support. The findings from this study suggest that, in healthy persons with alexithymic traits, peptic ulceration and erosions may be prone to manifest more severely when low social supports are present. There may be a number of mechanisms whereby alexithymic traits might predispose persons to peptic ulceration and/or erosions. One mechanism might be that because these patients do not communicate their feelings to others, their suppressed

TABLE 2. Relationships between Toronto Alexithymia Scale (TAS-26) and Stress and Coping Inventory

	<i>r</i>	df	<i>F</i>	<i>P</i>
Social Support				
vs. TAS total score	0.339	1,187	20.8	0.0001
TAS Factor 1	0.086	1,187	1.2	NS
Factor 2	0.193	1,187	6.2	0.01
Factor 3	0.201	1,187	6.5	0.01
Factor 4	0.194	1,187	6.2	0.01

Note: NS = not significant.

emotions make the persons susceptible to peptic ulceration and erosion pathology. In addition, psychophysiological processes positively influenced by social support could be hypothesized to exert neuroregulatory disruptions in patients with poor social supports. Several studies have demonstrated a significant association between gastric ulcer and poor social support.^{24,25} One study found that ulcer patients have fewer friends and relatives whom they feel they can call on in times of crisis.²⁴ The psychophysiological effect of alexithymia on maladaptive coping defenses requires further investigation.

Many studies have found a relationship between chronic ulcer and biological factors, such as infection and drugs. Approximately 95% of chronic duodenal ulcers are associated with *Helicobacter pylori* infection in the stomach, and approximately 80% of chronic gastric ulcer patients show a *Helicobacter pylori* infection.²⁶⁻²⁸ Some of the relationships between the biological mechanisms of *Helicobacter pylori* infection and psychosocial variables have been studied.²⁹⁻³¹ For example, the relationship between psychosocial stress and susceptibility to infectious disease has been documented.²⁹⁻³¹ Hovelius²⁹ reported that a higher level of *Helicobacter pylori* antibodies was associated with a relatively low self-perception of stress. The absence of information on *Helicobacter pylori* status was a limitation of our study. We believe

that longitudinal studies in a variety of cultures with different races/ethnicities of people are needed to confirm and better understand how poor social support relates to alexithymic traits. Studies of this type may stimulate consultation-liaison psychiatrists to pay more attention to assessing alexithymic features and social support in patients with peptic ulceration and erosions.

The results of this study may also help bring the relationship of alexithymia to ulcer disease to the attention of physicians in the medical community at large. Testing for alexithymic traits on medical services that care for these patients, or screening on yearly medical examinations, could help to delineate those patients who might benefit from psychiatric intervention. In Japan, there is a yearly medical health check-up called "Ningen-dock," which literally translates into "human dock." The name of this examination was taken from the idea of a ship coming into port for inspection and overhaul. This examination is often provided to large groups of employees at corporations throughout Japan.³²

The findings of this study suggest that, in healthy persons with alexithymia, peptic ulceration or erosions tend to manifest more severely when social support is low. Poor social support combined with alexithymia may be an important risk factor for the severity on gastrofiberscopic findings.

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