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Characteristics on the Karolinska Scales of Personality (KSP) of women with Anorexia Nervosa and Bulimia Nervosa

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ABSTRACT

The Karolinska Scales of Personality (KSP) was given to 60 women 18-34 years old, 19 of them having a DSM-IV diagnosis of Anorexia Nervosa (AN) and 41 of Bulimia Nervosa (BN). The aim of the study was to examine differences in KSP results between the AN and the BN women and between five subgroups of these, two of them anorexic (clusters 1 and 2) and three bulimic (clusters 3, 4 and 5), a classification determined by means of a hierarchical cluster analysis reported in Wilhelmsson and Andersson (2005). No statistically significant differences between the AN and BN groups on any of the 15 KSP scales were found. The scales of somatic anxiety, psychic anxiety, psychasthenia and detachment differentiated between the subgroups. The most marked difference was found for psychic anxiety, women in each of clusters 1 and 4 more often scoring higher on it than those in each of clusters 2 and 3. Women in cluster 4 scored higher on detachment than those in cluster 3. The findings for psychic anxiety and detachment corresponded on the whole to those found previously for the variables ineffectiveness and interpersonal distrust on the Eating Disorder Inventory (EDI).

Keywords: Anorexia Nervosa, Bulimia Nervosa, Eating Disorder Inventory (EDI), Karolinska Scales of Personality (KSP)

Characteristics on the Karolinska Scales of Personality (KSP) of women with Anorexia Nervosa and Bulimia Nervosa

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In a previous study of 60 women with eating disorders (Wilhelmsson & Andersson, 2005), 19 were diagnosed as having Anorexia Nervosa (AN) and 41 as having Bulimia Nervosa (BN). A diagnosis of depression was more common for BN than for AN, but there was no difference between these two main eating disorder groups in terms of the diagnosis of personality disorder. Regarding the prevalence of different forms of anxiety, defenses against anxiety and certain other signs, as measured by means of the Defense Mechanism Technique modified (DMTm) (Andersson & Bengtsson 1985; Andersson 2004) – a percept-genetic tachistoscopic technique interpreted in terms of the Andersson (1991; Andersson & Ryhammar, 1998) developmental and psychodynamic model of the mind – the AN and BN women displayed greater similarities than differences. Statistically significant differences between these two eating disorder groups were found for two of the twenty DMTm variables. In the Eating Disorder Inventory (EDI) (Garner, 1991; Garner & Norring, 1994), widely used in studying eating disorder patients, statistically significant differences were found for two of the eight main dimensions, higher scores on bulimia (the tendency to think about and engage in binge eating) and lack of interoceptive awareness (confusion and apprehension in recognizing and accurately responding to emotional states, as well as uncertainty in the identification of certain visceral sensations related to hunger and satiety) being more common for the BN than the AN women.

In addition to studying differences in characteristics between the AN and BN women, Wilhelmsson and Andersson (2005) performed a cluster analysis using Ward's hierarchical method. This cluster analysis, based on the main diagnosis (AN/BN), as well as the diagnoses of depression and personality disorder, the symptoms of binge eating and purging, the Body Mass Index (BMI), the extent of exercise, and the eight EDI and twenty DMTm variables, resulted in five subgroups, two of them anorexic and three bulimic.

The present investigation aims at further examination of differences between the AN and BN women and between the five cluster groups studied in Wilhelmsson and Andersson (2005), here regarding results on the Karolinska Scales of Personality (KSP), a self-report inventory constructed by Schalling and co-workers (af Klinteberg, Schalling & Magnusson,

1986; Schalling, Åsberg, Edman & Oreland, 1987) as a tool for measuring personality traits indicative of vulnerability to mental disturbances. Ahrén-Moonga, Holmgren, von Knorring and af Klinteberg (2008) noted various differences recently between their 38 severely ill eating disorder women, those diagnosed as AN scoring lower than those diagnosed as BN on the KSP scales of impulsiveness, somatic anxiety, psychic anxiety, inhibition of aggression, suspicion and guilt. Fäldt Ciccolo and Johnsson (2002) gave KSP to 52 women having AN or BN, examining how the KSP scales related to membership in each of three separate subgroups defined by means of cluster analysis of EDI data. Subjects in two of the cluster groups were found to score higher on somatic anxiety, psychic anxiety, psychasthenia and inhibition of aggression than those in the third cluster group.

METHOD

Participants

Sixty women who fulfilled the DSM-IV criteria for AN or BN (American Psychiatric Association, 1994) participated in the study, all of them newly admitted to a psychiatric clinic in Sweden and outpatients there most of the time. The DSM-IV diagnoses of AN, BN, depression and personality disorder were performed independently by an experienced psychiatrist and the present author, the classification to be assigned then being agreed upon.

The mean age for both the 19 anorexic and the 41 bulimic women was 23.1 years (range 18-33 and 18-34, respectively). The mean of BMI for the AN group was 16.0 (range 13-17) and for the BN group 20.8 (range 14-28). A BMI less than 17.5 was considered as low, found for all diagnosed as AN and for three diagnosed as BN. Only one of the bulimic women had a history of AN. Ten of the 19 anorexic women belonged to AN of the restricting type.

The 60 subjects were distributed in the different subgroups on the basis of the cluster analysis reported in Wilhelmsson and Andersson (2005) as follows: 11 of them in anorexic cluster 1 (9 of these diagnosed as AN and 2 BN), 8 in anorexic cluster 2 (all AN), 16 in bulimic cluster 3 (14 BN and 2 AN), 17 in bulimic cluster 4 (all BN) and 8 in bulimic cluster 5 (all BN). Details of how membership in different cluster groups related to the diagnoses of depression and personality disorder, the symptoms of binge eating and purging and the EDI, DMTm, BMI and exercise variables can be found in Wilhelmsson and Andersson (2005).

Karolinska Scales of Personality

KSP is designed to measure personality traits that may be related to biological markers of vulnerability to psychopathology (Schalling, Åsberg, Edman & Oreland, 1987; af Klinteberg, Schalling, Edman, Oreland & Åsberg, 1987). This self-report inventory has been used in a large number of studies of non-clinical and clinical groups, some of the studies concerned with eating disorder patients (e.g. Palme & Palme, 1999; Fäldt Ciccolo & Johnsson, 2002; Ahrén-Monga et al., 2008). The stability of its variables has been found in a non-clinical group to be reasonably high over a nine-year period (Gustafsson, Weinryb, Göransson, Pedersen & Åsberg, 1997).

KSP consists of 135 items grouped into 15 scales, some of them adapted from other personality inventories and the others constructed by Schalling and co-workers. The scales can be ordered into five main categories (af Klinteberg, Schalling & Magnusson, 1986) (Table 1). Each item has four alternatives, ranging from “does not apply at all” (scored as 1) to “applies completely” (scored as 4). The scales differ in the number of items involved (Table

1). The scores on the scales are transformed into T-scores (M 50, SD 10) that are based on samples of 200 women and 200 men in the age categories of 20-34, 35-49 and 50-65 years. The group of women aged 20-34 was used here as a norm group. The mean score, SD and range of each of the scales in the present group is shown in Table 2.

The internal consistency of the scales, calculated on the data from the present group by means of the Cronbach alpha coefficient, was rather low for irritability, suspicion and guilt (Table 1), a result in line with the findings reported by Gustafsson et al. (1997) and by Palme and Palme (1999). The intercorrelations between some of the scales were rather high in the present group, the two highest being those between somatic anxiety and muscular tension (.76) and between somatic anxiety and psychasthenia (.65).

Table 1. *Characteristics of the KSP scales.*

Scale	Number of items	Cronbach alpha	Description of high scores (from Schalling et al., 1987)
Anxiety			
Somatic anxiety	10	.84	Autonomic disturbances and restless
Muscular tension	10	.85	Difficulties in relaxing, tense
Psychic anxiety	10	.82	Sensitivity, feelings of uneasiness and lack of self-reliance
Psychasthenia	10	.72	Easily fatigued
Inhibition of aggression	10	.77	Cannot speak up, rather sad than angry when scolded
Extraversion-Introversion			
Impulsiveness	10	.74	Impulsive actions, non-planning
Monotony avoidance	10	.83	Need for change
Detachment	10	.79	Distanced and avoiding interpersonal relations
Non-conformity-Conformity			
Socialization	20	.87	Good childhood experiences and good adjustment
Social desirability	10	.69	Conforms socially
Aggression			
Indirect aggression	5	.59	Outlet of aggression not related to the cause of aggression
Verbal aggression	5	.74	Arguments when annoyed
Irritability	5	.27	Lack of patience, irritability
Hostility			
Suspicion	5	.45	Suspiciousness and distrusting others
Guilt	5	.44	Feeling shame and remorse for bad thoughts

Table 2. *KSP characteristics of T-scores in the present group of 60 women.*

Scale	Mean	SD	Range
Somatic anxiety	67.42	11.26	38-91
Muscular tension	62.38	12.16	40-93
Psychic anxiety	63.87	9.94	44-93
Psychasthenia	66.12	12.54	34-84
Inhibition of aggression	58.30	11.25	27-71
Impulsiveness	50.65	10.31	27-78
Monotony avoidance	53.67	9.19	29-82
Detachment	55.37	11.67	14-60
Socialization	37.08	10.03	14-60
Social desirability	47.20	9.65	22-71
Indirect aggression	53.14	11.66	31-80
Verbal aggression	46.76	9.70	24-66
Irritability	55.35	6.71	41-69
Suspicion	63.80	10.47	33-89
Guilt	58.37	12.07	35-83

Statistical analyses

The Mann-Whitney U test was used to examine which differences between the AN and BN groups on the KSP scales that were statistically significant. Differences on the KSP scales between the five cluster groups were tested by means of the Kruskal-Wallis one-way analysis of variance by ranks, complemented by an analysis in terms of Siegel and Castellan (1988, p. 213) of which clusters differed significantly from one another when compared pair-wise. SPSS (version 17) was used for the statistical analyses.

Table 3. Mean ranks for the AN and BN groups on the KSP variables and the U- and p-values (two-tailed) for the Mann-Whitney U test.

KSP scale	Mean rank		U	p
	AN	BN		
Somatic Anxiety	28.55	31.40	352.5	.56
Muscular tension	31.79	29.90	365.0	.70
Psychic anxiety	27.47	31.90	332.0	.36
Psychasthenia	33.53	29.10	332.0	.36
Inhibition of aggression	25.53	32.80	295.0	.13
Impulsiveness	27.58	31.85	334.0	.38
Monotony avoidance	30.42	30.54	388.0	.98
Detachment	25.29	32.94	290.5	.11
Socialization	32.00	29.80	361.0	.65
Social desirability	34.61	28.60	311.5	.21
Indirect aggression	26.50	32.35	313.5	.22
Verbal aggression	27.79	31.76	338.0	.41
Irritability	26.76	32.23	318.5	.25
Suspicion	31.42	30.47	372.0	.78
Guilt	29.26	31.07	366.0	.71

Table 4. Mean ranks for the five cluster groups on the basis of the KSP scales and p-values (two-tailed) for the Kruskal-Wallis one-way analysis of variance by ranks.

KSP scale	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5	p	Cluster differences
Somatic anxiety	39.77	19.38	21.16	37.71	32.25	.007	(1vs.3), (3vs.4)
Muscular tension	34.55	34.06	20.00	35.59	31.36	.08	
Psychic anxiety	41.64	16.13	21.09	41.76	24.44	.000	1vs.2, 1vs.3, 2vs.4, 3vs.4
Psychasthenia	40.77	25.50	19.63	36.41	30.56	.01	1vs.3, (3vs.4)
Inhibition of aggression	33.09	24.19	25.03	37.71	28.88	.21	
Impulsiveness	27.41	30.75	29.59	31.32	34.56	.93	
Monotony avoidance	28.05	33.44	36.44	24.18	32.50	.32	
Detachment	27.05	26.75	19.63	40.79	38.88	.005	3vs.4
Socialization	23.27	38.25	38.94	25.09	27.31	.06	
Social desirability	38.23	30.44	29.81	22.85	37.56	.15	
Indirect aggression	29.82	26.06	28.72	33.94	32.13	.84	
Verbal aggression	28.41	23.75	33.69	34.41	25.44	.49	
Irritability	25.23	33.44	24.78	36.68	33.13	.25	
Suspicion	35.18	28.56	22.81	34.65	32.56	.27	
Guilt	37.55	17.56	27.22	34.26	32.31	.10	

Note. Cluster differences referred to indicate $p \leq .10$ if in parenthesis and $p \leq .05$ otherwise.

RESULTS

No statistically significant differences between the diagnostic groups AN and BN were found for any of the KSP scales (Table 3). According to the Kruskal-Wallis one-way analysis of variance by ranks, four of the KSP scales – somatic anxiety, psychic anxiety, psychasthenia and detachment – differentiated between the cluster groups (Table 4). The most obvious difference was found for psychic anxiety. Women in each of clusters 1 and 4 scored higher on this variable than those in each of clusters 2 and 3. Similar results were obtained for somatic anxiety and psychasthenia, although here the difference between pairs of clusters was significant only for the comparisons of cluster 3 with each of clusters 1 and 4. Pair-wise comparisons for detachment revealed a significant difference between clusters 3 and 4, women in cluster 4 scoring higher on this scale than those in cluster 3. No statistically significant differences were found for the KSP scales between cluster 5 and any of the other clusters.

DISCUSSION

In contrast to the findings reported by Ahrén-Monga et al. (2008) in the present study no statistically significant differences for any of the KSP scales were found between the women diagnosed as AN and as BN. This agrees with the findings of Wilhelmsson and Andersson (2005) showing there to be only two of twenty DMTm variables that differentiated between AN and BN. In terms of that percept-genetic technique the “projected self” was reported as being sad more often by the BN than by the AN women, which the cluster analysis showed to be particularly typical of the women in the bulimic cluster 3. Reversal or non-recognition of the threatening characteristics in DMTm of the “projected other” – an identity defense referred to as denial through reversal II – was likewise found to be more common in the BN than in the AN group, although the cluster analysis showed this quite clearly to be a sign that (together with the identity defense of denial through reversal I) was particularly appropriate in describing the women in the bulimic cluster 5.

In the Fält Ciccolo and Johnsson (2002) study, the KSP anxiety scales were found to be particularly useful in differentiating between the EDI cluster groups, a result in line with the present findings for somatic anxiety, psychic anxiety and psychasthenia. Although high scores on all three of these scales were found to be typical of women in both the anorexic cluster 1 and the bulimic cluster 4, and low scores on these variables to be typical of women in the anorexic cluster 2 and the bulimic cluster 3 (women in the bulimic cluster 5 being located in-between), psychic anxiety was the scale that provided the most clear-cut difference between the cluster groups. This variable, which measures “sensitivity, feelings of uneasiness and lack of self-reliance”, appears to have much in common with the EDI dimension of ineffectiveness, a dimension representing the extent of self-rated “feelings of general inadequacy, insecurity, worthlessness and lack of control over one’s life”, high scores indicating low self-esteem, negative evaluation of the self and feelings of emptiness and aloneness. Ineffectiveness was the EDI variable that was particularly useful for differentiating and defining the cluster groups. The women in the anorexic cluster 1 and the bulimic cluster 4 scored higher on ineffectiveness, the women in the other clusters (the anorexic cluster 2 and the bulimic clusters 3 and 5) scoring lower on it.

High scores on the KSP detachment scale reflecting a person being “distanced and avoiding interpersonal relations”, has an obvious counterpart in the EDI dimension of interpersonal distrust, indicating the degree of “general feelings of alienation and of reluctance to form close relationships together with a need to keep others at a distance”. The finding in the Wilhelmsson and Andersson (2005) study of high scores on interpersonal

distrust characterizing women in the bulimic cluster 4 coincides with their high scores on detachment in the present study. This is in agreement with the view held by Forbush and Watson (2006) that persons with BN often have difficulties in interpersonal relations which lead to their preoccupation with and inadequacies concerning their social selves.

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