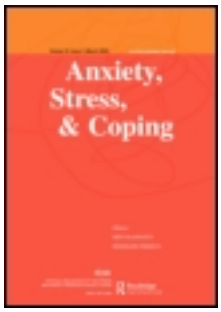

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Consistency of social anxiety in psychiatric patients: Properties of persons, situations, response classes, and types of data

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CONSISTENCY OF SOCIAL ANXIETY IN PSYCHIATRIC PATIENTS: PROPERTIES OF PERSONS, SITUATIONS, RESPONSE CLASSES, AND TYPES OF DATA

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The focus of this study was to investigate the consistency of observed overt behaviors, psychophysiological measures, and reported cognitions in high and low socially anxious psychiatric patients. Forty-seven psychiatric patients (25 high and 22 low socially anxious ones) were exposed to two situations: the initiation of a conversation and the refusal of a request. For both groups of subjects, consistency across situations (Situations) and trait indicators (Reactions) was highest for psychophysiological measures. Observed overt behaviors showed the lowest consistency across Situations and Reactions. Substantial evidence was found for the consistency of Persons × Situations and Persons × Reactions interactions. Moreover, high socially anxious subjects showed a higher consistency than low socially anxious patients with respect to observed overt behaviors and reported cognitions. Using psychophysiological measures, low socially anxious patients showed higher consistency than high socially anxious subjects. The implications for the assessment of social anxiety are discussed.

KEY WORDS: Social anxiety, consistency, observed overt behavior, reported cognitions, psychophysiological reactions, psychiatric patients

Traditionally, *social anxiety* is conceived of as a cognitive-emotional reaction tendency in social situations which is stable over time and consistent across situations. However, dissatisfaction with such a "classic" dispositional view was reported two decades ago (e.g., Mischel, 1968, 1973). Global traits were vehemently criticized for failing to predict the specific behavior of individuals in specific situations and for failing to provide a theoretically convincing analysis of the basic psychological processes that underlie the individuals' cognitions, feelings, expressive reactions, and goal-directed actions (Mischel, 1990).

In response to this critique, several methodological reforms, such as the use of moderator variables (e.g., Bem & Allen, 1974) or the aggregation of multiple observations and measures (e.g., Epstein, 1979, 1980) have been proposed. In

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addition, Endler, Hunt, and Rosenstein (1962; see also Endler & Hunt, 1966, 1968) have suggested to construct self-report measures that take individual response specificity *and* situational specificity into account. Furthermore, Houts, Cook, and Shadish (1986) have urged the adoption of "critical multiplism", involving the study of psychological phenomena via multiple measurement using different types of data. Several authors (e.g., Haynes, 1979; Ozer, 1986) have stated that it should be investigated which traits or behaviors demonstrate substantial situational consistency and which show a high degree of variability across subjects.

The present study focusses on the last two points. Within the domain of social anxiety, we tried to answer the following questions: (a) To what degree is social anxiety a broad disposition? (b) Is the position of social anxiety on a *trait-nontrait* dimension the same, irrespective of the mode of measurement (type of data)? and (c) Do these answers hold for high as well as for low socially anxious subjects?

We strongly feel that the answers to these questions contribute to the ultimate assessment question: Which mode to employ for which purposes? Stated otherwise: Which type of data, viz. psychophysiological, cognitive, or behavioral, is the most adequate for which aims?

To answer this last question several problems have to be solved first. One of the problems concerns the links between type of data (modes) and *consistency* of reactions across time and/or situations. Such investigations have been published with respect to general anxiety (see Van Heck, 1988), but no studies have dealt explicitly with *social* anxiety.

Although the *consistency of social anxiety* not explicitly have been dealt with in the literature, several issues refer to it. One of such issues is the *situational specificity* of social anxiety. In the literature on behavior therapy, it has been generally accepted that behavior is to a large extent situationally specific (e.g., Cautela & Upper, 1976; Haynes, 1979; Kazdin, 1979; Nelson & Hayes, 1979; O'Leary, 1979). With respect to social anxiety, situational specificity has been investigated in social situations where, among other variables, gender of the confederate, familiarity with the confederate, privateness of the scene, and kind of elicited interactions have been varied (e.g., Beidel, Turner, & Dancu, 1985; Bourque & Ladouceur, 1979; Burkhart, Green, & Harrison, 1979; Eisler, Hersen, Miller, & Blanchard, 1975; Hersen, Bellack, & Turner, 1978; Hopkins, Krawitz, & Bellack, 1981; Kolotkin & Wielkiewicz, 1984; Nelson, Hayes, Felton, & Jarrett, 1985; Pitcher & Meikle, 1980; Talbert, Lawrence, & Nelson, 1980; Turner, Beidel, & Larkin, 1986). In a field closely related to the research tradition on social anxiety, situational shyness has been distinguished from the trait of dispositional shyness (Asendorpf, 1987, 1989; Russell, Cutrona, & Jones, 1986). For instance, Asendorpf (1989) has reported that the presence of strangers and the anticipation of social evaluation induced situational shyness, independently of each other. Moreover, it was found that these forms of situational shyness did not interact with trait shyness.

The *functional equivalence* of social situations has been called in question by Kolotkin and Wielkiewicz (1984) who pointed at the different influences of distinct situational contexts on similar response types (cf. Kolotkin, 1980). These findings were supported in one of our own investigations into the structure of self-reported discomfort in social situations (van Dam-Baggen, Kraaimaat, & Kiers, 1992). In this particular study, it was revealed that a group of socially anxious psychiatric patients and a group of normal persons agreed as to which social situations elicit more or less anxiety. Russell et al. (1986) reported similar results for two

independent groups of college students. Moreover, factor analyses of social situations, based on reported anxiety, produced invariant solutions across groups (Arrindell & van der Ende, 1985; van Dam-Baggen et al., 1992). It follows that situational specificity, as far as perceived discomfort is concerned, is not a random phenomenon.

The afore-mentioned findings are mainly restricted to the *cognitive-emotional aspect* of social anxiety, i.e., subjective distress or discomfort. In recent years, however, social anxiety has been viewed, by analogy with phobic anxieties, as a complex response, consisting of physiological, cognitive, and behavioral aspects. Consequently, a diversity of variables used to measure social anxiety has been proposed. For instance, heart rate, skin conductance and blood pressure are considered to be useful *autonomic anxiety measures* (e.g., Beidel et al., 1985; Brodt & Zimbardo, 1981; Bruch, Gorsky, Collins, & Berger, 1989; Hersen et al., 1978; Turner et al., 1986; van Dam-Baggen & Kraaimaat, 1986, 1987a). Furthermore, subjective distress or discomfort and negative self-evaluations are conceived of as valid *measures of cognitive anxiety* (e.g., Alden & Cappe, 1981; Heimberg, Chiauzzi, Becker, & Madrazo-Peterson, 1983; LaVome Robinson & Calhoun, 1984; Schwartz & Gottmann, 1976; van Dam-Baggen & Kraaimaat, 1986, 1987a). Finally, gaze, response latency, content, loudness, number of verbal responses, gestures, body exposure and other variables have been studied as *behavioral anxiety measures* (e.g., Asendorpf, 1987, 1988, 1989; Bruch, 1981; McFall, Winnett, Bordewick, & Bornstein, 1982; Pitcher & Meikle, 1980; Romano & Bellack, 1980; Trower, 1980; van Dam-Baggen & Kraaimaat, 1986, 1987a).

Much work has been done to compare high and low socially anxious subjects on these, and other, variables. The results of studies with normal subjects, mainly students, showed that high socially anxious persons can be differentiated from low socially anxious subjects in terms of (a) psychophysiological reactions (e.g., Beidel et al., 1985; Brodt & Zimbardo, 1981; Bruch et al., 1989; Turner et al., 1986), (b) cognitive reactions (Alden & Cappe, 1981; Heimberg et al., 1983; LaVome Robinson & Calhoun, 1984; Schwartz & Gottmann, 1976), and (c) social skills (Bruch, 1981; McFall et al., 1982; Pitcher & Meikle, 1980; Romano & Bellack, 1980; Trower, 1980).

However, the results for psychiatric patients are somewhat different from those usually obtained with normal subjects. For instance, Van Dam-Baggen and Kraaimaat (1986, 1987a) found that high socially anxious psychiatric patients did not differ from low socially anxious ones in autonomic reactivity and subjective distress. It was also shown, however, that they did differ in anticipation of distress, negative self-evaluations, and overt behavior directed towards others. With respect to observed overt behaviors, it was demonstrated that social anxiety is related to a restricted repertory of overt social skills. Therefore, it seems reasonable to expect that high socially anxious subjects will display higher transsituational consistency in observed behavior than low socially anxious subjects. This hypothesis was tested in the present study.

Another aspect of measure anxiety and social anxiety is the *divergency of the various modes of measurement*. With respect to social anxiety, McCroskey (1984) has rejected the traditional trait-state dichotomy. Instead, he conceives of social anxiety as a continuum ranging from the extreme trait pole to the extreme state pole. In his view, social anxiety can be measured by self-reports, observer ratings, or psychophysiological registration. According to McCroskey (1984), psychophysiological measures and behavioral observations are most useful for assessing states

and least useful for assessing traits, while self-report measures are fit for traits as well as states. As long as the results of the comparison of high and low socially anxious subjects on psychophysiological measures are not consistent between populations, the opinion of McCroskey cannot be rejected in advance.

Eelen, Van den Bergh, Baeyens, and Crombez (1986) attribute the often observed discordances in the measurement modes to individual response stereotypy and situational stereotypy. Asendorpf (1987, 1988, 1989) also explains the low consistency of individual differences in shyness across different behavioral measures in terms of individual response stereotypy. Research suggests that people tend to perceive more consistency than actually exists. In the literature, it is assumed that this cognitive constructing of consistencies does not happen at random, but is influenced by the tendency to maintain a consistent self concept and by the occurrence of "cognitive economics", i.e., the use of schemata to process incoming information (Mischel, 1990). We think that biases in this process play a substantial role in self-assessment. Consequently, we expect the highest consistency within the self-description mode. Furthermore, based on theoretical grounds, it is expected that observations of behavior and psychophysiological measurements would lead to less consistency compared with self-reports; for in both modes the cognitive frame which furthers consistency, is lacking (cf. Van Heck, 1981).

The *aim of the present study* is to investigate the differential effect upon consistency of (a) different social situations, (b) different modes (behavioral observations, reported cognitions, and psychophysiological measures), (c) different reaction variables within these three mode categories, and (d) different groups of adult psychiatric patients (high and low socially anxious).

To scrutinize the possible links, 47 psychiatric patients were confronted with two different social situations. It was expected that consistency in general is higher for high than for low socially anxious subjects. With respect to modes, it was expected that consistency is higher within the mode of self-description than within the other two modes.

METHOD

Subjects

The subjects were 47 adult inpatient and outpatient clients of the Psychiatric University Clinic in Utrecht, The Netherlands. The group consisted of 25 men and 22 women with a mean age of 35 years (SD = 10.9 years, ranging from 20 to 56). All subjects were recruited on a voluntary basis. Psychiatric diagnoses in the subject sample ranged from seriously neurotic to borderline psychotic syndromes. Excluded from the subject pool were manifestly psychotic and brain damaged patients.

The 47 subjects were divided in two groups of 25 high and 22 low socially anxious persons. As cut-off point for assigning persons to the high or low socially anxious group, the mean score of a reference group of psychiatric patients on a Dutch inventory for social anxiety, the IOA, was taken (N = 363; M = 91.7; SD = 28.8; van Dam-Baggen & Kraaimaat, 1987b; 1991). As was expected, high and low socially anxious groups differed significantly with respect to IOA-Discomfort scores: M = 114.8 (SD = 15.5) and M = 69.4 (SD = 18.3), respectively. The groups did not differ in terms of gender (chi^2 = 1.11, p = .29) and educational

level (Mann Whitney U: $p = .63$). However, there were substantial age differences (high socially anxious: $M = 31.1$ and $SD = 8.6$ and low socially anxious: $M = 39.6$ and $SD = 11.7$; t-test: $t = 2.82$, $p < .01$).

Procedure

Before the experiment all subjects were informed that the aim of the study was to improve the assessment procedures of a social skills training.

The subjects were exposed to two naturalistic role-played social situations with a confederate: the initiation of a conversation and the refusal of a request. The order of the situations was cross-balanced. Based on previous research, the situations were purposely made different with respect to two aspects: (a) the nature of the task and (b) the sex of the confederate (van Dam-Baggen & Kraaimaat, 1987a).

In the Refusal-situation, the male confederate asked the subjects to subscribe to a Nature Fund on unreasonable financial terms. The confederate was instructed to do his very best to recruit the subject as a new member. He was told to terminate his efforts only in case of a direct refusal.

In the Conversation-situation, the subjects were asked to initiate a conversation with an unfamiliar female person in a waiting room. The confederate was instructed to reinforce the subject's efforts without taking any initiative herself.

Each situation was finished by the confederate after two minutes. Then the subjects had to complete some self-report scales about the experimental situation followed by a three-minute rest period. At the end of the experiment all subjects were informed about the real character of the situations.

Measures

The measures used in this study have been frequently used in recent social anxiety research (e.g., Alden & Cappe, 1981; Beidel et al., 1985; Bruch, 1981; McFall et al., 1982; Pitcher & Meikle, 1980; Romano & Bellack, 1980; Schwartz & Gottmann, 1976; Trower, 1980).

Psychophysiological reactions. During the two experimental situations, as well as during a rest period at the end of the experiment, heart rate and electrodermal activity were continuously monitored. *Heart rate frequency* was calculated by measuring the R-peak intervals in msecs, and these were converted to heart rate (beats per minute). For electrodermal activity, two measurements were used: *skin conductance level* and *spontaneous fluctuations per time unit.* Each deviation from the baseline equal to or greater than 0.02 micromho within a period of 4 sec. was defined as a spontaneous fluctuation. Psychophysiological signals were plotted and visibly screened for artefacts. Autonomic reactivity scores for these physiological measures were obtained by subtracting the mean rate of the first minute of the rest period from the mean rate of the first minute of both experimental situations. Raw difference scores were calculated because correction for initial level was not appropriate (Myrtek & Foerster, 1986). The processing from raw data to autonomic reactivity measures was computerized.

Reported cognitions. Two weeks before the experiment, the *expected subjective distress* in conversation and refusal situations was established by means of a self-report inventory. This inventory consisted of 3 conversation and 3 refusal situations; the expected subjective distress was assessed by means of a 5-point Likert scale, ranging from 1 (*not at all anxious*) to 5 (*extremely anxious*). During the

experiment, immediately after each role-play, the subjects reported the *subjective distress experienced* during the situations; again on a 5-point Likert scale, ranging from 1 (*not at all anxious*) to 5 (*extremely anxious*). Finally, after each role-play, subjects indicated on a questionnaire (after Zatz & Chassin, 1983) whether any of the following cognitive responses had occurred: *positive self-evaluations, negative self-evaluations, on-task thoughts,* and *off-task thoughts*. For each response, two items were included in the questionnaire.

Observed overt behaviors. During the experimental sessions, overt behavior was continuously videotaped. Two independent judges, junior clinical psychologists trained for this reason and unfamiliar with the purpose of the study, scored the following behaviors (cf. Monti et al., 1984; Trower, 1980; van Dam-Baggen & Kraaimaat, 1986):

[a] *Duration of response*: The period of time (in secs) that the subject spoke to the confederate; the mean duration of the first five responses was taken;
[b] *Latency of response*: The time elapsed (in secs) between the end of a prompting statement delivered by the confederate and the start of a response by the subject; the mean time of the first five time lapses was taken;
[c] *Number of verbal responses*: The mean number of verbal responses that were given by the subject in one minute.
[d] *Duration of gaze*: The period of time that the subject's gaze was directed at the confederate's face during the first five interactions of subject and confederate (in secs);
[e] *Quality of gaze*: The degree to which gaze was tuned in to the interaction between subject and confederate (7-point scale, ranging from 1 = *looking away* to 7 = *adjusted direct gaze*);
[f] *Loudness*: The loudness of the voice (7-point scale, ranging from 1 = *inaudible* to 7 = *sufficiently loud*);
[g] *Intonation*: The variation in intonation and the extent of adjustment of the intonation to the verbal response (7-point scale, ranging from 1 = *monotonous/not adjusted* to 7 = *varied/adjusted*);
[h] *The content* of the subject's verbal response was rated by a behavior therapist experienced in assertiveness training. Verbatim transcripts of the texts of the experimental situations were used for the rating. For the *refusal*-situation, the directness and concreteness of the way in which the subject refused the offered membership of the Nature Fund was rated on a 7-point scale, ranging from 1 (*complying*) to 7 (*clearly refusing*). For *initiating a conversation* the nature and variation of the interventions, employed by the subject during initiation and continuation of the discourse, was rated on a 7-point scale, ranging from 1 (*keeping silent*) to 7 (*employing various interventions*).

The quantitative behaviors [a] to [d] as well as quality of gaze [e] were scored or rated from the videotapes; loudness [f] and intonation [g] were merely rated from audiotapes.

To investigate the reliability of the ratings, twenty-five percent randomly chosen videotapes of each experimental situation were re-scored. Both junior clinical psychologists acted as second rater as well. The following *inter*-rater reliability coefficients (Product-Moment correlations) were obtained: .99 for Duration of response, .95 for Latency of response, .98 for Number of verbal responses, .99 for

Duration of gaze, .78 for Quality of gaze, .66 for Intonation, and .79 for Voice volume.

After a time interval of two weeks the situational content was rated again by the same judge: the *intra*-rater reliability coefficients (Product-Moment correlations) were .91 for refusal and .94 for initiating a conversation.

For the order in which the situations were presented no significant differences were found for any of the variables (*t*-tests: all *ps* > .05).

RESULTS

Generalizability Analyses for the Total Sample

Using the total sample and the Overt Behavior data, a 47 × 2 × 8 (Persons × Situations × Reaction variables) analysis of variance was performed, along with a components of variance analysis for a mixed-effects model with Persons and Situations as random facets and Reaction variables as a fixed facet[1]. Similar three-way analyses were carried out for Reported Cognitions (47 × 2 × 6 ANOVA) and Psychophysiological Reactions (47 × 2 × 3 ANOVA). Scores were *z*-scores, calculated separately for each Reaction variable. The use of *z*-scores was obligatory because of the different ways of scoring the various acts, cognitions, and bodily reactions. The estimated variance components and the percentages for each component, the so-called omega-squared ratios, are presented in Table 1.

Table 1 shows that behavioral variation is attributable to neither of the components per se. It was found that the main effect of Persons made less contribution to the total variance than did interactions of Persons with Situations (Persons × Situations) or Reaction variables (Persons × Reactions). For the three types of data, these simple interactions taken together contributed from 30 to over 60% of the variance, while in no case the main effect Persons reached this level.

The Persons × Situations interaction, indicating that the shaping of behavior by the situation is not developing independent of the individual, was most prominent in overt behaviors and psychophysiological reactions. In the case of self-reports, however, this interaction was a less substantial contributor. The Persons × Reactions interaction, reflecting the individuals' characteristic hierarchies of reaction variables, was highest in psychophysiological responses and reported cognitions, while individual response specificity was lowest in overt behaviors. The

[1]A random effects model is recommended for this type of research by Asendorpf (1991) and Ozer (1986). The reasons for this recommendation are: (a) the fact that in this way it is not necessary to assume that the variance of Persons × Situations × Reactions is zero; (b) estimates of variance components are in a conservative direction; and (c) traditional definitions of random sampling may be unnecessarily narrow. It will be clear, however, that, especially in the case of the response classes, the selection of trait indicators was based on current research practice and theoretical views regarding the prototypicality of the various markers. Therefore, in the present study the Reaction facet was not randomly sampled by standard definitions. Apart from that, employment of the all-random model does not produce different outcomes. For instance, the generalizability across Persons unit sample coefficients (compare with Table 4) for low socially anxious persons were .11, .02, and .00 for Psychophysiological reactions, Observed behaviors, and Reported cognitions, respectively. The corresponding coefficients for high socially anxious persons were .00, .10, and .21. The generalizability across Persons × Situations coefficients for low socially anxious persons were .29, .05, and .10, and for high socially anxious persons .47, .12, and .00. The generalizability across Persons × Reactions coefficients for the mixed and random model are identical.

Table 1 *Estimated Variance Components and Omega-Squared Ratios (total sample* N = *47).*

Source	Estimates of Variance Components	Omega-squared Ratios
	Observed Overt Behaviors	
Persons	.08	7.2
Persons × Situations	.18	16.2
Persons × Reactions	.20	18.0
Residual	.65	58.6
	Reported Cognitions	
Persons	.14	12.2
Persons × Situations	.11	9.6
Persons × Reactions	.38	33.0
Residual	.52	45.2
	Psychophysiological Reactions	
Persons	.22	17.3
Persons × Situations	.24	18.9
Persons × Reactions	.55	43.3
Residual	.26	20.5

estimates of variance components in Table 1 were used to determine coefficients of generalizability (cf. Cronbach, Gleser, Nanda, & Rajaratnam, 1972). Generalizability theory provides a framework for analyzing *the functional equivalences which might exist among persons, situations, and response classes of trait indicators*. The main goal of generalizability theory is the identification of various influences on the generality of data. Generalizability theory extends classical reliability theory by recognizing and estimating the magnitude of the multiple sources of measurement error (Shavelson, Webb, & Rowley, 1989). Essentially, generalizability coefficients are a general form of an intraclass correlation. They reflect the degree of generalizability from one set of observations to a universe of similar observations.

Functional equivalence among response classes implies the existence of a higher order trait concept. Moreover, functional equivalent situations are behavioral contexts in which there are consistent individual differences in terms of consistent response profiles. Finally, functionally equivalent persons may be viewed as person types.

Ozer (1986) and Asendorpf (1991) have proposed conceptual frameworks of personality and a structural representation of these frameworks, based on generalizability theory. Their approach provides a way of quantifying the various types of consistency that can be discerned in a Persons × Situations × Response Classes data box.

Using variance components for specifying the variability of behavior, different general types of consistency can be investigated. First, one can study the consistency of the ordering of persons across situations *and* trait indicators. Second, one can focus on the consistency of ordering of persons across the various response classes that are assumed to form a higher order trait. Third, one can scrutinize consistency across situations. Generalizability theory paves the way for studying

the particular classes of conditions and equivalence units that have to be taken into account when predictive precision is the goal (cf. Mischel, 1990). The equations for the necessary calculations in a Persons × Situations × Reactions structure are shown in Table 2.

Table 2 *Formulas for Generalizability Coefficients in a Persons × Situations × Reactions Data Structure.*

$G(P) = V(P)/[V(P) + V(PS)/o + V(PR)/p + V(Residual)/op]$
$G(PS) = V(PS)/[V(PS) + V(Residual)/p]$
$G(PR) = V(PR)/[V(PR) + V(Residual)/o]$

Note. P = Persons; S = Situations; R = Response Classes.
G(P) = generalizability coefficient that assesses the degree to which a Persons effect occurs across all levels of Situations and reactions.
G(PS) = generalizability coefficient that assesses the degree to which a Persons × Situations interaction occurs across all levels of Reactions.
G(PR) = generalizability coefficient that assesses the degree to which a Persons × Reactions interaction occurs across all levels of Situations.
V(P) = variance component for the Persons facet;
V(PS) = variance component for the Persons × Situations interaction;
V(PR) = variance component for the Persons × Reactions interaction;
V(Residual) = variance component for the Residual effect.
o = number of situations. p = number of response classes.

In the present context, the best basis for comparisons is provided by so-called unit sample coefficients representing the generalizability of scores based on a *single* observation (cf. Golding, 1975). Generalizability analyses showed that generalizability across Persons, assessing the *degree to which a Persons effect occurs across all levels of Situations and Reactions*, was highest for psychophysiological data (0.17), followed by reported cognitions (0.12), and observed behaviors (0.07). Thus, the classic global trait model was supported best within the domain of psychophysiological reactions.

Generalizability across Persons × Situations, reflecting the *degree to which a Persons × Situations interaction occurs across all levels of Reactions*, was highest in psychophysiological data (0.48), followed by overt behaviors (0.22), and reported cognitions (0.17).

Generalizability across Persons × Reactions, assessing the *degree to which a Persons × Reactions interaction occurs across all levels of Situations*, was again highest in psychophysiological data (0.68). Lower generalizability coefficients were obtained for reported cognitions (.42) and observed behaviors (0.24).

Generalizability Analyses for High and Low Socially Anxious Groups

Separate three-way analyses of variance were conducted for the subsamples of high and low socially anxious psychiatric patients. Subsequently, the observed mean-square equations were solved for the various component sources of variance. These component sources of variance and the percentages of the components sum for each of the component sources are presented in Table 3.

Table 3 shows that simple interactions constitute sources of the total variance for social anxiety nearly two to eight times what it is for Persons. Most striking are

these differences in low socially anxious subjects in the case of observed overt behaviors and reported cognitions, 4.2% (main effect Persons) versus 30.2% (Persons × Situations + Persons × Reactions interactions) and 5.4% (Persons) versus 45.6% (Persons × Situations + Persons × Reactions), respectively. For these two data categories, Persons contributed a higher percentage of the total variance for high socially anxious subjects than for low socially anxious subjects. With respect to psychophysiological reactions, the contribution for Persons in low socially anxious patients is nearly twice that for Persons in high socially anxious persons. Most striking here is the high percentage of 51.4 in the case of individual response specificity in high socially anxious subjects.

Table 3 *Estimated variance Components and Omega-squared ratios for LSA (low socially anxious)-subjects (N = 22) and HSA (high socially anxious)-subjects (N = 25).*

	LSA		HSA	
Source of Variation	EVC	OSR	EVC	OSR
	Observed Overt Behaviors			
Persons	.05	4.2	.12	11.3
Persons × Situations	.14	12.1	.17	15.2
Persons × Reactions	.20	18.1	.16	14.4
Residual	.73	65.5	.65	59.1
	Reported Cognitions			
Persons	.06	5.4	.24	20.9
Persons × Situations	.15	12.9	.07	6.4
Persons × Reactions	.38	32.7	.32	27.7
Residual	.57	49.0	.51	45.0
	Psychophysiological Reactions			
Persons	.25	20.2	.16	12.0
Persons × Situations	.24	18.8	.26	20.1
Persons × Reactions	.45	35.5	.66	51.4
Residual	.32	25.5	.21	16.4

Note. LSA = Low socially anxious; HSA = High socially anxious.
EVC = Estimates of Variance Components; OSR = Omega-squared ratios. The main effects of Situations and Reactions, as well as the interaction Situations × Reactions showed EVCs of .00 and are not presented in the table.

Table 4 contains, separately for low and high socially anxious patients, the generalizability across Persons, generalizability across Persons × Situations, and generalizability across Persons × Reactions coefficients for the various types of data. Again, the best basis for comparisons is provided by the unit sample coefficients which are presented parenthetically.

In generalizing across situations as well as reaction variables, in which case individual situational specificity (Persons × Situations interactions) and individual response specificity (Persons × Reactions interactions) are considered to constitute error variance, for low socially anxious patients the highest generalizability was

Table 4 *Generalizability Coefficients for Different Types of Data in High and Low Socially Anxious Patients.*

Type of Data	LSA	HSA
	G(P)	
Psychophysiological reactions	.44 (.20)	.29 (.12)
Observed behaviors	.25 (.04)	.46 (.11)
Reported cognitions	.25 (.05)	.64 (.21)
	G(PS)	
Psychophysiological reactions	.69 (.43)	.79 (.55)
Observed behaviors	.61 (.16)	.68 (.21)
Reported cognitions	.61 (.21)	.45 (.12)
	G(PR)	
Psychophysiological reactions	.74 (.58)	.86 (.76)
Observed behaviors	.35 (.22)	.33 (.20)
Reported cognitions	.57 (.40)	.56 (.39)

Note. LSA = Low socially anxious; HSA = High socially anxious. G(P) = Generalizability over Persons; G(PS) = Generalizability over Persons and Situations; G(PR) = Generalizability over Persons and Reactions. Unit sample coefficients (cf. Golding, 1975) are presented parenthetically.

found for psychophysiological reactions (.20). For high socially anxious subjects, the highest generalizability was obtained for reported cognitions (.21).

For both groups of patients, generalizability across Persons × Situations was best for psychophysiological reactions. In low socially anxious subjects, Persons × Situations interactions appeared to be less consistent across trait indicators in the case of self-reports, and even less consistent in the case of concrete acts. In high socially anxious subjects, a somewhat different pattern was obtained. Here, it was shown that the consistency of Persons × Situations interactions across Reactions was higher for the overt behavioral manifestations of social anxiety than for the reported cognitions.

Finally, it was found that, for low as well as high socially anxious subjects, generalizability across Persons × Reactions was best for psychophysiological reactions and worst for observed behaviors, with reported cognitions taking an intermediate position.

DISCUSSION

In generalizability analyses based on the total group of subjects, it was found that the main effect Persons contributed only modestly to the total variance. This outcome suggests strongly the essential soundness of an *interactionist* conceptualization of social anxiety.

Furthermore, the substantial contribution of the Persons × Reactions interaction to the total variance in the case of reported cognitions and psychophysiological reactions refers to relatively high individual response specificity in these measurement modes. This means that each person reacts in a for him/her specific way across

situations. The fact that the Persons × Situations interaction was lowest in reported cognitions points to less individual situational specificity in this area. Both findings support Eelen et al.'s (1986) view concerning the often obtained contradictions resulting from the use of different measurement modes.

Also the separate generalizability analyses for high and low socially anxious subjects showed empirical support for the idiosyncratic organization of social anxiety. High socially anxious patients showed more support for a global trait position in the case of observed behaviors and reported cognitions. This outcome is in line with earlier findings that the percentage of total variance from the Persons factor in *self-report* Stimulus-Response Anxiousness questionnaire data was greater for groups of neurotic testees compared with normal subjects (Endler, 1973). It also converges with Snyder and Monson's (1975) suggestion that high-anxious individuals typically have learned to ignore situational cues and to overgeneralize similarities. Our finding that high socially anxious subjects act relatively more according to the global trait model recurs in the social anxiety literature in the findings that high socially anxious subjects have a rather small repertory of *overt* social skills at their disposal (Bruch, 1981; McFall et al., 1982; Pitcher & Meikle, 1980; Romano & Bellack, 1980; Trower, 1980, van Dam-Baggen & Kraaimaat, 1986, 1987a). Also with respect to *cognitive styles*, the social anxiety literature refers to the trait-like functioning of high socially anxious persons. This is the case when cognitive content is investigated: for instance, in negative self-evaluations, irrational beliefs and attributions (e.g., Alden & Safran, 1978; Clark & Arkowitz, 1975; Gormally, Sipps, Raphael, Edwin, & Varvil-Weld, 1981; Smith, Ingram, & Brehm, 1983).

The fact that the contribution of the main effect Persons in the case of psychophysiological reactions is nearly twice as high in low socially anxious subjects than in high socially anxious subjects is quite remarkable. The low socially anxious subjects showed more support for a trait position than the high socially anxious subjects, whose individual response specificity was strikingly high. Perhaps this finding might partly explain the fact that in studies comparing adult high and low socially anxious groups on psychophysiological parameters no consistent results have been found. A direct comparison between the present data and the outcomes of earlier studies on the generality of anxiety data (e.g., Van Heck, 1988) meets the obstacle that the selections of subjects, response variables, and situations are not similar. Sets of persons, situations, and reactions that differ considerably in terms of diversity will produce outcomes that will consequently differ dramatically. No doubt, this is a shortcoming of the variance components approach. Therefore, what is needed is a taxonomy of the personal, situational, and behavioral factors involved. Only such general taxonomies will provide firm grounds for the selections of persons, situations and reactions that enhance sufficient comparability of separate studies.

What are the implications of the results for the assessment and treatment of social anxiety? A couple of recommendations may be formulated.

With respect to *overt behavior,* the assessment of social anxiety should always include a set of distinct situations. Also for the treatment of social anxiety, whether the aim is anxiety relief by exposure methods or the acquisition of social skills by behavior rehearsal methods, one should follow this prescription. For the choice of a relevant sample of social situations we refer to a taxonomy of situations revealed in a previous cross-sample factor analytic study (van Dam-Baggen, Kraaimaat, & Kiers, 1991).

With respect to *cognitions*, both assessment and treatment could be confined to formal aspects of thinking or cognitive styles. Because of the fact that situations appeared to be relatively less relevant, the requirement of taking situational aspects into account is less severe.

With respect to the assessment of *psychophysiological reactions*, it has to be emphasized that measures should fit to the person who is assessed. The concept of "individual specificity", referring to the habitual disposition of a particular individual to exhibit a similar response pattern to various situations (cf. Fahrenberg, 1986; Foerster, Schneider & Walschburger, 1983), nowadays plays a major role in differential psychophysiology. Individual response specificity accounts for large proportions of variance and, thus, should not be neglected. To find real differences between groups of high and low socially anxious subjects in experimental comparative studies, individual response specificity should be given full attention.

Looking back at the person versus situation controversy, Mischel (1990) recently has stated: "The data available in 1968, like the data over two decades later, do not suggest that useful predictions cannot be made. They also do not imply that different people will not act differently with some consistency in different types of situations. Rather, the data both then and now do suggest that if predictive precision is the goal, the particular classes of conditions or equivalence units have to be taken into account much more carefully and seem to be considerably narrower and more local than traditional trait theories assumed. It should be self-evident that, instead of debating the existence of dispositions, the continuing need is to specify their nature with increasing precision, to determine their organization and structure, and to identify types of if-then, condition-behavior relations that constitute them in particular contexts and populations" (Mischel, 1990, p. 131).

The present study shows convincingly that in the case of social anxiety predictive accuracy can be increased by paying more attention to the individuals' patterns of environment-behavior relations and the systematic interactions between persons and response classes. To paraphrase Allport (1937; see his statement concerning the individual character of traits on p. 297), *strictly speaking, no two persons ever have precisely the same trait. Though each of two individuals may be social anxious, the style and range of the social anxiety in each case will be noticeably different.* The dynamic mechanisms through which the individual develops this personal style and classes of equivalent situations need further empirical examination.

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