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The ability to empathize with other people's feelings of distress has been widely studied in psychology. However, no questionnaire to date has been developed in order to measure such distress responses and their behavioural correlates. Three studies describe the development and the validation of the Vicarious Distress Questionnaire (VDQ), which is a self-report measure that assesses participants' distress responses as well as their consequences (support or avoidance) in response to another's distress. In Study 1, we developed items and assessed the factor structure of the VDQ. Study 2 presented a confirmatory factor analysis that supported the three-factor model (Distress, Support, and Avoidance factors) and showed good scale score reliability. Study 3 showed significant correlations among the factors of the VDQ and measures of affective empathy, anxiety disorders, alexithymia, and mood disorders. The Distress factor of the VDQ also showed satisfactory discriminant validity with the cognitive factors of empathy (i.e., Perspective Taking and Fantasy). Taken together, these results provide comprehensive support for the validity and reliability of the VDQ.

Keywords: distress, avoidance, support, psychometric

Usually, human beings feel empathy for others undergoing negative experiences (Davis, 1994). This response may have cognitive and/or affective components. Cognitive responses refer to the ability to take the perspective of others and to correctly identify their subjective reality. Affective responses encompass experiencing other-oriented feelings (i.e., empathic concern), although individuals are also at risk of experiencing self-oriented feelings (i.e., personal distress) (Batson, Fultz, & Schoenrade, 1987).

The other-oriented feelings of empathy are warmth, sympathy, and concern, whereas self-oriented feelings are feelings of discomfort and distress (Batson et al., 1987). According to Batson's (1991) theory of empathy-altruism, empathic concern produces altruistic motivation, which is defined as "a motivational state with the ultimate goal of increasing other's welfare" (Batson, 2011, p. 26). On the other hand, self-oriented feelings of distress may motivate individuals to reduce their own distress. Therefore, distress may predict willingness to either reduce the distress of another person, but in a nonaltruistic way, or avoid distressed people. Several studies confirmed that distress is linked with motivation to avoid people in distress, but only when avoidance is easy (e.g., Batson, Duncan, Ackerman, Buckley, & Birch, 1981).

Batson et al. (1981) investigated the effect of interaction between the ease of escape (easy vs. difficult) and the situational empathy of participants (empathic concern vs. personal distress) on the motivation to relieve someone's distress by helping. They showed that when it was easy for the participants to not observe the distress of others, those with a higher level of personal distress choose not to give help. However, the same participants chose to give help if it was hard to escape. This finding suggests that personal distress is linked with the willingness to avoid others' distress if it is possible.

This has both intra- and interpersonal implications. At an intrapersonal level, previous accounts reported that repeated exposure to high-level anxiety and arousal increases vulnerability to diseases associated with repeated activation of the hypothalamic-pituitary-adrenal axis (e.g., mood disorder, cardiovascular disease; Gerra et al., 2001; Kirschbaum et al., 1995). At an interpersonal level, if an individual experiences personal distress in reaction to seeing somebody else in distress, this may lead, in some circumstances, the individual to avoid interacting with the person in distress and, in turn, account for the individual's level of social isolation.

To our knowledge, only two questionnaires have been developed to assess people's distress responses in reaction to the suffering of others. The Spanish Vicarious Experience Scale (VES; Oceja, López-Pérez, Ambrona, & Fernández, 2009) is based on Batson et al.'s (1987) theory of other-oriented and self-oriented emotions. The VES includes an affective factor that measures the negative emotional responses elicited by perceiving another person's suffering. The second measure of distress refers to the factor *Personal Distress* of the Interpersonal Reactivity Index (IRI; Davis, 1980). The IRI aims to measure people's levels of discomfort and anxiety when witnessing the negative experiences of others. However, none of these questionnaires assess the aforementioned consequences of distress (avoidance and support). Moreover, although the personal distress factor is well validated,

theory-driven, and associated with good psychometric properties (Davis, 1980), the focus of some questions is not the discomfort and anxiety felt when seeing someone else in a negative situation (e.g., "Being in a tense emotional situation scares me").

Therefore, we aimed to develop a questionnaire that will measure distress responses in reaction to the suffering of others. We also wanted to assess the potential avoidance and support reactions that follow distress responses. According to Batson et al.'s (1987) theory, we wanted to measure (1) the avoidance propensity reaction to distress responses when witnessing the suffering of others, and (2) the ability to give support to others in distress. We thus developed and validated a questionnaire, the Vicarious Distress Questionnaire (VDQ), specific to interindividual situations, which goes beyond the assessment of distress feelings to also focus on the potential consequences of those feelings.

Overview

In Study 1 we developed the VDQ and tested it with a principal component analysis. Study 2 assessed the structural validity of the VDQ with confirmatory factor analysis. Study 3 investigated the construct validity of the VDQ by examining its relation with empathy, social anxiety, alexithymia, anxiety, and negative and positive affect. All of the studies were administered over the Internet.

Study 1: Structural Validation of the VDQ

Method

Participants.   Participants in this study were 188 French-speaking volunteers (131 women). Their ages ranged from 17 to 80 years old ($M = 33.21$; $SD = 13.05$). The majority of the participants had a university degree (64.9%) or at least an undergraduate degree (16.5%). The sample was recruited by electronic announcements to the experimenters' social network, via e-mails. The participants represent 60.5% of the whole sample that connected to the survey web page.

Measures and procedure.   Participants provided their age and sex. Second, they completed the 33-item version of the VDQ. The instruction was: "Assess your reactions to each proposition by using the scale (see below). Tick the number that best fits with what is generally true for you. Answer the questions quickly and try to not think too much. We are interested in your first impression. For each item, please answer exclusively in reference to situations in which a person was in distress and expressed to you the distress he or she felt." For each item, they had to answer on a 5-point Likert scale (1 = *totally disagree*; 2 = *moderately disagree*; 3 = *do not disagree*; *do not agree*; 4 = *moderately agree*; 5 = *totally agree*).

Development of items.   We developed items that referred to distress responses, support, and avoidance. These items were inspired by articles about empathy and distress (e.g., Batson, 1991; Davis, 1980; Eisenberg et al., 1994; Hoffman, 1975), and contained keywords frequently evoked such as arousal, reassurance, or avoidance. Thirty-three items were generated. As the questionnaire was developed to provide an easy to administer instrument, we deliberately generated a small pool of items. These items were then examined by seven independent judges (i.e., doctoral-level stu-

dents in psychology) who reported that each item corresponded with either the Distress Factor (17 items; e.g., "It takes a lot of my energy"), the Support Factor (10 items; e.g., "I easily understand the needs of the others"), or the Avoidance Factor (six items, e.g., "I strongly feel the distress of the other"). For each item, raters had to assess if the item referred or not to approach, avoidance, or to a feeling of distress or discomfort. As suggested by Müller and Büttner (1994), we analyse the interrated reliability (agreement) by measuring the intraclass correlation coefficient (ICC). We choose the two-way random "absolute agreement' model because all items have been rated by the same seven raters who were a random sample from a larger population (i.e., psychological researchers). Moreover, we choose the absolute agreement measure (and not consistency agreement) because we found that it was relevant to take into account the systematic differences among raters. The two-way random model revealed good interrater reliability (.89).

Data analysis.   To investigate the factor structure of the data, we conducted a principal component analysis, including a promax rotation with Kaiser normalization on the 33 items. We choose promax rotation as we expected correlations between the factors. Before performing the analysis, we examined the skewness and kurtosis of the data. All parameters were between -1 and 1, indicating that the data are univariately normally distributed.

Results

Principal component analysis.   The Kaiser–Meyer–Olkin (KMO) showed that the measure of sampling adequacy was .86. Seven factors, which accounted for 61.53% of the total variance, were extracted from the analysis. We kept items that loaded only on one factor ($>.40$; Jöreskog & Sorbom, 1984). Moreover, an eigenvalue-plot indicated a seven-factor solution with a clear "elbow" at the fourth eigenvalue. We thus examined a three-factor solution, that accounted for 56% of the total variance and that allowed for the removal of 15 items (see Table 1). Moreover, we conducted an additional extraction test, the Velicer's (1976) test, which confirmed that the number of extracted factors was three.

Descriptive statistics (Table 2).   Table 2 displays the descriptive statistics and scale score reliability coefficients of the VDQ components. With a value of Cronbach's alpha higher than .75 for all three factors, the scale demonstrates good scale score reliability for the Distress (6 items), Avoidance (4 items), and Support components (8 items) (Nunnally, 1978). Higher scores on these dimensions refer, respectively, to greater feelings of distress, stronger willingness or tendency to avoid the situation, and the provision of greater support. The Cronbach's Alpha if item deleted are reported and show satisfactory reliability. The table also shows the intercorrelations among the factors. The Avoidance factor was negatively correlated with the Support factor and positively with the Distress factor. However, there was a nonsignificant correlation between the Distress and Support factors.

Discussion

Study 1 revealed a three-factor structure, which corresponds to the Distress, Avoidance, and Support factors. The analyses also revealed good scale score reliability. Finally, the intercorrelations showed that avoidance propensity is associated with lower support and with higher feelings of distress.

Table 1

Principal Component Analysis of 18-Item Vicarious Distress Questionnaire

	1	2	3
I know what to say	**.80**	−.20	−.32
I have the impression of fulfilling the expectations of the person	**.77**	−.12	−.21
I am able to comfort the person experiencing difficulties	**.75**	−.02	−.24
I know what to do	**.75**	−.22	−.31
I have the impression of being up to the task	**.73**	−.14	−.22
I can quickly calm down the person in distress	**.73**	.07	−.08
The person in distress likes to speak with me	**.64**	.17	−.18
I easily understand the needs of the others	**.63**	.29	−.17
I experience significant body changes	−.14	**.78**	.40
It takes a lot of my energy	−.05	**.78**	.26
I experience a strong feeling of activation in my body	.09	**.78**	.02
It takes me time to recover	−.12	**.76**	.30
I strongly feel the distress of the other	.15	**.70**	−.09
I am unsettled by the other's tears	−.25	**.57**	.23
I run away	−.28	.19	**.83**
I change the subject	−.16	.14	**.83**
I wait until it goes away	−.16	.18	**.73**
I prefer the person to turn to somebody else	−.33	.14	**.65**

Note. The English version has not been validated.

Study 2: Factorial Confirmation of the VDQ

Method

Participants. The participants were 204 French-speaking volunteers (150 women) who did not participate in Study 1. Their ages ranged from 15 to 76 years old ($M = 34.91$; $SD = 14.25$). Participants were recruited via announcements posted on Belgian mental and physical health forums on the Internet. The 204 participants represent 73.4%. of the whole sample that connected to our survey web page. More than 65.2% of the participants had at least an undergraduate degree or a university diploma. Nearly a quarter of the sample (21.6%) had only a secondary school degree.

Measures and procedure. On an Internet web page, participants had first to report their age and gender. Second, they completed the 18-item version of the VDQ.

We used AMOS 16 software (Arbuckle, 2007) to run the confirmatory factor analysis in order to test the factorial validity of the VDQ. The standard method of estimation in structural equation modelling is maximum likelihood, which is based on an assumption of multivariate normality of the manifest variables. However, as noted by Byrne (2001), an error that is frequently made when

performing confirmatory factor analysis is that multivariate normality is not taken into account. In our case, multivariate kurtosis was high, with a Mardia's coefficient of 49.0, clearly indicating a lack of multivariate normality (Mardia, 1974). This makes nonnormality and categorisation problems likely (McDonald & Ho, 2002). Therefore, using standard normal theory estimators with these data could produce estimation problems (Blunch, 2008). There are various formulas to correct for the lack of multivariate normality when performing confirmatory factor analysis (for a review, see Blunch, 2008). For the present case, the most appropriate approach is to use an estimation method that makes no distributional assumptions, such as the unweighted least squares (ULS) estimation method. Items referring to emotional behaviours with varying frequency make multivariate nonnormality problems likely (e.g., Heeren, Douilliez, Peschard, Debrauwere, & Philippot, 2011; McDonald & Ho, 2002).

As suggested by Browne (1982), the covariance matrix might not be as asymptotically distributed as chi-square with the ULS method. Therefore, the chi-square test and other fit indexes based on such statistics are not reported. Instead, we used the following fit indexes to verify the tested models: (a) Goodness of Fit Index (GFI), (b) Adjusted Goodness of Fit (AGFI), (c) Parsimony Goodness-of-Fit Index (PGFI), and (d) Parsimony Ratio (PRATIO).

GFI is an absolute fit index developed by Jöreskog and Sörbom (1984) with a corresponding adjusted version, the AGFI, developed to incorporate a penalty function for the addition of free parameters in the model. Both GFI and AGFI have values between 0 and 1, with 1 indicating a perfect fit. As suggested by Cole (1987), a value of .80 has usually been considered as the minimum for model acceptance.

PGFI (James, Mulaik, & Brett, 1982) and PRATIO are parsimony-based fit measures. Absolute fit measures assess the fit of a model per se without reference to other models that could be relevant in the situation. Parsimony-adjusted measures introduce a penalty for complicating the model by increasing the number of parameters in order to increase the fit (Blunch, 2008). Usually, parsimony fit indices are much lower than other normed fit measures. Values larger than .60 are generally considered satisfactory (Blunch, 2008).

Results

The model with the three factors (Distress, Avoidance, and Support; Model A), was tested in a confirmatory factor analysis (see Figure 1). We also assessed the fit indexes of two other models: a model with one principal factor (Model B) and a model

Table 2

Descriptive Statistics, Reliability Measures of the Three Factors of the VDQ and Their Intercorrelations

	Number of items	Range of factor loadings of items	Cronbach Alpha (95% confidence intervals)	Cronbach's Alpha if item deleted	Mean (Standard deviation)	Range (Min – Max)	Support	Avoidance
Distress	6	.47–.84	.84 (.80−.87)	.78–.83	16.63 (5.70)	6–30	−.08	.28***
Support	8	.39–.78	.87 (.84−.90)	.85–.87	28.27 (5.50)	8–40	—	−.33***
Avoidance	4	.54–.78	.77 (.71−.82)	.68–.76	7.96 (3.44)	4–20	—	—

*** $p < .001$.

with three factors (Distress, Avoidance, and Prosocial) and a higher-order factor (Model C).

Table 3 displays the fit indexes of the three models, which were all satisfactory. However, Model A showed better fit indexes than Model B, which still had good fit indexes. The good fit indexes of Model B suggest that there might be a latent factor. Therefore, we compare the fit indexes of Model A (three first-order factors) and Model C (three first-order factors and one higher-order factor), in order to assess if a latent factor might add significant information. The analysis revealed that Model C did not present better fit indexes that Model A. One main requirement of structural equation modelling is parsimony: the model has to be explained with the lowest number of parameters as possible. As Model C presents the same fit indexes as Model A, we considered the latter to be most appropriate.

Discussion

With a confirmatory analysis, we tested the factorial structure of the VDQ. The findings showed that the three-factor structure (Model A) and the four-factor model (Model C) had similar fit indexes. However, because of the criterion of parsimony, Model A better explained the data than Model C.

Study 3: Validity of the VDQ

In this study, we assessed the discriminant and convergent validity of the VDQ by examining its relation with cognitive and affective empathy, social anxiety, alexithymia, anxiety, and both positive and negative affect.

Table 3
Fit Index Values for the Three Models Tested (ULS)

Models	GFI	AGFI	PGFI	PRATIO
Model A	.94	.92	.72	.86
Model B	.80	.74	.63	.88
Model C	.94	.92	.72	.86

Note. ULS = Unweighted Least Squares; GFI = Goodness of Fit Index; AGFI = Adjusted Goodness of Fit; PGFI = Parsimony Goodness of Fit Index, PRATIO = Parsimony Ratio; Model A: a model with the three factors (Distress, Support, and Avoidance); Model B: a model with one principal factor; Model C: a model with the three factors and a higher-order factor.

Regarding convergent validity, we expected positive correlations between the factors Distress, Avoidance, and negative affective responses, such as personal distress and anxiety. Moreover, we expected positive correlations with mood disorders (negative affect) and social anxiety. We also hypothesised that the Support factor will be associated with higher levels of empathic concern and lower levels of social anxiety.

The Personal Distress factor of the IRI aims to measure the discomfort and anxiety felt when seeing someone else in a negative situation. Although, as mentioned, several items of this factor measure feelings of distress in social but also in stressful situations, we still expected positive correlations between the Distress factor of the VDQ and the Personal Distress factor of the IRI.

Negative and positive affect influence the quality of people's social interactions (Berry & Hansen, 1996). On the one hand, we
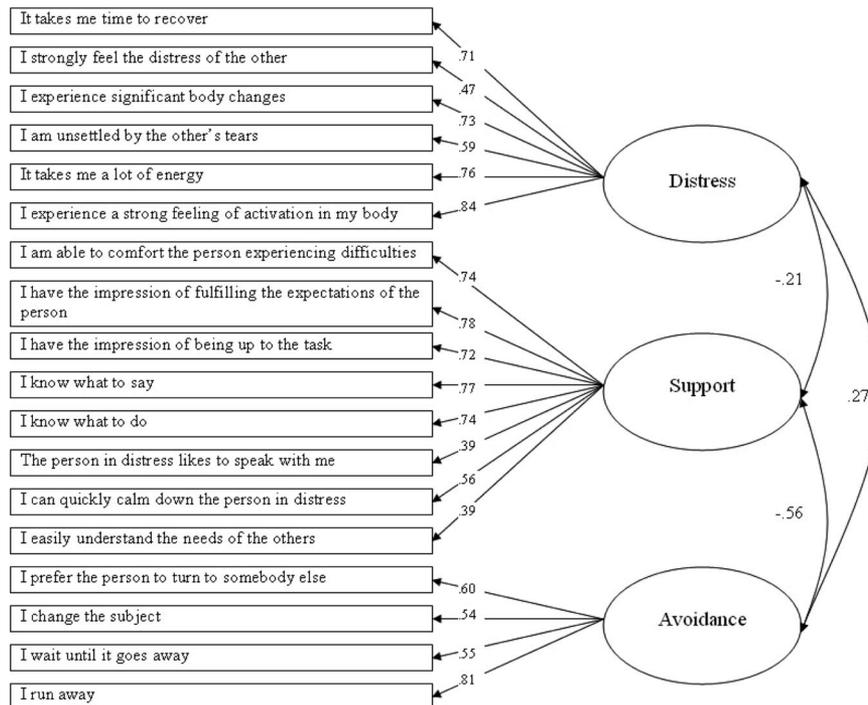

Figure 1. Confirmatory factor analysis for the three-factor model (with standardized factor loading).

expect positive correlations between Distress, Avoidance, and negative affect. Repeated experience of distress and avoidance may increase the feeling of guilt or shame in individuals, which might, in turn, prevent individuals from feeling when witnessing someone in distress. On the other hand, we expect that positive affect will correlate positively with support, as positive affect is linked with more contact with others (Watson, 1988).

Social anxiety is characterised by fear and anxiety of social interactions that imply evaluation and judgment by other people (Marcin & Nemeroff, 2003). When someone is approached by another person in distress, he or she is often expected to support and comfort the distressed person (Zech, 2000). However, when socially anxious persons are approached by another in distress, they may feel distressed themselves and be unable to give help because they may feel their response to the person in distress is being judged. We, therefore, hypothesised that social anxiety might be positively correlated with the Distress and Avoidance factors, and negatively with the Support factor.

We also expected positive correlations between the Distress and Avoidance factors and alexithymia, as previous studies showed that alexithymia is associated with higher Personal Distress and less Empathic Concern (Grynberg, Luminet, Corneille, Grèzes, & Berthoz, 2010). Alexithymia is a multifaceted personality construct that encompasses difficulties in identifying and describing feelings combined with an externally oriented cognitive style. It has been associated with higher levels of personal distress when facing someone experiencing negative situations (Guttman & Laporte, 2002). Higher levels of alexithymia and, particularly, the affective factors of difficulties in identifying feelings (DIF) and difficulties in describing feelings (DDF) are thus expected to correlate with higher levels on the Distress factor.

Regarding discriminant validity, we did not expect significant correlations between the Distress factor and the cognitive factors of empathy (i.e., Perspective Taking and Fantasy). We did not predict correlations between distress and the cognitive factors of empathy because previous data indicate that these cognitive factors are, at most, weakly correlated with the personal distress factor of the IRI (Davis, 1983; Grynberg et al., 2010).

Method

Participants. One hundred and sixty eight French-speaking volunteers (112 women) took part in this study. Many participants were recruited via announcements posted on Belgian mental and physical health forums on the Internet (different from Study 2). The remaining participants were psychology students at the University of Louvain that completed the questionnaire in fulfillment of a course requirement. The age of the participants ranged from 17 to 80 years ($M = 33.27$; $SD = 13.06$). The majority of participants had at least a secondary school degree (80.00%). The 168 participants represent 57.81% of all the persons who connected to the survey web page.

Measures and procedure. On an Internet web page, participants had first to report their age and gender. Second, they completed the 18-item version of the VDQ as well as five validation questionnaires (see below).

Interpersonal Reactivity Index (IRI; Davis, 1983; French version, Guttman & Laporte, 2002). The IRI is a 28-item questionnaire with four dimensions: Perspective Taking, Fantasy, Per-

sonal Distress, and Empathic Concern. Perspective Taking (PT) evaluates attempts to take into consideration the point of view of others (e.g., "When I am upset at someone, I usually try to 'put myself in his shoes' for a while"). Fantasy (F) measures the propensity to identify with fictional characters (e.g., "When I watch a good movie, I can very easily put myself in the place of a leading character"). Personal Distress (PD) assesses self-oriented feelings and the tendency to feel anxious when confronted with negative situations (e.g., "Being in a tense emotional situation scares me"). Empathic Concern (EC) assesses other-oriented feelings of sympathy and concern for unfortunate others (e.g., "I often have tender, concerned feelings for people less fortunate than me"). The validity and reliability of the questionnaire has been demonstrated (Davis, 1983).

The Liebowitz Social Anxiety Scale (LSAS; Liebowitz, 1987; French version, Yao et al., 1999). LSAS is a 24-item scale that measures the anxiety induced by, and the avoidance of, social interaction and performance situations. Items are rated on separate 4-point Likert-type scales (e.g., *Talking to people in authority*). Heeren, Maurage et al. (2011) have reported good psychometric and structural properties of the French adaptation of the scale.

The 20- item version of the Toronto Alexithymia Scale (TAS-20; Bagby, Parker, & Taylor, 1994; French version, Loas, Otmani, Verrier, Fremaux, & Marchand, 1996). The TAS-20 measures three dimensions of the alexithymia construct: Difficulty Identifying Feelings (DIF; e.g., "I am often confused about what emotion I am feeling"), Difficulty Describing Feelings (DDF; e.g., "It is difficult for me to find the right words for my feelings") and Externally Oriented Thinking (EOT; e.g., "I prefer talking to people about their daily activities rather than their feelings"). The validity and reliability of the French version have been demonstrated (e.g., Loas et al., 1996).

State and Trait Anxiety Inventory. STAI-T (Spielberger, Gorsuch, & Lusthene, 1983; French version, Bruchon-Schweitzer & Paulhan, 1993). The STAI-T includes 20 items measuring the level of anxiety in general (trait) with a 4-point Likert scale (e.g., *I feel nervous and agitated*). The validity of the French version has been demonstrated (Bruchon-Schweitzer & Paulhan, 1993).

Positive and Negative Affect Schedule. PANAS (Watson, Clark, & Tellegen, 1988, French version, Gaudreau, Sanchez, & Blondin, 2006). The PANAS is a 20-item scale which assesses the general positive and negative affective traits of the participant. It consists of 10 positive (e.g., *interested*) and 10 negative (e.g., *guilty*) affective states whose intensity is rated on 5-point Likert-type scales ranging from 1 (*not at all*) to 5 (*extremely*). The validation of the French version has been demonstrated (Gaudreau et al., 2006).

Results

Table 4 displays the correlations between the dimensions of the VDQ and the other constructs. Results showed that the Distress factor was positively associated with personal distress, generalised anxiety, and negative affect. Distress was also correlated with the other affective component of empathy: empathic concern. The Support factor was associated with greater empathic concern, positive affect, and lower social anxiety. It was also negatively correlated with generalised anxiety and personal distress. Finally, the Avoidance factor was associated with higher levels of negative

Table 4

Descriptive Statistics and Correlations Among Variables of Study 3

Dimensions	Mean (Standard deviation)	Cronbach Alpha (95% confidence interval)	Distress	Support	Avoidance
Neg. Affect	21.65 (7.43)	.87 (.84−.90)	.43***	−.15	.26***
Pos. Affect	32.20 (6.68)	.86 (.83−.89)	−.10	.41***	.17*
TAS					
DIF	17.10 (6.85)	.84 (.80−.88)	.43***	−.28**	.27***
DDF	13.84 (5.18)	.82 (.78−.86)	.11	−.35***	.24***
EOT	16.92 (4.49)	.60 (.51−.69)	−.03	−.25**	.42***
IRI					
PT	24.61 (4.30)	.66 (.57−.73)	.14	.22*	−.14
F	24.67 (5.19)	.72 (.65−.78)	.15	−.04	−.13
EC	26.39 (4.85)	.76 (.69−.81)	.29**	.22*	−.28***
PD	20.18 (5.07)	.75 (.68−.80)	.36***	−.32***	.13
LSAS	92.59 (23.57)	.95 (.93−.96)	.17*	−.28***	.23*
STAI-T	46.56 (10.35	.92 (.90−.94)	.35***	−.31***	.25**

Note. Neg. Affect = negative affect; Pos. Affect = positive affect; TAS = Toronto Alexithymia Scale; DIF = difficulty identifying feelings; DDF = difficulty describing feelings; EOT = externally oriented thinking; IRI = Interpersonal Reactivity Index; PT = perspective taking; EC = empathic concern; F = fantasy; PD = personal distress; LSAS = Liebowitz Social Anxiety Scale; STAI-T = State and Trait Anxiety Inventory-Trait.
* $p < .05$. ** $p < .01$. *** $p < .001$.

affect and social anxiety, and with lower levels of empathic concern. Only the Support factor was positively correlated with one of the cognitive factors of empathy, Perspective Taking.

Regarding alexithymia, the three dimensions (DIF, DDF, and EOT) were associated with higher levels of avoidance and lower levels of support behaviour. Finally, DIF was associated with higher levels of distress.

Discussion

These results confirmed that the Distress factor of the VDQ is associated with more personal distress, generalised anxiety, and negative affect. The hypotheses that the Support factor would be correlated with greater empathic concern, positive affect, and lower level of social anxiety were supported as the correlations were statistically significant, but not strong. Finally, we also confirmed that social anxiety was negatively correlated with the Support factor and positively with Avoidance.

Furthermore, Distress and Avoidance factors exhibited a moderate correlation with the affective factor difficulties in identifying feelings (DIF) of the alexithymia questionnaire (TAS-20). Individuals with higher levels of DIF might have difficulties in regulating their emotions or in differentiating their own distress from that of another's. Both difficulties might then lead individuals to feel distressed when faced with someone else in distress.

The alexithymia factor externally oriented thinking (EOT) was significantly correlated with the Avoidance factor of the VDQ. EOT is characterised by a tendency to avoid the perception of emotions as well as the tendency to focus on details of external events (Franz et al., 2008). The correlation of EOT with Avoidance thus supports the idea that these two factors are related to the tendency to avoid situations involving the social sharing of emotions. Finally, greater difficulties in describing feelings (DDF) were associated with greater avoidance but a reduced tendency toward prosocial behaviours. This is in line with previous findings that emphasise greater social avoidance behaviours among high DDF scorers (Weinryb et al., 1996).

General Discussion

The aim of the present study was to develop the Vicarious Distress Questionnaire (VDQ) and to examine its validity, reliability, and the fit indexes of its factorial structure. The questionnaire aims to assess the distress feelings one could feel when faced with a person who experiences and expresses distress. As the willingness to reduce this distress may involve either attempting to escape the situation or helping the person in need, we developed a questionnaire that assessed distress in interpersonal situations and two potential consequences: avoidance and support responses.

Exploratory and confirmatory factor analyses supported a three-factor model (Distress, Avoidance, Support), as the factorial structure of the VDQ exhibits good scale score reliability ($\alpha > .77$) as well as good structural validity. The multidimensional nature of the VDQ was supported by better indexes in the confirmatory factor analysis for the three-factor model than the one-factor model.

Intercorrelations among the VDQ factors showed that higher levels of Distress were associated with more Avoidance responses, but there was no relationship between Distress and Support. This means that, in order to reduce their distress, individuals tend to avoid witnessing someone in distress, rather than giving support. This finding partially confirms Batson's (1991) model, which states that distress feelings lead either to helping behaviours or to avoidance, when the context enables it. The present study suggests that individuals who traditionally have higher feelings of distress in these situations avoid rather than face the other person.

The convergent validity of the VDQ was examined by assessing positive correlations between Distress, Avoidance, generalised anxiety, and the Personal Distress factor from the IRI, which represents the emotional facet of empathy. Convergent validity was also tested by assessing the positive correlation between Support and the Empathic Concern factor from the IRI, which represents another emotional aspect of empathy, and the negative correlation between Support and social anxiety. The Distress and Avoidance factors of the VDQ were associated with higher levels

of generalised anxiety. Distress was also associated with more Personal Distress. Although the Distress factor of the VDQ and the Personal Distress factor of the IRI are correlated, these factors do not measure similar constructs, as they shared only 10% of variance. This suggests that it is important to consider the Distress on the VDQ and the Personal Distress on the IRI as complementary.

Support was significantly correlated with higher empathic concern, which supports the empathy-altruism model of Batson (1991). This model states that altruistic behaviours are mainly predicted by empathic concern. Moreover, we confirmed that the fear of being negatively judged and criticised (social anxiety) reduces support responses. Finally, Support was associated with higher levels of positive affect and lower levels of generalised anxiety.

Evidence for the discriminant validity of the VDQ is provided by the absence of any correlations between the Distress factor of the VDQ and the cognitive factors of the IRI, Perspective Taking and Fantasy. These factors estimate, respectively, the ability to take the perspective of others in terms of their mental state and the tendency to identify with fictitious characters in books or movies. Only the Support factor of the VDQ showed a small positive correlation with the factor Perspective Taking.

In sum, the VDQ holds promise as a measure of distress responses provoked when witnessing someone in distress. This assumption is supported by goodness of fit indexes of its factorial structure, good scale score reliability, and good convergent validity. The VDQ will allow both researchers and clinicians to examine the degree of distress responses and their behavioural correlates among subjects.

The sensitivity of the questionnaire remains to be tested among populations that exhibit psychopathological traits characterised by poor self–other differentiation and affective empathy deficits, such as autism or schizophrenia disorder (Baron-Cohen & Bolton, 1993; Frith, 1989; Frith & Corcoran, 1996; Shamay-Tsoory, Shur, Harari, & Levkovitz, 2007).

Distress and its behavioural correlates suggest a modification over time: distress responses are hypothesised to account for subsequent support or avoidance responses. However, this temporal course cannot be tested only with the VDQ. In order to provide additional validity for the VDQ, an experimental design should manipulate the level of distress to investigate its effect on support and avoidance responses. For instance, participants may be asked to watch a confederate either in distress or not and then rate the items of the VDQ. Furthermore, by using the same situation for each participant, we may overcome the possibility that the participants of our studies did not imagine situations of similar distress intensities.

This experimental design may also measure the criterion validity of the VDQ by, for instance, measuring the autonomic responses of participants or the avoidance rate when escape is easy from these kinds of situations. When developing and validating the VES scale, Oceja et al. (2009) have precisely addressed the criterion validity.

Although the present studies show that many validity indexes are satisfactory, the VDQ has some limitations. First, the samples were primarily composed of females. Further studies should investigate the factor structure of the questionnaire as well as its construct validity on a male sample. Second, the discriminant validity should be investigated for all factors of the VDQ, not just

for the Distress factor. Third, in order to develop a relatively brief questionnaire, we only developed a limited amount of items. Even though the fit indexes are satisfactory, this might have compromised the selection of more validated items.

Nevertheless, most of these limits can be improved upon in future studies, which would provide further information of the validity and reliability of the VDQ. Finally, for its broader use in international research, the VDQ should be validated in the most spoken languages (e.g., English, Spanish, or Chinese).

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