

Depression is strongly associated with alexithymia in the general population

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Abstract

Objective: This study examines how alexithymia and depression are related to each other in men and women in a sample of Finnish general population ($n = 2018$). **Methods:** Alexithymia was screened using the 20-item version of the Toronto Alexithymia Scale. Level of depression was assessed using the 21-item Beck Depression Inventory (BDI). Life satisfaction was estimated with a structured scale. **Results:** The prevalence of alexithymia was 12.8% in men and 8.2% in women. However, the prevalence of alexithymia was 32.1% among those having BDI scores of ≥ 9 , but only 4.3% among the nondepressed subjects ($p < 0.001$). The BDI scores explained 29.2% of the variation in TAS-20 scores. Alexithymia

was associated with several sociodemographic factors if depression was not taken into account. However, after including depression in the logistic regression models, only depression and low life satisfaction were associated with alexithymia, both in men and women. **Conclusion:** These results suggest that alexithymia has a close relationship to depression in the general population. The impact of social factors on alexithymia may be primarily explained by depression. Depression must be taken into account as a confounding factor when studying alexithymia in general populations due to the strong association between alexithymia and depression. © 2000 Elsevier Science Inc. All rights reserved.

Keywords: Alexithymia; Depression; Epidemiology; General population; Prevalence; Sociodemographic variables

Introduction

Alexithymia was originally defined as the inability to recognize and verbalize emotions [1], and has since been characterized as an emptiness of feelings [2], a poverty of imagination or of a fantasy life [3], difficulties in communicating with other people [2], as well as a lack of positive emotions and a high prevalence of negative emotions [4].

Earlier epidemiological studies on alexithymia in the adult general population [5–11] have examined mainly either the prevalence rates of alexithymia or the social factors associated with alexithymia. Prevalence rates have been shown to vary from 13% [11] to 19% [5,8]. The findings from previous studies examining the relationship between alexithymia and social factors have been contradictory, with results both supporting an overlapping association between sociodemographic

variables and alexithymia [6,7,10,11] as well as those indicating that alexithymia is related to a limited number of social factors [5].

Several studies, based on both clinical samples [12–18] and on healthy college student populations, have reported a connection between depressive mood and alexithymia, but no studies have yet focused on this association within the general population.

Study aim

We have previously shown that patients with depressive disorders are prone to experiencing alexithymic features [18]. However, it is not known whether depression is also associated with alexithymia among the general population. Thus, we sought to identify how alexithymia and depression are related to each other in men and women in a sample of Finnish general population. We were especially interested in answering the following questions: (a) What proportion of the general population is simultaneously both alexithymic and depressed? (b) To what extent can depression explain the

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variance of alexithymia within the general population?
(c) Do gender differences exist in the associations between alexithymia, depression, and social factors?

Subjects and methods

Subjects

Our total sample included 3004 subjects between the ages of 25 and 64 years, who were randomly selected from the National Population Register, and were living in the District of Kuopio. Study questionnaires were mailed for the first time in April 1998, and again to the nonrespondents in May 1998. A total of 2050 questionnaires were returned resulting in a response rate of 68.2%. A total of 572 (38.7%) men and 382 (25.0%) women did not return the questionnaire ($\chi^2 = 64.7$, $df = 1$, $p < 0.001$) and, due to incomplete questionnaires, 32 (1.1%) subjects were discarded from the analysis. The final sample ($n=2018$) included 891 (44.2%) men and 1127 (55.8%) women. The nonresponding men were slightly younger than the responding men (42.3 years vs. 44.8 years, $t = -4.4$, $df = 1476$, $p < 0.001$); no difference was found among nonresponding and responding women (43.1 years vs. 43.9 years, $p = \text{ns}$).

Methods

The subjects were questioned about their sociodemographic background. In addition, one question was used to assess each of the following factors: subjective economic status, rated on a four-point scale (1–2: good; 3–4: poor); subjects' own evaluation of their health, rated on a four-point scale (1–2: healthy; 3–4: unhealthy); and subjects' own evaluation of their working ability, rated on a four-point scale (1–2: good working ability; 3–4: decreased work ability).

The prevalence of alexithymia was screened using the Finnish version [11] of the 20-item version of the Toronto Alexithymia Scale (TAS-20) [21], which has been well validated [22,23]. Each TAS-20 item was rated on a five-point Likert scale, with total scores ranging from 20 to 100. The scores indicating alexithymia (≥ 61) were categorized according to the recommendations of Taylor and coworkers [24]. Cronbach's α was 0.86.

The level of depression was assessed using the 21-item Beck Depression Inventory (BDI). Scores were regarded as a continuous variable or divided into four groups: 0–9—normal mood; 10–18—mood ranging from mild to moderate depression; 19–29—mood ranging from moderate to severe depression; and 30–63—severe depression [25]. Cronbach's α was 0.89.

Life satisfaction was estimated by means of a structured scale [26]. The scale included four questions designed to assess each subject's view of how interesting and easy their life was, and their perceived loneliness and happiness. The total score was used to classify the

Table 1

The statistics of the TAS-20 in the whole study population and by gender

TAS-20	All subjects (n = 2018)	Men (n = 890)	Women (n = 1128)
Mean (SD)	44.1 (11.8)	46.5 (11.5)	42.2 (11.6)
Median	43.0	46.0	40.0
Mode	40.0	46.0	40.0
Range	63.0	63.0	59.0
Minimum value	20	20	20
Maximum value	83	83	79
Percentiles			
10%	30.0	32.0	29.0
20%	33.8	36.0	32.0
25%	35.0	38.0	34.0
30%	37.0	40.0	35.0
40%	40.0	43.0	38.0
50%	43.0	46.0	40.0
60%	46.0	48.0	43.4
70%	50.0	52.0	47.0
75%	52.0	54.0	50.0
80%	55.0	57.0	53.0
90%	61.0	62.0	59.0

subjects as either satisfied (score 4–11) or dissatisfied (score 12–20) with their life [27].

Statistical methods

Subjects with a TAS-20 score of ≥ 61 were compared with the others (TAS-20 score ≤ 60). The statistical methods used included Pearson's chi-square test with the Yates continuity correction for categorical variables, independent-samples t -test, linear regression and Pearson's two-tailed correlation analyses for continuous variables, and multivariate logistic regression analysis to identify factors independently associated with alexithymia (TAS-20 score ≥ 61). Logistic regression analyses were performed separately for both genders. $p < 0.05$ was considered statistically significant in all analyses.

Results

A total of 207 (10.3%) subjects in our sample were alexithymic. Men ($n = 114$) showed a significantly greater frequency of alexithymia than women ($n = 93$) (12.8% vs. 8.2%, $\chi^2 = 10.8$, $df = 1$, $p < 0.01$), and an intergender difference was also found in the mean TAS-20 score ($t = -8.3$, $df = 2016$, $p < 0.001$) (Table 1).

Alexithymic subjects were significantly older (48.1 ± 9.8 years vs. 43.9 ± 10.7 years, $t = -5.5$, $df = 2016$, $p < 0.001$) and less educated (10.7 ± 3.4 years vs. 12.6 ± 3.7 years, $t = 6.9$, $df = 2016$, $p < 0.001$) than the others ($n = 1811$). Alexithymic men and women were also more often blue-collar workers, had lower economic status, reported low life satisfaction, and considered themselves more often unhealthy, and their subjective

Table 2

Sociodemographic characteristics according to alexithymia status among men and women in the sample of general population

Variables	Men				χ^2 ($df = 1$)	Women				
	With alexithymia (n = 114)		Others (n = 776)			With alexithymia (n = 93)		Others (n = 1035)		
	n	(%)	n	(%)		n	(%)	n	(%)	χ^2 ($df = 1$)
Married or cohabiting	82	(71.9)	587	(75.6)	0.6 NS	61	(65.6)	728	(70.3)	0.7 NS
Blue-collar worker	61	(53.5)	317	(40.9)	6.0*	21	(22.6)	110	(10.6)	10.7**
White-collar worker	46	(40.4)	432	(55.7)	8.8**	69	(74.2)	864	(83.5)	4.5*
Poor economic situation	47	(41.2)	209	(26.9)	9.2**	31	(33.3)	230	(22.2)	5.3*
Low life satisfaction	61	(54.5) ^a	111	(14.4) ^b	97.9***	50	(54.3) ^d	165	(16) ^e	77.5***
Decreased subjective work ability	73	(64.0)	224	(29) ^b	53.3***	55	(59.1)	292	(28.3) ^a	36.7***
Consider themselves unhealthy	47	(41.2)	72	(9.7) ^c	80.1***	29	(31.9) ^a	104	(10.1) ^f	35.7***

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. NS, not significant.^a Two missing cases. ^b Three missing cases. ^c Thirty missing cases. ^d One missing case. ^e Six missing cases. ^f Seven missing cases.

work ability was more frequently decreased than that of the nonalexithymic subjects (Table 2). Marital status was not associated with alexithymia.

The alexithymic subjects suffered more frequently from depression (BDI scores > 9) than did the others (66.7%, $n = 138$ vs. 16.1%, $n = 292$, $\chi^2 = 280.0$, $df = 1$, $p < 0.001$). Nearly two thirds (62.3%, $n = 71$) of the alexithymic men had some level of depression, as compared with 12.9% ($n = 100$) of the nonalexithymic men ($\chi^2 = 153.1$, $df = 1$, $p < 0.001$). Similarly, 72% ($n = 67$) of the alexithymic women had BDI scores of > 9 , whereas only 18.6% ($n = 192$) of the nonalexithymic women suffered from depression ($\chi^2 = 135.0$, $df = 1$, $p < 0.001$).

The prevalence of alexithymia was related to level of depression as well as its presence or absence (Table 3). In the whole population, the prevalence of alexithymia was 32.1% ($n = 138$) among depressed subjects (BDI score > 9), whereas it was only 4.3% ($n = 69$) among subjects with normal mood. Men with normal mood were significantly more often alexithymic than were women with normal mood (6.0%, $n = 43$ vs. 3.0%, $n = 26$, $\chi^2 = 7.8$, $df = 1$, $p < 0.01$). Depressed men were also more often alexithymic than depressed

women (41.5%, $n = 71$ vs. 25.9%, $n = 67$, $\chi^2 = 10.9$, $df = 1$, $p < 0.01$).

Linear regression analysis showed that the BDI scores explained 29.2% of the variation in TAS-20 scores ($y = 38.6 + 0.93 \times \text{BDI scores}$, $p < 0.001$) for the whole study population. When men and women were considered separately, the BDI scores explained 33.4% ($y = 40.9 + 1.0 \times \text{BDI scores}$, $p < 0.001$) and 29.5% ($y = 36.6 + 0.9 \times \text{BDI scores}$, $p < 0.001$) of the variation in the TAS-20 score, in men and women, respectively.

To determine which variables associated with alexithymia (TAS-20 score ≥ 61) in men and women the forced logistic regression analyses were performed separately for both genders. Univariate analyses (Table 2) showed that the sociodemographic factors significantly associated with alexithymia were occupation (blue-collar worker/other occupations), financial situation (poor-good), life satisfaction (LS score 12–20/LS score 4–11), health status (considering oneself unhealthy/healthy), and work ability (having a decreased work ability/good work ability). These variables were included in the forced multivariate logistic regression analyses. Age, the length of education in years, and BDI (0–9/10–63) were

Table 3

Prevalence of depression between alexithymic and nonalexithymic men and women

Level of depression (BDI score)	Men ^a				Women ^b			
	With alexithymia (n = 114)		Others (n = 776)		With alexithymia (n = 93)		Others (n = 1035)	
	n	(%)	n	(%)	n	(%)	n	(%)
Normal mood (0–9)	43	(37.7)	676	(87.1)	26	(28.0)	843	(81.4)
Mild to moderate (10–18)	31	(27.2)	83	(10.7)	32	(34.4)	151	(14.6)
Moderate to severe (19–29)	29	(25.4)	14	(1.8)	26	(28.0)	33	(3.2)
Severe depression (30–63)	11	(9.6)	3	(0.4)	9	(9.7)	8	(0.8)

^a Differences in proportions, $\chi^2 = 220.3$, $df = 3$, $p < 0.001$.^b Differences in proportions, $\chi^2 = 197.3$, $df = 3$, $p < 0.001$.

Table 4
Factors associated with alexithymia in the logistic regression models

Variables	Men		Women	
	Odds ratio	95% confidence limits	Odds ratio	95% confidence limits
Length of education in years	0.9	0.84–0.99	0.9	0.82–0.97
Blue-collar worker	1.3	0.80–2.22	1.1	0.58–2.07
Age	1.0	0.97–1.02	1.0	0.99–1.05
Decreased subjective work ability	1.2	0.64–2.34	1.2	0.66–2.29
Poor economic situation	0.6	0.37–1.09	0.8	0.44–1.40
Low life satisfaction	2.9**	1.67–5.15	2.3*	1.29–4.15
BDI score > 9	5.2**	2.85–9.46	6.8**	3.70–12.50
Considers oneself unhealthy	1.8	0.94–3.28	1.0	0.52–1.87

* $p < 0.01$; ** $p < 0.001$.

also included because they were found to be significantly related to alexithymia.

The independent factors associated with alexithymia (TAS-20 score ≥ 61) in the logistic regression models consisted of a BDI score of > 9 and low life satisfaction (LS score 12–20) both in men and women (Table 4).

Discussion

In our study, 12.8% of the men and 8.2% of the women in the sample of Finnish general population were found to be alexithymic. In a previous Finnish study, the prevalence of alexithymia was 17% among men and 10% among women [11]. In other countries, the prevalence of alexithymia has been shown to vary from 12% [10] to 19% [5]. Interestingly, we found that the prevalence of alexithymia was only 4.3% among nondepressed subjects, whereas, among the depressed subjects, the prevalence of alexithymia was higher by eightfold (32%). Our results suggest that the high prevalence rates of alexithymia reported in previous research may have been biased by the fact that depression was not taken into account.

Nearly 70% of our sample agreed to participate in this study. The responding men were slightly older than nonrespondents. Despite this limitation, we regard the results to be representative of the general population. The reliability of the structured scales (TAS-20 and BDI) used in this study was high. However, because of the limited number of depressed subjects among the nonalexithymic subjects, it was not possible to conduct separate statistical analyses of different groups according to the level of depression.

The TAS-20 has been well validated in several studies [22,23] and also, in our study, Cronbach's α was high, indicating that the TAS-20 has acceptable internal consistency. Rief and coworkers [16] and Sifneos [28] have argued that alexithymia measured by TAS may in fact measure some specific aspects of depression or general distress. However, Parker and coworkers [29] found that

alexithymia and depression are distinct, but highly correlated, constructs. Similarly, in our study, the TAS-20 and BDI scores correlated strongly in both genders. Further study is clearly needed to resolve whether TAS-20 and BDI have some common psychometric properties.

To our knowledge, this is the first study focusing on the association between alexithymia and depression in the general population. We found this relationship to be strong. In earlier studies, the relationship between alexithymia and depression has caused some debate as to whether alexithymia and depression represent distinct or overlapping constructs [16,29]. Some studies based on clinical samples support an overlapping association [12,16,30]. Consequently, alexithymia has been interpreted to be secondary [31,32], mainly a coping or defense mechanism for life-threatening situations [16]. Other studies have indicated alexithymia to be either a stable personality construct in depressed patients [33,34] or a condition distinct and separate from depression [30].

In previous studies focusing on general populations, alexithymia has been found to be associated with several sociodemographic factors, such as male gender [11], advanced age [6,11], low educational level [7,11], low occupational [7] or socioeconomic status [11], being single [7], and poor perceived somatic health [35]. However, studies by Parker et al. [5] and Pasini et al. [6] did not find any gender differences. Our results show that alexithymia is associated with several sociodemographic factors, assuming depression is not taken into account. However, after including depression in the logistic regression models, neither sociodemographic factors nor poor perceived somatic health were significantly related to alexithymia. These results indicate that the impact of social factors on alexithymia may be primarily explained by depression.

The depressed men were more frequently alexithymic than the depressed women. Moreover, nondepressed men were more often alexithymic than the nondepressed women, although the prevalence of alexithymia among

nondepressed men and women was very low compared with earlier findings [5,11]. In a study by Kauhanen et al. [7], social variables explained 9.1% of the variance of the TAS score, whereas, in our study, depression explained 29.2% of the variance of the TAS score, suggesting that depression might be the most important single variable explaining the variance of alexithymia in general populations.

Low life satisfaction was also associated with alexithymia in men and women. Life satisfaction is generally considered to describe an individual's subjective perception of their psychological well-being [36]. It has been found that low life satisfaction is associated with such factors as depression and poor social support [27,37]. Nevertheless, the cross-sectional design used in this study does not enable us to evaluate the impact of life satisfaction more accurately. Hendryx et al. [14] argued that alexithymic subjects have not completely blocked awareness of the painful affect, because they can indicate depression or anxiety. This view is supported by our findings that alexithymic subjects were often dissatisfied with their lives.

In summary, our results suggest that depression must be taken into account as a confounding factor when studying alexithymia in general populations due to the strong association between alexithymia and depression.

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