Social Anxiety Disorder, ratings of faces and character strengths.

– Some insights to their relation

Kristina Boström

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Social anxiety disorder, Strengths of character and ratings of faces – some insights to their relation.

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Social anxiety disorder has several impairments (including attention bias in ratings of facial expressions). Character strengths has been seen to increase well-being and functioning among healthy individuals. With this in mind, three aims were stated; Is there a relation between SAD and VIA, can this relation be explained by confounding’s and does ratings of faces tell anything about the relation? Data were collected through a survey from 41 participants (13 men) with a mean age of 30 years. Correlation and regression models were performed to see if these constructs were related. The findings showed that character strengths and social anxiety were correlated, and that the regression model did not predict SAD. The regression model for Via were significant with all confounding variables. Ratings of facial expression were not related to any variables. Further studies need to look more into this correlation to see the underpinnings of these constructs.

Nyckelord
Social anxiety disorder, Character strengths, ratings of faces
Abstract

Social anxiety disorder has several impairments (including attention bias in ratings of facial expressions). Character strengths has been seen to increase well-being and functioning among healthy individuals. With this in mind, three aims were stated; Is there a relation between SAD and VIA, can this relation be explained by confounding’s and does ratings of faces tell anything about the relation? Data were collected through a survey from 41 participants (13 men) with a mean age of 30 years. Correlation and regression models were performed to see if these constructs were related. The findings showed that character strengths and social anxiety were correlated, and that the regression model did not predict SAD. The regression model for Via were significant with all confounding variables. Ratings of facial expression were not related to any variables. Further studies need to look more into this correlation to see the underpinnings of these constructs.

Keywords: Social anxiety disorder, Character strengths, ratings of faces
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Social Anxiety Disorder, ratings of faces and character strengths.
Some insights to their relation.

Social anxiety disorder (SAD) is related to anxiety and the processing of fear in humans. SAD is characterized by extensive fear of social situation in which the person can be subject for humiliation or negatively rated by other (Morrison & Heimberg, 2013). Strengths of character, on the other hand, is personal characteristics that tend to be globally valued for its own sake. Character strengths does not put anyone down when they are used. The classification of strengths is thought to be the opposing end of the diagnostics and statistical manual of mental disorders (DSM; Peterson & Seligman, 2004). SAD has been studied for several years and models and treatment are found and used. Character strengths on the other hand is thought to be a key aspect of well-being and optimal human functioning. The aim of this essay is to look more closely on the relation between these constructs, if they are related this may be interesting for further understanding of the underpinnings of both SAD and strengths. At first, social anxiety will be presented, including characteristics and models. Strengths of character will then be presented with characteristics and models. The introduction will end with bringing the study of these constructs together and outline the current study.

Social anxiety

The most common fear, by individuals with SAD, is speaking in public or in meetings and other less prevalent fears includes eating in public and doing other social activities that are associated with a risk of appearing clumsy in some way. Individuals with SAD often avoid situation which they fear, as these behaviors are thought to lead to negative evaluations and rejection (Morrison & Heimberg, 2013).

In the DSM - fifth edition (DSM-V), SAD is explained by the following characteristics: A) fear or anxiety for social embarrassment, B) fear of showing their anxiety, C) distress when interacting with other people, D) avoidance of situation related to the anxiety, E) excessive or disproportionate fear, F) duration for longer than six months, G) impairment in interpersonal or occupational settings, H) the fear or anxiety cannot be attributed to other mental disorders, I) and not to a medical condition or substance use of any kind (Morrison J., 2014).

SAD is the fourth most common psychiatric disorder and the lifetime prevalence is 12.1 % in the United States (Ruscio, et al., 2008). In addition to a high lifetime prevalence, SAD co-occur with several other disorders such as depression, other anxiety disorders and eating disorders (Morrison, 2014). People with SAD have impairments of everyday life and difficulties in several situations related to social performance. According to a national prevalence survey of Ruscio et al (2008) done in the united states only about half of the cases with SAD gets treated and the most common treatments of SAD is either...
drug therapy (e.g. serotonin reuptake inhibitors) or psychological therapy (e.g. Cognitive behavioral therapy; Taylor, Abramowitz, & McKay, 2012). However, there seems to be several types of individuals, as the review by Taylor et al. (2012) show that not all persons respond well to any of the treatments available.

Anxiety symptoms tend to differ with age. For example, Teachman and Gordon (2009) did a study in which they compared old adults (60-85) and young adults (17-34) on several anxiety measures. The test included both social anxiety, physical anxiety and other variables of anxiety. The results showed that older adults had more anxious symptoms than the younger group. The test consisted of a speech that the participants gave, foot tapping and a physical trigger (Teachman & Gordon, 2009).

Models of social anxiety disorder. There have been theories involving memory bias, attention bias and biases related to negative evaluations of the self (Bantin, Stevens, Gerlach, & Hermann, 2016; Morrison & Heimberg, 2013; Ng & Abbott, 2016). Below a limited amount of these findings will be presented.

Memory bias has for example been found in an interview study done by Hackmann, Clark, & McManus (2000). 22 participants with SAD where asked what they remembered of previous fearful situations. The results showed that all participants remembered earlier situations and that all the participant had a recurrent image of a situations. Further, all the participants could explain a clear relation between the ongoing situation and the memory in which they remember a social situation. The early memory may not be the onset of the anxiety but 17 participants say that the memory did in fact increase the symptoms. The reported memories where often related to a childhood situation including mocking and criticizing by other peoples (Hackmann et al., 2000).

Clark and Wells (1995) has put forth a theory of SAD in which they emphasize that negative self-evaluations play a significant role of maintaining SAD. Clark and Wells states that a social situation is the trigger point of a negative chain of thoughts. These thoughts activate believes that the individual holds and the result is an interpretation of the situation as a threat. When this threat is situated the individual then explain how he/she will behave based on the inner, and often false, beliefs about how he/she will perform and how other may view them. Clark and Well (1995) point to four different aspect which are part of the maintenance of SAD. The first aspect is that the person tends to listen to their inner feelings and thoughts instead of analyzing the social cues in the social interaction. The second aspect is that persons have safety behaviors, which often worsen the feared behaviors. The third aspect is deficits in performance, e.g. these persons are occupied by the safety behavior which cause a less warm and friendly interaction. The last aspect is a tendency to rethink social situations, where they may rate their performance as good right after the event, but when reevaluating they find negative aspects. This reaction to beliefs
and assumptions about oneself leads the person to search for safety and triggers social anxiety symptoms (Clark & Wells, 1995).

One such social event can be to evaluate facial responses. For example, (Yoon, Kim, Kim, Lee, & Lee, 2016) examined if people with major depressive disorder and anxiety disorder rated simple and complex facial expression different than controls. Thirty-seven patients with major depressive disorder and 36 patients with anxiety disorder were included, 2 of the anxiety patients had social anxiety. The study also included a control group consisting of 40 sex and age matched participants. The results showed that both the major depressive disorder and anxiety disorder groups had difficulties in recognizing unpleasant emotions relative to pleasant emotions. They also separated parts of the face and found that whole faces were the easiest to recognize, compared to mouth and eyes (Yoon, et al., 2016).

Bantin et al. (2016) did a systematic review where the participants did a face-probe task. They wanted to know if attention towards threatening faces were greater in comparison to non-anxious individuals. The results point to an attention bias in which the participants with SAD were more likely to pay attention to threatening faces, than controls. Reeb-Sutherland et al (2015), also looked at attention on adolescents (with behavioral inhibition with and without life-time anxiety). The participants were asked to evaluate emotional stimulus by looking at pictures of fear, anger, sadness and happiness, using morphed facial images. Reeb-Sutherland et al. (2015) found that anxiety disorders are related to lower threshold for fearful stimuli. This low threshold for fearful stimulus where most apparent in participants with social anxiety (Reeb-Sutherland, et al., 2015).

Wiggert, Wilhelm, Reichenberger and Blechert (2015) studied participant’s response to positive, neutral and negative sentences, as presented by a recorded voice. Their results indicate that participants with high social anxiety measures does respond to negative stimuli as more negative and that positive stimuli causes less positive response than seen in the control group (Wiggert et al. 2015). Further, (Yoon, Vidaurri, Joormann, & De Raedt, 2015) looked at 73 participants that got to look at a face on a screen with a distracting object on the side. They found that the participants with more social anxiety symptoms had less accurate answers on the objects that were presented the farthest away from the pictures of the face. Which in this context suggests that the amount social anxiety symptoms a person have, influences how the participant focus on facial expression, even if this study did not distinguish between positive and negative facial expressions.

Social anxiety has been seen to affect regulation of emotion, including both difficulties identifying one’s feelings and to identify others feelings. One study where made in a non-clinical sample and those with high anxiety measures were compared with those low in anxiety symptoms. Those high in social anxiety symptoms had difficulties identifying emotional states in
comparison to those low in anxiety symptoms (Turk, Heimberg, Luterek, Mennin, & Fresco, 2005). The participants with high social anxiety symptoms paid less attention to their emotions in comparison to the low anxiety group. Further, those high in social anxiety symptoms had more difficulties than the low anxiety symptoms group to express and describe their emotions, which held true for both positive and negative emotions (Turk et al. 2005). Mennin (2005) has proposed four criteria that are characterizing anxiety disorders in general, Mennins propose that anxiety disorders are associated with (1) high intensity of emotions, (2) a negative reaction to both positive, negative and neutral emotional stimulus, (3) an impaired or dysfunctional understanding of emotions in general and (4) a way to deal with these emotional cues that are ineffective or insufficient.

Blalock, Kashdan and Farmer (2016) investigated 43 individuals with SAD and 43 individuals without SAD (e.g. healthy controls) on how they reacted to emotions. Each participant was instructed on experience sampling entries, which they did for 14 days. The results of the collected data showed that the SAD group had more negative regulation of emotions, including higher scores on avoidance, suppression and rumination in comparison to the healthy control group. The SAD group also showed a tendency to not use positive regulation of emotions including acceptance, reappraisal and problem-solving. Blalock et al. (2016) further showed that all participants had worse experience when using suppression of positive emotions and felt better when using reappraisal and negative feeling (Blalock et al. 2016).

Sung et al (2012) studied the ability to regulate negative moods and quality of life in 165 individuals with SAD and 165 controls. Sung et al (2012) found that healthy controls had better negative mood regulation scores than did the SAD group, that negative mood regulation was negatively correlated with both SAD symptoms and the severity of the disease and that individuals with lower scores on negative mood regulation also showed lower scores on the measure of quality of life. These findings further support Mennins (2005) four criteria, by suggesting that the ability to regulate emotions has an impact on both SAD severity and quality of life.

Alden, Taylor, Mellings and Laposa (2008) did four different studies in which they investigated if interpretation of positive events were related to low affect, maintenance of anxiety and tested their new measure of interpretation. All studies pointed in a direction where participants with SAD did evaluate positive events in a threatening way. This lead to maintenance of SAD, positive affect that do not follow positive events due to this bias and a negative evaluation of further social situations (Alden et al. 2008).

Regulations of emotions, both positive and negative, are suggested to be impaired in individuals with SAD. Both the model by Clark and Wells (1995) and the criteria by Mennin (2005) supports that the inability to adjust to emotions are the base for further complications and the maintenance of SAD.
Individuals with SAD show impairments including a high focus on negative and threatening events and a focus away from positive emotions (Bantin et al., 2016; Kashdan & Steger, 2006). The interpretation of social situations as negative has also been seen in evaluation of positive social situations (Alden et al. 2008). The research of attention bias suggests that individuals with SAD are more likely to see negative aspects of a situation, including negative rating of social situations, negative evaluations of the self and its performance among with negative perception of positive events.

**Strengths of character**

As a complementary side to psychopathology, the area of positive psychology started. It started with the presidency of Martin Seligman in the American psychology association, where he addressed that his presidency was about what is good about people (Seligman & Csikszentmihalyi, 2000). After this announcement, the area of positive psychology has emerged rapidly (Donaldson, Dollwet, & Rao, 2015), looking at what aspects makes a person live a fulfilling life. There are several aspects included in positive psychology, but Seligman and Peterson did a theoretical structure of character strengths (Peterson & Seligman, 2004). Strengths of character is personal characteristics that tend to be globally valued for its own sake, they are not putting anyone down when used among several other criteria’s. Seligman and Peternsons classification system consists of 24 morally valued and universal characteristics of a person. Strengths are an inborn tendency to feel good when executing a certain behavior, it is further linked to optimal functioning and upwards spiral of emotions (Fredrickson, 2001). These characteristics has been seen to change over time and in face of challenging situations such as illnesses (Peterson & Seligman, 2004). The character strengths have been studied in several occasions both in relation to well-being and psychopathology (e.g. depression).

Previous studies have looked at psychological illnesses in relation to strengths and scores on specific strengths. Findings therefrom indicate that people recovering from illness has higher scores on strengths overall (Peterson, Park, & Seligman, 2006). This increase in strengths indicates that people who overcome psychological illness has either more of some specific strengths before they got a diagnose or has developed these strengths to overcome such adversity. Some studies studying strengths has used the term virtuousness to refer to an overall score on all 24 character strengths indicating a general measure of how much character strengths a person have (Proyer, Gander, Wellenzohn, & Ruch, 2015).

Age differences in character strengths has been studied for several age groups. For example Linley et al. (2007) found that in the UK some of the character strengths were related to age. In general, the strengths increased with age, however, also some specific strengths showed the same pattern. Strengths that were correlated with age group were curiosity, love of learning, forgiveness,
self-regulation and fairness. The authors suggest that these strengths may develop over the lifetime. Included in this study where 17,056 participants spanning from 18 to above 65 years of age (Linley, et al., 2007).

Gander, Proyer, Ruch and Wyss (2013) studied depression and found that strengths based interventions did lower the depression symptoms. This study was based on 1598 participants that did finish one out of nine interventions. The measures of depression were selected with a cut-off point to indicate people high respectively low in depression. The intervention groups, which were above the high depression level did lower their ratings significantly under cut-off after the interventions, indicating that they did get better when engaged in the interventions. Another study looked at the effect on using strengths on the mood the day thereafter (Lavy, Littman-Ovadia, & Bareli, 2014). In this study, they investigated the effects on strengths use and the mood the day after in 150 behavioral students. The participants were told to rate their mood based on the question “how would you describe your mood today” on a scale between one and seven. And the strengths use was assessed with a noun list presenting the 24 VIA strengths and the participant had to rate their use of these nouns on a seven point Likert scale. Lavy et al (2014) did two hierarchical linear model analyses to find out if the mood did change between the days. Strengths use has also been suggested to increase happiness, meaning in life and engagement (Seligman, Rashid, & Parks, 2006; Wood, Linley, Maltby, Kashdan, & Hurling, 2011).

**Strengths of character and the relation to SAD.** Few studies have looked at the relation between social anxiety and character strengths. One example of such one of the few existing studies is a study by Kashdan, Morina and Priebe (2006) in which they looked at the relation between posttraumatic stress disorder (PTSD), social anxiety and well-being in combat veterans. This study included 42 diagnosed participants and 35 participants in a control group. In this study, they measured strengths using the character strengths questionnaire. They also collected measures of well-being including positive and negative affect, well-being scale and basic psychological need questionnaire. The study did not find any strong relations between social anxiety, PTSD and well-being. However, the study did found that social anxiety was more related to negative affect than PTSD or character strengths. In sum, this study found that more social anxiety was related with lower levels of well-being, hope, optimism, gratitude, forgiveness, belongingness and competence, and that this relation explained more variance ($R^2 = .04-.08$) that did the variance explained by PTSD and negative affect. The authors conclude that social anxiety does play a role in PTSD and in positive experiences and traits (Kashdan et al. 2006). However, no study to date has specifically looked at SAD in relation to scores on the values in action (VIA) questionnaire. The VIA survey, however, has been
correlated to other psychopathological diseases (Park, Peterson, & Seligman, 2004; Peterson et al. 2006).

The current study

Three main pathways have been described in the previous sections. Involving an explanation of SAD and models of SAD that has been put forth in the existing literature. It also consists of an explanation of character strengths and its current involvement in the research of SAD. The third path constitute an introduction to rating of facial expressions, both positive and negative and how this related to SAD. The objectives of this study are to combine these three paths and see if they have something in common. The first objective is to expand the existing literature on SAD and how it is affected by different emotional processes. There have been suggestions that changing a person’s thoughts about the self has an impact on symptoms of SAD and the severity of SAD that supports a cognitive aspect if SAD that are adjustable. For example, interventions targeting positive affect and an increased awareness of differences between emotions has been related to the severity of social anxiety. For this study character strengths have been chosen to represent positive psychological traits, to find if there is a relevant connection between SAD and strengths.

However, as presented there seems to be a relation between character strengths and depression in addition to a relation between SAD and depression. These relations points to a relevant possible interaction between SAD and VIA. The second part of this objective is to add a new way of looking at the processes of SAD. In the existing literature, several studies have proposed that persons with SAD are low in measures of both well-being and positive affect. As such there is interesting to add other measures of these traits that may correlate with SAD. This is a correlational pilot study to start an investigation of aspects that may affect the severity of SAD. Psychological therapy with focus on positive aspects has an impact on SAD, but does character strengths also show a relation with SAD, as it has been seen to affect rating of well-being, quality of life and positive affect.

The second objective of this study is to investigate one aspect of SAD, namely rating of faces. In SAD, the subjective experience of others expressed emotion is a key aspect and one factor that contribute to the negative spirals of the disease. Researcher has previously seen that a person with SAD rates both the self, its own performance and both positive and negative situations as worse than they are, which point to some underlying behavior of rating the world as more negative than it is. As character strengths has been seen to increase positive affect and SAD has been seen to decrease the same it is of interest to look at the extent these overlap with rating of facial expressions.

There are three aims of this study. The first (H1) aim is to investigate if the measure of character strengths and SAD are correlated. As presented previously there has been links between SAD and other mental states such as
depression, impaired emotion regulation, quality of life and more negative affect than healthy persons. Character strengths on the other hand has been seen to increase positive affect, control in life and optimal functioning. Character strengths may be related to the expressed behaviors of SAD, and that’s what this question aims to answer. Do these measure correlate with each other.

In SAD, there has been several impairments suggested, such as a more negative rating of faces among other. To find one factor to study and differentiate VIA and SAD against, this is the most prominent finding about SAD. As such the second aim (H2) of this study is to correlate VIA, LSAS and ratings of different faces. If both LSAS and VIA correlate with ratings of faces, they may share some underlying processes, even if they are not directly correlated.

As there has been few studies to correlate character strengths with SAD, the third aim (H3) of this essay would be to evaluate if there are demographic variables that can explain correlations between VIA, LSAS and rating of faces. To this aim there is also a question about how these measures in themselves differ among characteristics.

**Method**

The procedure is partly from an ongoing project at the Linköping University. The participants in this study is therefore an already existing sample. When the participants were on a scheduled follow-up they were asked if they would like to fill out two additional questionnaires (Strengths and resilience). The resilience questionnaire was used in another thesis. The participants that would like to fill out the additional questionnaire received a link. Out of the 46 participants that were asked to participate, 41 agreed to take part in the present study on character strengths and its relation to SAD.

As part of the project the participants were delivering a speech in front of a virtual public, these are not presented in this essay. Half of the facial expression included in the present study comes from this virtual audience. In addition to all the background variables, that were also collected previously as part of the project and not as a part of the data collected for the present study.

The data from the facial ratings were coded on a VAS-scale that each participant had filled out on a paper after another follow-up, not related to the previous study. The data from the strengths questionnaire were summed for each participant and added to the already existing file from previous follow-ups. This file was then used for all the statistical analysis in the current study. The author has had no contact with the participants or the original files. As such the identity of the participants are unknown.
Participants
The sample consisted of 41 Swedish participants with a mean age of 29.7 years (SD 7.4). Twenty-eight of the 41 enrolled participants were women and 61% of the sample had studied in higher education, not all had finished three years. In the sample 53.7% are married or live with a significant other, and 39.1% of the sample had kids.

Measures
Values in action (VIA). The values in action are a classification system of strengths (Peterson & Seligman, 2004). The aim is to create a classification manual additional to the DSM classification of pathology. The classification is theoretically driven and consists of 6 classes of virtues (Table 1; Peterson et al. 2006). A virtue is a broad category that has been valued by philosophers and thinkers through history. Each virtue consists of subgroups, strengths, that all relate to the virtue but distinct from one another. A total of 24 strengths are included in the questionnaire, but not all of them are easy to measure. The long version consists of 10 items per scale, resulting in 240 questions which take about 45 minutes to complete (Peterson & Seligman, 2004). For this reason, shorter version has been developed. The psychometric properties for the 240 version of the scale is good with an internal consistency ranging from .72-.91 whereas the test retest reliability range from .46-.68 for 6 months (Park & Peterson, 2006; Linley, et al., 2007). The short version used in this test battery is a 48-item scale developed by Furnham and Lester (2012). The test are 48 brief questions, the participants are then asked to rate how well these statements are in line with the self on a scale from 1 to 5, where 1 is “not like me”. For the 6 virtues, the internal consistency ranges from .48-.76. However, as there is a small sample enrolled for this study no specific strengths will be examined. Virtuousness is used as a measure of how much strengths a participant has in the current study, the process of examining virtuousness has been explained elsewhere (Proyer et al. 2015).

Table 1 presentation of character strengths

<table>
<thead>
<tr>
<th>virtues</th>
<th>Strengths of character</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wisdom and Knowledge</td>
<td>Creativity, curiosity, open-mindedness, love of learning,</td>
</tr>
<tr>
<td></td>
<td>perspective</td>
</tr>
<tr>
<td>Courage</td>
<td>Bravery, persistence, integrity, vitality</td>
</tr>
<tr>
<td>Humanity</td>
<td>Love, Kindness, Social intelligence</td>
</tr>
<tr>
<td>Justice</td>
<td>Citizenship, fairness, leadership</td>
</tr>
<tr>
<td>Temperance</td>
<td>Forgiveness, humility, prudence, self-regulation</td>
</tr>
</tbody>
</table>
Transcendence  Appreciation of beauty and excellence, gratitude, hope, humor, spirituality

**Liebowitz social anxiety scale (LSAS-SR):** The LSAS was developed in 1987 by Liebowitz (Liebowitz, 1987) to assess behavioral characteristics of social phobia. For this study, a 24 item Swedish translated were used, not validated. The answering results on this self-report scale is twofold, were the participant are to rate the fear and anxiety related to a specific social situation on a 4 point Likert scale ranging from no fear or anxiety (0) to strong fear or anxiety (3). The participant is also asked to rate how often in percent they are avoiding the specific situation in question. The answers are coded in four steps, were 0 represents never avoiding the situation, 1 representing avoiding the situation until 33% of the times, 2 represents avoidant behaviors between 33-67% of the time, and 3 is representing up till 100% avoidant behaviors. The English version of the LSAS has shown a Cronbach’s alpha ranging from .95-.98, (Baker, Heinrichs, Kim, & Hofmann, 2002; Beard, et al., 2002; Heimberg, et al., 1999). The test-retest reliability has further shown good results with \( r = .83 \) over a 12-week period and \( r = .75 \) over a period of a year. The validation of the Swedish version is done by Baker et al. (2002).

**Ratings of facial expressions:** The form of rating consists of 21 human faces. Half of these faces where taken from a virtual public in which the participants previously had been holding a speech in front of. On the form, each of the human faces there were presented in addition to an unnumbered VAS-Scale. The participant was then asked to rate with a cross on the line if the face is negative or neutral. The coding was 0 in the left end and 10 in the right end, with higher ratings were coded as more negative. The pictures are not validated as these faces were part of the virtual public. The persons in the public were told to look at neutral as possible.

**Statistical analysis**

The data on the manually collected forms were coded in order to see which numbers the cross on the rating line were representing. None of the participant did know how long the line were and lengths on the line were measured using a ruler. All the data were then merged with the already collected variables, such as anxiety, demographics and merged with the VIA measures from the online survey. The data were the imported into SPSS 24, to do the statistical analyses.

**Ethical consideration**

This study is part of another study with permission from the university ethics board. The VIA data were delivered online and all the participant gave their
informed consent for participation and for that also accepted the amount of extra questions related to this test. The test consisted of 48 questions which would take between 20 and 40 minutes to finish, which also were presented in the informed consent. All the data are handled by personnel from the University of Linköping along with all the other collected data in the parallel study. The questions used in the survey are of no emotional content and would not harm or create adversities to the participants, all the questions were stated as rate how much this statement reflects you and no further considerations about the answer were asked for in this study.

Results

The characteristics of the sample is presented in table 2.

Table 2
Characteristics of sample (N=41)

<table>
<thead>
<tr>
<th></th>
<th>Mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>29.68 (7.37)</td>
</tr>
<tr>
<td>VIA</td>
<td>146.32 (12.2)</td>
</tr>
<tr>
<td>LSAS</td>
<td>78.51 (18.87)</td>
</tr>
<tr>
<td>Valence</td>
<td>5.49 (1.35)</td>
</tr>
</tbody>
</table>

Abbreviations: VIA: Values in Action; LSAS: Liebowitz social anxiety scale.

To see if VIA and LSAS did correlate a correlation matrix including all the variables in the study were made. First the correlation between LSAS and VIA is presented, then the confounding variables is discussed in the following section.

Table 3
Correlation coefficients between LSAS, VIA, ratings of faces and demographics

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Valence</td>
<td>1</td>
<td>.73</td>
<td>.75</td>
<td>.047</td>
<td>.271</td>
<td>-.251</td>
<td>.720</td>
<td>.213</td>
</tr>
<tr>
<td>2.</td>
<td>Age</td>
<td>1</td>
<td>-.330*</td>
<td>.538**</td>
<td>-.223</td>
<td>-.587**</td>
<td>-.182</td>
<td>.125</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1</td>
<td>-.100</td>
<td>.191</td>
<td>.163</td>
<td>.027</td>
<td>-.213</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Sex</td>
<td>1</td>
<td>-.089</td>
<td>-.326*</td>
<td>-.416**</td>
<td>.344*</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1</td>
<td>.316*</td>
<td>.205</td>
<td>-.386*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Education</td>
<td>1</td>
<td>-.089</td>
<td>-.326*</td>
<td>-.416**</td>
<td>.344*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Marital status</td>
<td>1</td>
<td>.316*</td>
<td>.205</td>
<td>-.386*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>With children</td>
<td>1</td>
<td>.555</td>
<td>.027</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>LSAS-SR</td>
<td>1</td>
<td>-.358*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>VIA</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Abbreviations: valence: ratings of the facial expression, LSAS-SR: Liebowitz social anxiety scale – Swedish revision, VIA: Values in Action.
The correlation matrix showed no significant correlation between VIA and rating of faces neither between LSAS and ratings of faces. There were however, a significant negative correlation between VIA and LSAS-SR ($r = -0.358$; Table 3).

To examine the third hypothesis, the participant where divided into several groups as there were not sufficient numbers of participant in all the categories to do any statistical analyses. The groups are based on number of participants so that the groups would be equal in size and have not been tested in any other way. The participants were grouped in to high and low age (group 1 age 19-27 and group 2 age 28- 45years). To examine education, the participants were divided between those who had finished university and those who had not finished university (61%). The sample were also divided into groups depending on their marital status. E.g. those who were married (53,7% of the sample) and the others were categorized as unmarried. The last confounding variable were children and the sample were divided into those with children (39,1%) and those without children. To establish if the confounding variables differed significantly on any of the dependent variables they were correlated with LSAS, ratings of faces and VIA. Significant correlations were found between LSAS and level of education, between VIA and level of education and between VIA and marital status (Table 3).

**Relations between SAD, VIA and ratings of faces**

To investigate the correlations further, three regression models were done, one for each dependent variable.

The regression model with ratings of faces as dependent variable supported previously presented data. None of the models including ratings of faces reached significance. However, none of the demographical variables included in this study did affect ratings of faces in any of the analyses included in this study.

The regression model with LSAS-SR as the dependent variable did not reach significance either. Even if there were a negative correlation between LSAS-SR and VIA, VIA did not significantly contribute to the prevalence of LSAS-SR in this study.

The third regression model, with VIA as the dependent variable did reach significance (sig, .006). To examine which of the variables included in the model that made it reach significance, a second regression model were made. This model was a backward linear regression model and the results showed that all variables but LSAS-SR and gender predicted scores on VIA (see table 4, Data for LSAS and ratings of faces not shown).

### Table 4
**Multiple regression coefficients and statistics of the VIA**

<table>
<thead>
<tr>
<th>$R$</th>
<th>$R^2$</th>
<th>$\Delta R^2$</th>
<th>$F$</th>
<th>$p$</th>
<th>$B$</th>
<th>$\beta$</th>
<th>$P$</th>
</tr>
</thead>
</table>


Table 4 explains the linear regression model with VIA-IS as dependent variable

<table>
<thead>
<tr>
<th>Model 1</th>
<th>.604</th>
<th>.365</th>
<th>.274</th>
<th>4.017(5,40)</th>
<th>.006</th>
<th>179.248</th>
<th>.000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age,</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-10.622</td>
<td>-.430</td>
</tr>
<tr>
<td>Sex,</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-5.201</td>
<td>-.201</td>
</tr>
<tr>
<td>Education,</td>
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<td></td>
<td></td>
<td></td>
<td>10.372</td>
<td>.420</td>
</tr>
<tr>
<td>Marital status,</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>-7.517</td>
<td>-.300</td>
</tr>
<tr>
<td>With kids</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-6.673</td>
<td>-.344</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Model 2</th>
<th>.574</th>
<th>.330</th>
<th>.255</th>
<th>4.427</th>
<th>.005</th>
<th>168.349</th>
<th>.000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age,</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-8.619</td>
<td>-.349</td>
</tr>
<tr>
<td>Education,</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>9.864</td>
<td>.399</td>
</tr>
<tr>
<td>Marital status,</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>8.203</td>
<td>-.328</td>
</tr>
<tr>
<td>With kids</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-6.338</td>
<td>-.317</td>
</tr>
</tbody>
</table>

Discussion

The main aim of this essay was to investigate a potential relation between social anxiety and strengths of character. The results of this sample indicate that there is a relation between SAD (as measured by LSAS) and Strengths (as measured by VIA). However, the regression models found not a statistical significance between these measures, indication some other explanation than a direct relation between these aspects. The second aim about rating of faces will be presented in the next session.

The correlation between Strengths and Social anxiety disorder

The correlations between LSAS and education and the correlation between VIA and education may reflect a common ground between SAD and strengths prevalence. Higher amount of education can be suggested to have two benefits in this context, first; more time in educational settings may increases the amount of self-knowledge learned which in turn gives that this knowledge may increase knowledge about strengths prevalence and strengths use and learn to use these strengths in everyday life. Second; higher educational level also means more social interactions during the time in educational settings, which gives that a person with higher education also have more practice in handling social interactions. Thus, it may be other factors that affect the relation between SAD and VIA that were found in this study. This interaction may suggest that persons with higher education know what they think is fun and that these persons then learn to handle social situation in a more efficient way, however, there may be other possible explanations. Further, this finding does supports the first hypothesis of this study, even if more research is needed to eliminate the possible confounding effect that were seen with education.

Further, the negative correlation between LSAS and VIA show that
people low on LSAS have more strengths than those high on VIA. One explanation to these findings may be that it is preferable to know more of one’s strengths, which in turn may buffer against the symptoms of SAD. However, previous research has shown that people with higher amount of strengths have higher amount of positive feeling not only on feelings of happiness but also feelings of engagement, meaning and accomplishments (Seligman et al. 2006). Thus, character strengths may be beneficial for several aspects underlying SAD. However, this needs to be further studied by both longitudinal and experimental studies.

The regression model of VIA did reach significance with all variables but sex, what this is suggesting is somewhat mixed as the correlation did not reached significant for more than education and living with a significant other. Some suggestions are that people in general have a higher prevalence of strengths as they grow older and that they learn to handle everyday life more efficient when they have kids and a significant other. They also, as previously suggested, use their strengths to reach a higher level of education (Linley, Nielsen, Gillett, & Biswas-Diener, 2010). Further, character strengths have been seen by previous studies to evolve both with age and with practice. This means that both having kids and having a significant other affected the scores on VIA, which may suggest that these persons have lower level of SAD due to higher knowledge about self. The relation between VIA and marital status may be due to different explanations, e.g. when you live close to another person you tend to learn how to handle social situations.

However, the LSAS did not correlate significantly with either having kids or having a significant other. Which may suggest that strengths are learned in these environments and that this affects the symptoms of SAD due to deeper knowledge about the self. There may however be the other way around; that those with higher amount of SAD does not function as sufficient in relations which may be due to lack of self-knowledge.

The correlation between SAD and VIA may also reflect that strengths knowledge have a buffering effect on symptoms of SAD, maybe indicating a higher self-confidence. It may otherwise reflect the possibility that there is a missing link between strengths and the self that results in SAD. However, more research is needed to establish what the relationship between VIA and SAD may look like, and the most prominent way to do this is to do an interventions study in which both conventional therapy and strengths (Peterson & Seligman, 2004) is encourage.

The research of character strengths is in its infancy and even if it has been studied in relation to several aspects it remains many gaps. Therefore, the aspects related to how strengths affect several aspects of optimal functioning is needed. Both to find what relate to strengths and how strengths work within a person. However, there may also be other factors from human optimal functioning that influence these results seen in this study. There have, for
example, been suggested that strengths increase after adversities (Peterson et al. 2006). However, as already mentioned, there may also be several other variables that is affecting both the LSAS and the VIA at a deeper level than this correlation. A suggestion of some variables may be relationships, social support, internal motivation, sense of mastery among others.

The strengths approach has been successfully implicated in people with depression (Proyer et al. 2015), and this is the first study that examines the relation between LSAS and VIA. This means that there are no implications on how people with SAD experience or get effected by strengths and an increased knowledge of strengths. However, strengths have previously been looked at in relation to well-being and it has been seen that strengths and strengths use increase rather than decrease feeling of well-being (Donaldson et al. 2015; Park et al. 2004). As such there is no suggestions that this kind of knowledge has any harm to a person. Some ethical consideration is the amount of gathered data, to this essay it was a few questions and as such it should have no ethical implications for the participants. However, even if there were only 48 brief questions the content of the questions may affect the feelings of the participants. There may be adverse effects of the thought that comes with this kind of questions. However, the reaction that has been linked to social phobia comes from negative information (Stopa & Clark, 2000) and the questions involved are rather positive in its nature, even if there are suggestions that also interpretation of positive events are rather negative in comparison to healthy controls. Not to say the risks are eliminated, rather that they are unlikely to cause any harm to the participants.

Ratings of faces

The second aim of this study was to further build on the existing knowledge of how people with SAD evaluate positive and negative faces. Correlations with rating of faces, VIA, LSAS and confounding found that the faces used in this study did not affect the ratings of faces. This were also supported additionally by the regression model that found no significant model at all for rating of faces. Previous research has suggested that negative evaluation of faces is one factor that characterize social anxiety, but this statement is not supported by this sample. This may suggest that the variables included as confounders in this study is insufficient in explaining how SAD is manifested and maintained in a person. However, it also showed that ratings of faces were not affected by the levels of strengths in this sample either. This address one important question: what factors do affect how we rate facial expressions? Included in this study were both LSAS and VIA, and none of these affected how the participants rated faces. Further, none of the confounding variables were related to the rating of facial expression either. These results may be due to low power in the sample, but it may also point in some other direction than previously investigated. There are several studies which have found a
significant relation between SAD and facial expression (Reeb-Sutherland, et al., 2015; Wiggert, Wilhelm, Reichenberger, & Blechert, 2015), however, it raises the question if these studies have some confounding variable that affect these results. The results found in this study may also be affected by some other variable not included. However, all this taken together address a missing piece of the puzzle and more research needs to look at a more multidisciplinary approach and include confounders that may lie outside the current research.

However, as VIA were not significantly related to the ratings of faces it may suggest that it is not important for that specific skill in interrelationships. Rather that the skills of examining social situations lend on some other mechanism than to be accurate on ratings of faces. It may be important for further research to look more closely on the relationship between significant others and close friends to find out what it is in these relationship that are different, and what it is that affect how you rate faces. It may be due to excessive training, to learn how the other person react to stimuli, but it may also be due to other interrelationships skills that comes with these relationships.

These findings may also be because the faces used in this study were not included in any database and as such are not validated. This lack of validation may lead to confounding’s due to insufficient faces or faces that are more or less negative than wanted. Previous studies have shown that people with SAD tend to rate faces as more negative than a control group. However, the findings of this study cannot be compared with those of an experimental design due to lack of a control group. This study is also limited in the ratings of facial expression due to a small sample, it may be other variables that affect ratings more than the variables included in this study. This study does not support previous findings that higher amount of SAD is related to more negative ratings of facial expression. The second hypothesis is therefore not supported by this study.

Further studies need to use validated faces to compare emotional ratings. For this study, no validated measure of emotional faces was used. So, this pilot study was only suggesting that it would be a relation with both SAD and VIA and ratings of faces. However, no support for the hypothesis that ratings of face related to the amount of neither VIA nor LSAS out of this pilot study. This may suggest some other route in which emotional ratings of faces are involved in SAD. Thus, rating of faces may not be related to SAD per se, but rather to some underlying construct that are involved in the characteristics of SAD. This study may not have found any significant relations due to low power, as it were a small sample and no control group. So, in further studies ratings of faces needs to be taken as a confounder to find out if it is accompanied with SAD or if it is a characteristic of SAD. It is also important with a greater number of participants, to draw any conclusions.
Future research and limitations

The design used is based on a convenience sample, that did not get paid to participate. Rather they were asked to fill out some additional questions to a follow-up they were already scheduled for. The sample used causes limitations and further limiting the conclusions that can be drawn of the study. However, as this was a pilot study the results were only meant to see if there are more interesting findings to search for. Therefore, the sample were sufficient for the study.

Other designs are more appropriate for the question how SAD is manifested, such as a matched control group to find how equal healthy people rate faces and to have a baseline to compare the level of virtuousness with. The participants in this study only rate the VIA once and for the study of SAD it is more interesting to look at long-term changes in strengths vs SAD measures. It has been suggested that character strengths do change with adversities and over the course of aging (Peterson et al. 2006; Park et al. 2004), which suggests that those that learn to live or overcome SAD does show higher strengths afterwards. It would be interesting to do a second measure of the sample to evaluate if some persons in this study decrease their symptom. A follow up on the present participants would also give some additional answers to how VIA and LSAS relate to one another. There have been suggested that strengths increase after adversities (Peterson et al. 2006), and if some persons in this study decrease their symptom this would be seen in the VIA scores in a follow up study, if they were related. Character strengths may be beneficial for several aspects underlying SAD. However, this needs to be further studied by both longitudinal studies and experimental studies.

Other more appropriate designs to be used to create a deeper understanding of the relation between SAD and strengths would be an intervention study. The intervention design would give differences before and after increased use of strengths. Further, the research on SAD and, for example, cognitive behavioral therapy there is an intervention design used to see differences in psychopathological levels. So, for future research a differentiated study with both conventional treatment, a control group and a group who learn to use their strengths are needed to compare the different results.

In this study no correlation with rating of faces were found and further research also needs to find other possible explanations to the proposed relations. One question is to what extent relationships and relationship skills are important for ratings of faces. There are probably other possible interactions with ratings of faces. To solve the confusion of why ratings of faces were not related to VIA or LSAS more research need to look at the specific mechanism that are related to strengths and strengths use. This study did not add much both due to the design and due to a small number of participants. In addition to these factors some of the results were non-significant and as there is no model that
explain either the mechanism behind VIA or SAD in full it is hard to put these results into perspective. Which also address an area of further research, to take the published literature and see what routes there can be found.

Limitations to this study includes the reliability, as the questionnaire used is not validated in Swedish. To date there is no validated short measure of the VIA-IS, so further studies should use the longer VIA-IS 120 or 240 for more reliable result and to be able to look at specific strengths rather than virtues, virtuousness. The measure of virtuousness is used for this study as it gives an overall indication of how well the participants know and use their strengths. The short measure of VIA is also used do to the follow up questions, if a longer version is used there is a risk for too many questions and more drop-out. It is also a start in the investigation of how strengths are related to SAD, so further research need to look at a broader view of strengths and maybe also look at the levels of actual strengths use in everyday life.

Conclusion

Taken together this essay has answered three hypotheses: (I) is the measure of character strengths and SAD correlated, (II) is VIA, LSAS and ratings of faces related, (III) can some demographic variables explain any correlations between VIA, LSAS and rating of faces. The first hypothesis was supported, the second were not supported and the third hypothesis were partly supported due to a correlation with education for both LSAS and VIA. The correlation analysis showed that some confounding variables that co-occurred in these aspects. Both VIA and LSAS were related to level of education and if the participants were living with a significant other. This relation may explain the correlation by itself, as people with higher education may also have more goals and uses their strengths in this goal reaching process. However, due to the small sample and the co-occurring confounders this relation needs to be subject of more research before it is suggested that they overlap by themselves.

Ratings of facial expressions did not correlate with any of the other included variables, and it did not yield any significant regression model with the variables added. Thus, the question remains on how this rating of facial expressions are manifested and what aspects that are important on how one rates facial expressions. None of the confounding variables were related as such there needs to be some other factors that affect this bias. This address the need of more research that investigate what mechanism that are involved in the manifestation of this bias for rating of facial expressions. It is also worth noting that this stud did not use a validated set of faces and as such this may explain this finding.

In conclusion, this study has shown that VIA and LSAS share some features and that these features is not related to the ratings of facial expressions in this sample.
References


Gander, F., Proyer, R., Ruch, W., & Wyss, T. (2013). Strength-based positive interventions: Further evidence for their potential in enhancing well-being


