

# The Effect of Observed Automatic Socially Anxious Behaviour and Own Social Anxiety on Likeability

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## Abstract

Cognitive models suggest that people with Social Anxiety Disorder (SAD) make distorted interpretations of social interactions, which makes them believe others evaluate them negatively. Recent research shows that socially anxious individuals (SAs) are indeed evaluated as less likeable compared to low-socially anxious people (LSAs). It is assumed that automatic socially anxious behaviours contribute to this negative evaluation. However, this has not been investigated yet. Therefore, this study researched the influence of observed automatic anxious behaviours (keeping more distance and walking more slowly) on likeability ratings and whether participants' own social anxiety influenced this evaluation. Seventy-two male and female participants with different levels of social anxiety watched a video via an online platform. In the video, four virtual agents approached the participants with either normal or 'socially anxious' approach behaviour. It was analysed if subjective likeability ratings of the agents differed for SA-movement agents and for normal agents. No effects of automatic socially anxious behaviour on likeability were found. The results suggest furthermore that participants' own social anxiety did not influence this relationship. Theoretical implications and limitations are discussed.

*Keywords: social anxiety, likeability, automatic behaviours*

Many people experience fear to a certain extent in social interactions occasionally; they fear that they might be embarrassed or humiliated. However, some individuals suffer from high levels of social anxiety and are impaired because of this in their daily lives. This anxiety of social interactions can evolve into a social anxiety disorder (SAD) (DSM-IV; American Psychiatric Association, 2000). In Dutch society, 9.3% of all adults suffer from SAD at one point in their life (De Graaf, Ten Have & Dorsselaer, 2010). Moreover, studies found that SAD is the most widespread anxiety disorder worldwide and the third most common psychiatric disorder after depression and alcohol abuse (Hidalgo, Barnett, & Davidson, 2001; Schneider, 2006).

A core component of SAD is the fear of being negatively evaluated by others. Prominent cognitive models suggest that people with SAD make distorted interpretations of social interactions, which makes them believe that others evaluate them negatively (Clark, 2001; Rapee & Heimberg, 1997). The study by Amin, Foa and Coles (1998) is one of many studies that supports these cognitive models. They showed that SAs interpreted social situations more negatively even when a positive interpretation was available. For example, the

findings suggest that SAs interpret people staring at them after reading a passage out loud as a sign that the listeners think they messed up the passage. Non-socially anxious individuals more often gave a positive or neutral explanation for the staring behaviour, such as that the audience liked the way they read the passage (positive) or they were looking behind them (neutral). Because of the distorted interpretations SAs make, they believe that others evaluate them negatively.

More recent research shows that socially anxious people not only think they are evaluated more negatively but that they are indeed evaluated more negatively. For example, socially anxious people are rated less likeable and less comfortable to be with (Meleshko & Alden, 1993) and as less friendly, attractive, assertive, and relaxed (Jones & Russell, 1982; Pilkonis, 1977). Gee, Antony, Koerner and Aiken (2012) found that people who showed signs of anxiety, such as avoiding eye contact and speaking with a higher voice, were rated more awkward, less socially skilled, and weaker compared to people who did not show these signs. Furthermore, there is evidence that socially anxious adolescents are treated more negatively by their peers compared to their non-socially anxious classmates (Blöte, Kint & Westenberg, 2007). This means that not only patients with SAD fear social rejection, but others actually tend to reject them more. These negative social experiences could be a strong reinforcing factor in social anxiety disorder. So, there is accumulating evidence that SAs are evaluated more negatively compared to LSAs. However, there still remains a gap in scientific knowledge concerning the factors that contribute to the negative evaluation of SAs.

A variable that has already been proposed as playing a role in the relationship between social anxiety and negative evaluations is the performance of safety behaviours (Clark, 2001). Safety behaviours are conscious, controlled behaviours, such as giving short answers, to avoid saying something stupid. SAs perform these behaviours, because they think it will prevent them from being evaluated negatively. However, they in fact lead to disturbed interactions and rejection (Clark, 2001; Leary & Kowalski, 1995). Furthermore, it is assumed that in addition to these conscious behaviours, more automatic behaviours play a role in the social anxiety-rejection relationship. However, the influence of these automatic behaviours on rejection has not been studied extensively yet. This may be because these automatic, subtle behaviours are not easily observed.

A few studies managed to examine the typical automatic behaviours that SAs perform in social situations, using Virtual Reality (VR). One of these studies is a study of Vrijnsen, Lange, Becker and Rinck (2010). In their study, SAs and LSAs watched a virtual agent who displayed a set of head movements while giving a speech. It was measured how often the

participants mimicked the agents' movements. They found that SAs less frequently showed automatic mimicry than LSAs. The authors stated that lacking the social skill of mimicry might provoke devaluation by others. Bailenson and Yee (2005) found that indeed people react more positively to a virtual agent who mimicked than to a virtual agent that did not mimic.

Another VR-study that investigated typical automatic behaviour of SAs was done by Rinck et al. (2010). In their study, it was investigated whether SAs showed different automatic approach and avoidance behaviour than LSAs. Participants differing in social anxiety had to approach virtual agents in a virtual supermarket under the pretext of a cover story. They found that SAs were slower at approaching the virtual agents and that they kept a larger interpersonal distance to the virtual agents. More research about the automatic behaviours of SAs showed that SAs make subtle backward movements of the head when approached by a digital agent (Wieser, Pauli, Grosseibl, Molzow & Muhlberger, 2010), moved more about when being approached by a human experimenter, and tended to lean back more (Lange & Hagenaaars, 2020).

So, it was found that SAs perform divergent automatic behaviours in social situations, such as keep distance, move slowly, and mimic less. Although Bailenson and Yee (2005) found that the lack of mimicking leads to negative reactions, it was not been studied yet if the automatic behaviours 'keeping distance' and 'moving slowly', such as observed in the study of Rinck et al. (2010), also lead to negative evaluations.

To extend the research about the automatic behaviours that lead to rejection of SAs, this study looked at whether interpersonal distance and walking speed influenced likeability. In addition, it was examined to what extent participants' own level of social anxiety influenced evaluation of others' socially anxious behaviour. In the online experiment, unselected healthy participants with different levels of social anxiety saw videoclips of virtual agents. They watched four agents approaching them with either normal or 'socially anxious' approach behaviour (Rinck et al., 2010). Afterwards, they saw screenshots of the agents and were asked to evaluate their likeability. Finally, participants completed questionnaires assessing social anxiety.

It was hypothesised that participants would rate slowly approaching agents who keep distance more negatively compared to normally approaching agents, since previous studies suggest that people who show signs of social anxiety are evaluated more negatively (Meleshko & Alden, 1993; Jones & Russell, 1982; Pilkonis, 1977; Gee, Antony, Koerner & Aiken, 2012). Because of the lack of literature about how SAs perceive other SAs, no

hypothesis was proposed about whether participants' own level of social anxiety influences the relationship between socially anxious behaviour and likeability. Gaining more insight into the automatic behaviours that lead to a negative evaluation of SAs, can be useful information for treatments with regards to SAD. In case that automatic behaviours such as 'keeping distance' and 'moving slowly' contribute to the rejection of SAs, these behaviours should be unlearned during therapy.

### **Method**

Due to the coronavirus, the associated regulations and social distancing rules, the original lab study was adjusted to an online version. Originally, this study was set out to examine what the effect is of different approach behaviours on likeability and leaning back movements (approach/avoidance tendencies). This would have been examined in a Virtual Reality set up in which digital agents, with different levels of socially anxious behaviours, would approach the participants. A stabilometric force platform would have been used to measure leaning back movements. In a short period, this VR-experiment was converted to the experiment described below.

### **Sample**

A total of 86 (75.7% female, 24.3% male) participants participated in the experiment, all of them were either Dutch or Germans who had been living in the Netherlands for over a year. All participants were 16 years or older. Of the 86 participants that clicked on the survey link, thirteen participants did not complete the survey and hence were excluded from the analysis. The participants were recruited through the Radboud Sona System (an internal online participant recruitment platform) and through social media channel Facebook. Participants recruited via Sona System received 0.25 course credit for participating. Participants recruited from Facebook participated voluntarily.

### **Questionnaires**

In order to measure the current emotional state of participants, they were asked to answer the following questions: 'How much do you want to avoid the current situation?', 'How anxious are you?', and 'How aware are you of your current bodily sensations?'. Every question was answered using a sliding bar that ranged from 'Not' (0) to 'Completely' (100).

The degree of social anxiety of the participants was measured with the Brief Fear of Negative Evaluation Scale (BFNE; Leary, 1983). This is a commonly used questionnaire to

measure the core feature of social anxiety: fear of negative evaluation. The instrument consists of 8 statements, such as ‘Sometimes I think I am too concerned with what other people think of me.’ Participants indicated their score on a 5-point Likert scale ranging from ‘Not at all characteristic of me’(1) to ‘Extremely characteristic of me’(5).<sup>1</sup> The items were reliable in our sample with a Cronbach’s  $\alpha$  of .94. This is comparable with a Cronbach’s  $\alpha$  of .96 found in a study by Fox et al. (2018).

Depressive symptoms are typically correlated with social anxiety (Brunello et al., 2000). For this reason, depressive symptoms were controlled for to ensure that the effects found were due to social anxiety and not due to depression. Depressive symptoms were assessed using the Patient Health Questionnaire-8 (PHQ-8; Kroenke et al., 2001). Originally, the questionnaire consists of 9 items. Participants indicated on a 4-point Likert scale ranging from ‘Not at all’ (0) to ‘Nearly every day’ (4), how often they were bothered by problems such as “feeling down, depressed, or hopeless”. For ethical reasons, the suicidality item was omitted. The items were reliable in the sample with a Cronbach’s  $\alpha$  of .85. This is comparable with a Cronbach’s  $\alpha$  of .89 in a study by Shin, Lee, Han, Yoon, and Han (2019).

Because the national coronavirus regulations and social distancing rules may influence the way people experience social interactions, questions about the level of fear participants experienced concerning corona were added. For example, participants may prefer more distance to prevent getting the virus, and thus like the socially anxious moving agents more. The questions were ‘How scared are you to get Corona?’ and ‘How scared are you to infect others with the Coronavirus?’. Participants indicated their level of fear on a slider scale ranging from ‘Not scared at all’(0) to ‘Extremely scared’(100).

## **Videoclips**

The videos were constructed in Unity 2017.4 and were selected screen recordings of the original VR-experiment. The videos were recorded with OBS Studio and edited with Adobe Premiere Pro 2019. In the original experiment, participants were told that they stood beside a (virtual) poster at a conference and different agents would approach and greet them, being interested in the poster. The agents would enter the conference room through a sliding door and walk straight up to the participant. Participants were approached by four different

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<sup>1</sup> Initially the choice of instrument to measure social anxiety was the Liebowitz social anxiety scale (Liebowitz, 1987), which is a typically used and reliable measure. This scale assesses fear in and avoidance of 24 different social situations. However, due to the corona virus and the associated social distancing rules, fewer social gatherings took place. People generally avoided more social situations and fears and avoidance could not be attributed to social anxiety only. Therefore, the BFNE was used.

agents, introducing themselves by for example saying ‘Hoi, ik ben Tijmen. Leuk je te leren kennen.’ (Dutch for: Hi, I’m Tijmen. Nice meeting you.). Half of the agents were men and the other half were women, and half of the agents had brown hair and the other half had blond hair. The virtual agents differed in their approach behaviour: half of them approached slowly (1.0 m/s) and kept distance (1.9 meters) which is seen as a more socially anxious approach. The other half approached them with the default speed of the agents (1.5 m/s) and kept less distance (1.2 meters), considered to be that of a ‘normal’, non-anxious stranger (see Figure 1). The videos have been counterbalanced. Of each agent, four variants were made (see Table 1). The agents behaved either anxious or not anxious, and had voice A or B for a manly agent and voice C or D for a female agent.



*Figure 1.* Example of a virtual agent approaching. In the top image, the agent keeps a larger interpersonal distance, which is seen as more socially anxious. In the bottom image, the agent keeps less interpersonal distance, which is seen as ‘normal’.

Table 1

*Different videosets*

<b>Set 1</b>	<b>Set 2</b>	<b>Set 3</b>	<b>Set 4</b>
Man agent 1 + voice A + socially anxious	man agent 1 + voice B + socially anxious	man agent 1 + voice A+ not socially anxious	man agent 1 + voice B + not socially anxious
man agent 2 + voice B + not socially anxious	man agent 2 + voice A + not socially anxious	man agent 2 + voice B+ socially anxious	man agent 2 + voice A + socially anxious
woman agent 3 + voice C + socially anxious	woman agent 3 + voice D + socially anxious	woman agent 3 + voice C + not socially anxious	woman agent 3 + voice D + not socially anxious
woman agent 4 + voice D + not socially anxious	woman agent 4 + voice C + not socially anxious	woman agent 4+ voice D + socially anxious	woman agent 4 + voice C + socially anxious

These subsets were randomised, so each 5<sup>th</sup> participant would get the same sequence of agents and therefore saw the same video. This randomisation was executed to limit the influence of the different versions (videosets).

**Procedure**

Participants conducted the experiment online, through a survey made with survey-platform Qualtrics ([www.qualtrics.com](http://www.qualtrics.com)). When participants clicked on the survey link of the advertisement text on Facebook or SONA, they were transferred to Qualtrics. Here they were informed about the experiment and consented to participation. Then they filled in questions about their current emotional state. Subsequently, participants received the instruction that they had to look carefully at the virtual agents approaching them, since the purpose of the study was to gather information about how people experience virtual people. Moreover, they were instructed to give their opinion on the virtual agents after the agents had introduced themselves.

Then participants watched the four videos of in total 1.08 minutes with four virtual agents approaching them. After watching the video, participants filled in the state measurements again. Thereafter, participants saw screenshots of the virtual agents they just saw and indicated how ‘likeable’ they found every agent on a slider scale ranging from ‘Extremely unlikable’ (0) to ‘Extremely likeable’ (100). After that, they answered questions about how realistic they thought the faces and movements of the agents were. Subsequently,

participants filled in some demographics, such as age, gender, and level of English level skills. The next step was to fill in the BFNE, the Liebowitz social anxiety scale, the PHQ-8 and the ICU-E<sup>2</sup>. Then a funnelled debriefing followed exploring whether participants guessed the purpose of the study or experienced something suspicious. The final questions concerned the coronavirus. At the end of the survey, participants were informed about the goal of the task and thanked for participating. The experiment took about 15 minutes.

### **Data preparation**

In total fourteen participants were removed, since they did not complete the survey (13) or the score was an outlier (1). The outlier was detected by generating Z-scores. The one outlier was found in the social anxiety condition (Z-score lower than -3 or higher than 3) of the likeability scores. Therefore the data of this participant have been removed as well. Every participant rated four agents on the likeability scale, so four 'likeability' scores were generated for each participant. The likeability scores were generated by calculating a separate average score for the 'socially anxious' agents and the 'non-anxious' agents for each participant. The BFNE total score was used to measure social anxiety experienced by the participants. The fear of corona score was generated by adding the scores of the 2 corona-items to a total score. The data were converted to SPSS.

### **Statistical analysis**

The data of the remaining 72 participants were included in the analysis. The assumption of normality was controlled for by using the Shapiro-Wilk test. For both the social anxious condition ( $p = .485$ ) and the normal condition ( $p = .721$ ), this test was not significant. Therefore, it can be concluded that the assumption of normality has been met.

A MANOVA was conducted to test if the participants in different video set-groups did not differ significantly on the scores of the independent and dependent variable(s).

A repeated measures ANCOVA was conducted to answer the research question. In this analysis, the agents' approach behaviour (socially anxious: yes/no) was the independent within-subject factor and likeability was the dependent variable. Three covariates were included in the analysis, namely social anxiety of the participants measured with the BFNE, depression measured with the PHQ-8, and the level of fear for corona. Furthermore, it was explored if participants' own social anxiety was related to the evaluation of likeability in

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<sup>2</sup> The ICU-E is used for a different study and will not be discussed in this thesis.

general. This was done by looking at the main effect of participants' own social anxiety in the ANCOVA.

## Results

### Preliminary analyses

From the remaining 72 participants, 23.4% was male and 76.6% was female. Their age ranged from 16 to 68. The mean age was 23 years ( $M = 23.38$ ,  $SD = 9.63$ ). The participants varied in their level of social anxiety ranging from 8 to 40 ( $M = 21.31$ ,  $SD = 7.70$ ). They varied in their level of depressive symptoms ranging from 0 to 21 ( $M = 6.14$ ,  $SD = 4.46$ ). Furthermore, participants varied in their level of fear for corona ranging from 0 to 173 ( $M = 82.07$ ,  $SD = 42.48$ ). A randomisation check was performed to control if the participants in different video set-groups did not differ significantly on the scores of the independent and dependent variable(s). Therefore, between-group analyses were executed (see Table 2).

Table 2

#### *Differences between groups*

group		Likeability SA agents	Likeability normal agents	Social Anxiety	Level fear corona	Depression
1,00	Mean	59.35	68.41	19.94	69.88	6.53
	N	17	17	17	17	17
	Std. Deviation	14.27	17.94	7.85	35.19	5.64
2,00	Mean	59.11	58.53	23.17	82.25	5.94
	N	18	18	18	16	18
	Std. Deviation	15.57	17.36	6.59	53.51	3.42
3,00	Mean	58.19	51.88	20.94	96.59	7.59
	N	17	17	17	17	17
	Std. Deviation	17.73	20.30	7.33	44.25	5.04
4,00	Mean	62.82	57.29	21.11	79.59	4.68
	N	19	19	19	17	19
	Std. Deviation	15.25	16.44	9.04	34.29	3.33
Total	Mean	59.92	58.97	21.31	82.07	6.14
	N	71	71	71	67	71
	Std. Deviation	15.50	18.58	7.70	42.48	4.46

A MANOVA showed that there were no significant differences between groups on likeability for social anxious approaching agents  $F(1, 63) = 0.53$ ,  $p = .667$  and normal agents

$F(1, 63) = 2.72, p = .052$ . Moreover, there were no significant differences between groups on social anxiety of the participants  $F(1, 63) = 0.66, p = .590$ , fear for corona  $F(1, 63) = 1.16, p = .334$ , and depression  $F(1, 63) = 0.95, p = .420$ . Therefore, it is concluded that the randomisation worked.

### **Main analyses**

A repeated measures ANCOVA was conducted with socially anxious approach behaviour (yes/no) as within-subject factor, likeability of the virtual agents as dependent variable, and 3 covariates, namely the level of social anxiety of the participants, depression, and level of fear for corona. The hypothesis stated that participants liked non-socially anxious agents more compared to socially anxious moving agents. The results did not confirm the hypothesis. There was no significant main effect of socially anxious approach behaviour (yes/no) on likeability  $F(1, 63) = 0.11, p = .749$ . This means that there was no significant difference between likeability scores for socially anxious virtual agents ( $M = 59.92$ ) and non-socially anxious virtual agents ( $M = 58.97$ ). Furthermore, there was no significant interaction effect between socially anxious approach behaviour and the degree of social anxiety of the participant  $F(1, 63) = 0.74, p = .393$ . That means that the level of social anxiety of the participants did not have a reinforcing or weakening effect on the relationship between socially anxious approach behaviour and likeability. In addition, depression was included in the analysis as a covariate. There was no interaction effect either  $F(1, 63) = 0.82, p = .370$ . This indicates that depression did not influence the relationship between socially anxious approach behaviour and likeability. Furthermore, there was no influence of fear of corona on the relationship between approach behaviour and likability  $F(1, 63) = 0.21, p = .651$ .

Lastly, it was exploratively investigated if participants' own social anxiety was related to evaluation of likeability in general. There was no significant effect found  $F(1,63) = 3.52, p = .065$ . Participants' own social anxiety thus did not significantly influence likeability in general. No other main effects or interactions were found, either, all  $F$ 's < 1, all  $p$ 's > .05.

### **Discussion**

In the current research, the effects of socially anxious behaviours, such as keeping distance and moving slowly, on likeability have been studied as well as the influence of participants' own social anxiety on the evaluation of others' socially anxious behaviour. This was done by having participants with different levels of social anxiety watch virtual agents approaching them in either a socially anxious way or a non-socially anxious way. Results

show that socially anxious approach behaviours such as ‘keeping distance’ and ‘moving slowly’ did not influence likeability. Besides that, no significant influence of social anxiety experienced by participants on this relationship was found. These findings were not in line with previous research.

Based on the existing literature it was expected that socially anxious approach behaviour would lead to less likeability (Meleshko & Alden, 1993; Jones & Russell, 1982; Pilkonis, 1977; Gee, Antony, Koerner & Aiken, 2012). Gee et al. (2012) found, for instance, that showing signs of social anxiety led to a negative evaluation. The difference in results may have been caused by the difference in socially anxious behaviours that were studied. Gee et al. studied the influence of the combination of socially anxious behaviours ‘avoiding eye contact’ and ‘speaking with a higher voice’ on likeability, while in this study the combination of ‘keeping distance’ and ‘walking slowly’ was investigated. We infer from our findings that interpersonal distance and walking speed might not influence likeability as much as other socially anxious behaviours as avoiding eye contact and speaking with a higher voice. Perhaps this is because the behaviours manipulated in our study are less interpreted as a sign of social anxiety. It is known that the lack of eye contact is the most notable manifestation of social anxiety (Cheek & Buss, 1981; Pilkonis, 1977). Differences in interpersonal space, on the other hand, are dependent on many different factors other than social anxiety, such as culture, gender and age (Sorokowska et al., 2017). Therefore, a larger distance, may not necessarily be interpreted as a sign of social anxiety. So, socially anxious behaviours that are more noticeable and interpreted as a sign of social anxiety may have a bigger influence on devaluation.

Furthermore, in one of the few studies in which signs of social anxiety did not influence likeability either, it was concluded that verbal behaviours weight more heavily in judgements about someone than non-verbal signs of anxiety (Alden & Mellings, 2004). In the study of Alden and Mellings (2004), SAs participated in a social interaction task with a conversational partner in which they had to “get to know each other in 5 minutes”. The conversational partners judged whether SAs displayed signs of anxiety or remained calm and rated their verbal behaviour (‘what they said’). They indicated the valence of these behaviours on a scale i.e., whether that aspect of behaviour had a positive or negative influence on the conversation. Thereafter, they gave a global judgement of the SAs. The researchers found that although the conversational partners recognized that the individuals in the experiment were visibly anxious, they did not weight this information heavily in their judgements. They weighted the content of the verbal behaviour more heavily in the judgements about the SAs.

Even though in Alden and Mellings' study the verbal behaviour was more extensive, it is possible that also in our study the verbal behaviour of the virtual agents weighted more heavily than their anxious movements. In our study, the agents all introduced themselves verbally in a non-anxious way. Consequently, likeability may have not been influenced. Perhaps disruptions of an interaction or conversation have more impact on evaluations than the (subtle) behaviours occurring with it.

In addition, it was explored in how far participants' own degree of social anxiety influenced their evaluations of the agents. Although literature did not allow a clear-cut hypothesis, it would be plausible to assume that higher degrees of social anxiety would lead to lower likeability ratings in general and more positive ratings for others who perform socially anxious behaviours. The first assumption was deduced from the fact that SAs tend to interpret behaviours negatively and therefore may rate others less positive in general (Clark, 2001; Rapee & Heimberg, 1997). The second assumption was based on the similarity and attraction theory, which suggests that similarity between individuals lead to higher attraction and likeability (Montoya, Horton, & Kirchner, 2008). From this theory, it can be inferred that SAs judge agents who display signs of anxiety as more similar to themselves, hence leading to higher likeability ratings. However, no evidence was found for both assumptions. It is plausible that participants own' degree of social anxiety did not influence the evaluation of agents because social anxiety is primarily about self-image and not about judging others. In fact, SAs seem to have a "double standard", which means they judge themselves negatively, but do not differ from LSAs in how they judge others (Clark & Arkowitz, 1975; Rapee & Lim, 1992).

There are a few methodological limitations that may have influenced the results. Due to the coronavirus, it was not possible to use the original (Virtual Reality) setup. Therefore, a video of the VR-environment was made in which virtual agents approached participants. As a consequence, there was no true social interaction because participants did not have to respond to the agents and were not actually approached. Furthermore, participants may not have experienced the agents as real people. Social situations in immersive VR are typically experienced as (almost) real and tend to evoke social fears in patients nevertheless (Baños et al., 2006; Powers et al. 2013). Video clips, however, may not trigger comparable responses. The ecological validity of this study is therefore low. The second limitation was that the choice of the distance and the walking speed of the virtual agents could not be based on

literature<sup>3</sup>. Therefore, the choices were made after trying out different distances and walking speeds. Results showed that these were hardly noticed by the participants. Only eight participants reported in the funnelled debriefing afterwards, that they had noticed the differences in distance. Moreover, none of the participants had noticed the differences in walking speed. Maybe the manipulated dimensions were too subtle to be noticed by the participants and therefore did not influence likeability. Another limitation of this study is the skewed sample; 23.4% was male and 76.6% was female. Consequently, the generalisability of the results of this study to the general population is limited.

In conclusion, taking the limitations into account, the results of our study suggest that keeping more interpersonal space and approaching someone more slowly do not influence one's likeability. The level of social anxiety of the participants did not influence these evaluations, either.

These findings add to the growing number of studies investigating the factors that contribute to true rejection of SAs. The results suggest that it is useful to consider the unique effects of different anxious behaviours and distinguish between behaviours relevant or not relevant for conversation/interaction, when assessing and treating social anxiety. Future studies with, e.g., Virtual Reality can replicate the study to gain more insight into the role of walking speed and distance with regards to devaluation. It would be relevant to use more male participants and more extreme differences in walking speed and distances in the replication. Future research should further examine which behaviours influence the negative evaluations of SAs. Once the specific behaviours that lead to devaluation are identified, these could be aimed at in future therapy regiments. In this way, therapies for social anxiety can continue to improve.

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<sup>3</sup> Initially, the degree of distance and walking speed should have been determined in a pilot study. Due to corona this study was cancelled.

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