Selbstfokussierte Aufmerksamkeit in der Sozialen Angststörung – Zusammenhänge zwischen negativem Selbstbild, kulturellem Kontext und Aufmerksamkeitsvariabilität

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Erklärung der Selbstständigkeit

Die vorliegende Dissertation umfasst drei Originalarbeiten (Artikel 1, 2, 3), die in Zusammenarbeit mit verschiedenen Ko-Autoren entstanden und zur Veröffentlichung in Fachzeitschriften (engl. *peer-reviewed journals*) eingereicht worden sind. Hiermit bestätige ich, dass ich den für die Erst- als auch Drittautorenschaft notwendigen Beitrag an den drei Artikeln geleistet, die vorliegende Dissertation selbständig erstellt und dafür keine anderen Hilfsmittel und Quellen als die angegebenen benutzt habe. Die Dissertation wurde keiner anderen Universität in derselben oder ähnlichen Form vorgelegt.

Ort und Datum: _____

Yasemin Meral Ögütcü: _____

„Beherzt ist nicht, wer keine Angst kennt,

beherzt ist, wer die Angst kennt und sie überwindet.“

Khalil Gibran (1883 – 1931)

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Inhaltsverzeichnis

Abkürzungen

SFA	Selbstfokussierte Aufmerksamkeit
DSM-5	Diagnostisches und Statistisches Manual Psychischer Störungen, 5. Auflage
DSM-IV-TR	Diagnostisches und Statistisches Manual Psychischer Störungen, 4. Auflage Textrevision
ICD-10	Internationale Klassifikation psychischer Störungen: ICD-10
DIPS	Diagnostisches Interview für psychische Störungen
SPS	Social Phobia Scale
SIAS	Social Interaction Scale
SCS	Self-Construal Scale
HSÄ	Hoch sozial ängstlich
NSÄ	Niedrig sozial ängstlich
GLM	General Linear Models
WHO	World Health Organization/ Welt Gesundheitsorganisation

Zusammenfassung

Hintergrund: Nach dem kognitiven Modell von Clark und Wells (1995) ist die Selbstfokussierte Aufmerksamkeit (SFA) ein zentraler, aufrechterhaltender Faktor in der Sozialen Angststörung. Die Untersuchung der Zusammenhänge zwischen SFA und weiteren wichtigen Variablen, wie Selbstbild und Selbstkonzept, kann zu einem besseren Verständnis der Sozialen Angststörung.

Ziel: Studien untersuchten die Verwendung der SFA in der Sozialen Angststörung und ihre Assoziation mit einem negativen Selbstbild und dem Selbstkonzept.

Methode: (1) Mittels Eye-tracking wurde die SFA während einer sozialen Interaktion mit unterschiedlichen Phasen in einer nicht klinischen und in einer klinischen Stichprobe untersucht. (2) Der Einfluss von einem negativen Selbstbild auf die SFA wurde in hoch und niedrig sozial ängstlichen Personen geprüft. (3) Um die SFA bei hoch und niedrig sozialen ängstlichen Personen mit independentem und interdependentem Selbstkonzept zu erfassen, wurde ein Probe-Detection Paradigma eingesetzt.

Ergebnisse: (1) Die klinische Gruppe zeigte eine deutlich erhöhte SFA während der sozialen Interaktion als die Kontrollgruppe, wobei die SFA über die Phasen der Interaktion in beiden Stichproben variierte. (2) Ein Einfluss von einem negativen Selbstbild auf SFA oder auf die Soziale Angst wurde nicht gefunden. (3) Bei Personen mit interdependentem Selbstkonzept zeigten hoch sozial ängstliche Personen eine niedrigere SFA im Vergleich zu den niedrig sozial Ängstlichen und in umgekehrter Weise bei Personen mit independentem Selbstkonzept.

Diskussion: Die Ergebnisse unterstreichen die Wichtigkeit der SFA in der sozialen Angststörung. Die SFA scheint von den Anforderungen der sozialen Situation abhängig zu sein, wobei die Variabilität der SFA wichtig ist. Weiterhin ist die SFA nicht zwingenderweise von einem negativen Selbstbild, jedoch vom Selbstkonzept abhängig. Diese Ergebnisse bieten eine Basis für die Ergänzung des kognitiven Modells und für die Optimierung der Therapien.

Abstract in English

Background: According to the cognitive model of Clark and Wells (1995), self-focused attention (SFA) is a central maintaining factor in the social anxiety disorder. Investigations about SFA and its association with other important factors such as self-image and self-construal might lead to a better understanding of the social anxiety disorder.

Aim: Studies investigated the use of SFA in social anxiety disorder and its association with negative self-image and self-construal.

Methods: (1) Eye-tracking was used to investigate SFA during a social interaction with different phases in a non-clinical and in a clinical sample. (2) The influence of negative self-image on SFA was examined in high and low socially anxious individuals. (3) To test SFA in high and low socially anxious individuals with an independent and interdependent self-construal a Probe-Detection paradigm was used.

Results: (1) The clinical sample showed significant higher SFA during the social interaction compared to the control group, whereas SFA varied during the phases of the interaction in both samples. (2) No effect of self-image on SFA or social anxiety was found. (3) In individuals with an interdependent self-construal those who are high socially anxious showed decreased self-focused attention compared to those who are low socially anxious and the opposite direction in individuals with an independent self-construal.

Discussion: Results highlight the importance of SFA in the social anxiety disorder. SFA seems to depend on the demands of the social situation, whereas a variable use of SFA might be important in social anxiety. Increased SFA is not necessarily dependent on a negative self-image, but it depends on self-construal. These results provide a basis for an extension of the cognitive model and an optimization for treatment.

Einleitung

Viele Menschen kennen die Nervosität vor einem Vortrag oder das Unbehagen, wenn wir mit Autoritätspersonen sprechen oder in Kontakt mit unbekannten Personen kommen. Hierbei handelt es sich um eine Soziale Angst, die in sozialen Interaktions- oder Leistungssituation auftreten kann. Sind die Ängste in sozialen Situationen aber dermassen stark, so dass Einschränkungen und Beeinträchtigungen in beruflichen und sozialen Lebensbereichen oder ein hoher Leidensdruck entstehen, spricht man von einer Sozialen Angststörung (auch Soziale Phobie). Der psychopathologische Unterschied zwischen der Sozialen Angststörung und sozial ängstlichen Personen liegt bei der Erfüllung der Diagnosekriterien (American Psychiatric Association, 2015). Auch Personen ohne eine Soziale Angststörung können Soziale Ängste in sozialen Situationen empfinden ohne dabei eine Beeinträchtigt zu zeigen (Rapee & Spence, 2004).

Zur Entstehung und Aufrechterhaltung der Sozialen Angststörung wurden verschiedene Modelle aufgestellt (Clark & Wells, 1995; Hofmann, 2007; Rapee & Heimberg, 1997). Eines davon ist das kognitive Modell von Clark und Wells (1995) und wurde mehrfach empirisch untersucht. Nach dem kognitiven Modell spielt die Selbstfokussierte Aufmerksamkeit (SFA) eine zentrale, aufrechterhaltende Rolle. Hoch sozial ängstliche Personen richten in sozialen Situationen ihre Aufmerksamkeit nach innen, um ein Bild von sich selbst zu generieren und beginnen sich selbst intensiv zu beobachten. Fragebogenstudien konnten einen positiven Zusammenhang zwischen erhöhter SFA und Sozialer Angst zeigen (Bögels & Mansell, 2004; Morrison & Heimberg, 2013; Schultz & Heimberg, 2008; Spurr & Stopa, 2002). Ebenso haben experimentelle Studien versucht den Effekt von SFA auf die Soziale Angst zu untersuchen (vgl. Bögels & Lamers, 2002; George & Stopa, 2008; Woody & Rodriguez, 2000; Zou, Hudson, & Rapee, 2007). Die Mehrheit dieser Studien jedoch erfassen die SFA anhand von Fragebögen. Objektivere Methoden sind das Probe-Detection und das Eye-tracking Paradigma (Bögels & Mansell, 2004). Das klassische Probe-Detection

Paradigma ist computerbasiert und misst die Aufmerksamkeit anhand von Reaktionszeiten auf bestimmte, dargebotene Reize auf dem Bildschirm (zum Beispiel Bilder von emotionalen Gesichtern und neutralen Objekten). Eye-tracking ist eine direktere Methode zur Erfassung der Aufmerksamkeit (Bögels & Mansell, 2004). Der Eye-tracker zeichnet die genauen Augenbewegungen der Probanden auf, ohne dass eine bestimmte Antwort auf den dargebotenen Reiz gegeben werden muss. Aufmerksamkeit wird beispielsweise mittels Fixationszeit eines dargebotenen Reizes gemessen. Messungen der SFA durch Probe-Detection Paradigmen (vgl. Deiters, Stevens, Hermann, & Gerlach, 2013; Mansell, Clark, & Ehlers, 2003; Mills, Grant, Judah, & White, 2014) und Eye-tracking Untersuchungen (vgl. Buckner, Maner, & Schmidt, 2010; Schofield, Johnson, Inhoff, & Coles, 2012) sind zwar objektiver, scheinen aber die soziale Situation zu stören oder erfassen eher die Aufmerksamkeitstendenz. Eye-tracking könnte eine geeignete Methode sein, jedoch wurde sie noch in keiner Studie für die Erfassung der SFA verwendet.

Im Einklang mit dem kognitiven Modell von Clark und Wells (1995) bestätigen Studien, dass Personen mit einer Sozialen Angststörung von negativen Selbstbildern während sozialen Situationen berichten (vgl. Hackmann, Clark, & McManus, 2000). Diese negativen Selbstbilder aktivieren und erhöhen die SFA und tragen somit zur Aufrechterhaltung der Sozialen Angst und zu schlechterer sozialer Performanz bei (Clark & Wells, 1995). Der Zusammenhang zwischen einem negativen Selbstbild und erhöhter Sozialer Angst wurde mehrfach empirisch untersucht (vgl. Hirsch, Clark, Mathews, & Williams, 2003; Hirsch, Mathews, Clark, Williams, & Morrison, 2006; Hirsch, Meynen, & Clark, 2004). Der Zusammenhang zwischen einem negativen Selbstbild und erhöhter SFA jedoch ist bis anhing wenig erforscht. Ob Individuen mit einem negativen Selbstbild tatsächlich eine schlechtere soziale Performanz während sozialen Situationen leisten, ist nicht geklärt (Hirsch et al., 2003; Hirsch et al., 2004; Hirsch et al., 2006; Vassilopoulos, 2005), ebenso nicht, ob die soziale

Performanz von einer erhöhten SFA beeinflusst wird (McManus, Sacadura, & Clark, 2008; Voncken & Bogels, 2008; Woody & Rodriguez, 2000).

Des Weiteren sind deutliche kulturelle Unterschiede in der Sozialen Angststörung zu finden. Studien berichten, dass Personen aus kollektivistischen Ländern höhere Werte in der Sozialen Angst aufweisen als Personen aus individualistischen Ländern (vgl. Norasakkunkit & Kalick, 2002; Okazaki, 2000; Okazaki, Liu, Longworth, & Minn, 2002). Der kulturelle Kontext bestimmt, welches Verhalten in welcher sozialen Situation erwünscht oder nicht erwünscht ist. Ein Beispiel für eine kulturgebundene Angststörung ist *Taijin kyofusho* (TKS), welche vorwiegend in Japan und Korea auftritt und eine Form der Äusserung der Sozialen Angststörung darstellt (American Psychiatric Association, 2003, 2015). Hierbei handelt es sich um die Angst ein Verhalten zu zeigen, das *andere* verletzen oder beschämen könnte (anstatt sich selbst, wie es in der Sozialen Angststörung der Fall ist). In jeder Kultur gibt es interindividuelle Unterschiede, die vor allem durch Migration geprägt sind. Gemäss Bundesamt für Statistik haben 36% der schweizerischen Gesamtbevölkerung einen Migrationshintergund (2015). Umso wichtiger scheint es die Expression der Psychopathologie in verschiedenen Gruppen zu untersuchen und zu verstehen (Hsu & Alden, 2007). Um interindividuelle Unterschiede in der Kulturforschung zu untersuchen, wird das independente und interdependente Selbstkonzept nach Singelis (1994) benutzt, welches definiert, wie Individuen sich auf andere beziehen und wie sie sich selber von anderen als unterschiedlich betrachten. Studien zeigen einen positiven Zusammenhang zwischen interdependentem Selbstkonzept und der Sozialen Angst (vgl. Dinnel, Kleinknecht, & Tanaka-Matsumi, 2002; Essau et al., 2011; Vriends, Pfaltz, Novianti, & Hadiyono, 2013), sowie eine positive Assoziation zwischen TKS und interdependentem Selbstkonzept (Vriends et al., 2013). Da es sich bei TKS um eine Angst handelt andere zu verletzen oder zu blamieren, wird angenommen, dass die Aufmerksamkeit in einer sozialen Situation nicht dem herkömmlichen Prozess der Aufrechterhaltung der Sozialer Angst entspricht. Demnach würde die SFA

während sozialen Situationen extern liegen, um mögliche Zeichen für ein unerwünschtes Verhalten zu erkennen. Der Zusammenhang zwischen SFA und dem Selbstkonzept wurde jedoch bislang nicht untersucht.

Ziele und Fragestellungen

Die vorliegende Dissertation basiert auf drei Artikel, welche die Verwendung der SFA in der Sozialen Angststörung und ihre Assoziation mit einem negativen Selbstbild und dem Selbstkonzept untersuchen.

Artikel 1 (*Eye-tracking SFA*) befasst sich mit dem Zusammenhang zwischen SFA und Sozialer Angststörung und einer objektiven Erhebung der SFA mittels Eye-tracking während einer sozialen Interaktion in zwei unterschiedlichen Stichproben – nämlich einer nicht-klinischen (hoch und niedrig sozial ängstliche Personen) und einer klinischen Stichprobe (Personen mit einer Sozialen Angststörung und Kontrollpersonen). Artikel 2 (*SFA und Selbstbild*) befasst sich mit dem Effekt von einem negativen Selbstbild auf die SFA, welches bis anhin kaum untersucht wurde, sowie deren Effekt auf die Soziale Angst und die soziale Performanz während einer sozialen Interaktion. Basierend auf der aktuellen Literatur untersucht Artikel 3 (*SFA und Selbstkonzept*) den Zusammenhang zwischen SFA und dem interdependenten beziehungsweise independenten Selbstkonzept. Die Studie erforscht nicht per se kulturelle Unterschiede, sondern die SFA bei Personen mit unterschiedlicher kultureller Herkunft.

In Anlehnung auf die aktuelle Forschung und auf die drei Artikel wurden folgende Fragestellungen für diese Thesis gestellt:

- *Eye-tracking SFA:* Zeigen die hoch sozial ängstliche (HSÄ) Gruppe (Experiment 1) und die klinische Gruppe mit einer Sozialen Angststörung (Experiment 2) eine erhöhte SFA, gemessen mit Eye-tracking, während einer sozialen Interaktion im Vergleich zu

den Kontrollgruppen? Spielt dabei der Inhalt der Interaktion eine Rolle, so dass gemäss dem kognitiven Modell von Clark und Wells (1995) SFA steigt, wenn die Probandinnen sich kritisiert oder negativ beurteilt fühlen?

- *SFA und Selbstbild:* Erhöht ein negatives Selbstbild tatsächlich die SFA während einer sozialen Interaktion und trägt es somit durch die SFA zur Steigerung der Sozialen Angst und einer schlechteren Bewertung der sozialen Performanz bei?
- *SFA und Selbstkonzept*: Ist die SFA vom Selbstkonzept abhängig? Sind demnach sozial ängstliche Personen mit einem interdependenten Selbstkonzept weniger selbstfokussiert als diejenigen mit einem independenten Selbstkonzept?
- *Allgemeine Fragestellung 1:* Ist die SFA variabel und situationsabhängig?
- *Allgemeine Fragestellung 2:* Sollte das kognitive Modell von Clark und Wells (1995) durch das Selbstkonzept ergänzt werden?

Die Relevanz dieser Dissertation liegt darin, dass die vorgestellten Artikel zu einem besseren Verständnis der Sozialen Angststörung führen. Durch die Ergebnisse unserer Studien können Implikationen für i) eine objektive Messung der SFA, ii) für die Erweiterung des kognitiven Modells von Clark und Wells (1995) durch eine variable SFA und das Selbstkonzept und iii) für die Optimierung und die kulturspezifische Anpassung der Behandlungen geben.

Vorgehensweise

Um die oben genannten Fragestellungen zu beantworten, wurde folgenderweise vorgegangen:

- *Eye-tracking SFA:* Die SFA wurde anhand von einem Eye-tracker während einer sozialen Interaktion (Videogespräch über Computer mit einem gegengeschlechtlichen Partner) mit unterschiedlichem Stress-level bei hoch sozial-ängstlichen (HSÄ) und niedrig sozial-ängstlichen (NSÄ) Personen (Experiment 1) und in einer klinischen Stichprobe mit einer Sozialer Angststörung und in einer Kontrollgruppe (Experiment 2) erhoben. Die Eye-

tracking Methode sollte als eine objektive Messung der SFA dienen und deren Zusammenhang mit der Sozialer Angststörung untersuchen.

- *SFA und Selbstbild:* Bei hoch sozial ängstlichen (HSÄ) und niedrig sozial ängstlichen (NSÄ) Personen wurde ein negatives oder ein positives Selbstbild aktiviert, bevor sie ein Videogespräch mit einem gegengeschlechtlichen Partner hatten. Der Zusammenhang von Sozialer Angst und Selbstbild und deren Effekt auf die SFA und auf die soziale Performanz wurde untersucht.
- *SFA und Selbstkonzept:* Der Zusammenhang zwischen SFA und Selbstkonzept wurde in hoch (HSÄ) und niedrig sozial ängstlichen (NSÄ) Personen mit interdependentem oder independentem Selbstkonzept untersucht. Zur Erfassung von SFA wurde ein Probe-Detection Paradigma durchgeführt.

Aufbau der Dissertation

Die Einleitung gab einen Überblick über die Ziele und den Umfang der Forschung zum Themengebiet der vorliegenden Dissertation. Das anknüpfende Kapitel „Theoretische Grundlagen“ informiert über die Klassifikation der Sozialen Angststörung und deren Prävalenz, sowie über die empirische Evidenz der aktuellen Literatur in Bezug auf die SFA, das Selbstbild und das Selbstkonzept. Anknüpfend wird der Methodenteil die Vorgehensweise bei der Datengewinnung und der Datenanalyse erläutern. Die Hauptergebnisse in Bezug auf die Fragestellungen werden im Kapitel „Resultate und Hauptschlussfolgerungen“ aufgeführt und anschliessend im Kapitel „Diskussion“ diskutiert. Abschliessend werden Implikationen für die Methodik, das kognitive Modell und die Behandlung gegeben, sowie Stärken und Schwächen der Studien aufgezeigt und einen Ausblick zur künftigen Forschung vorgeschlagen.

Theoretische Grundlagen

Die Klassifikation der Sozialen Angststörung

Die Diagnose der Sozialen Angststörung wird in der Regel auf der Grundlage des *Diagnostischen und Statistischen Manuals Psychischer Störungen* (DSM-IV-TR beziehungsweise DSM-5) der American Psychiatric Association (2003, 2015) und/oder auf der Grundlage der Klinisch-Diagnostischen Leitlinien (ICD-10) der Weltgesundheits-organisation (WHO; 2006) gegeben. Die Soziale Angststörung zeichnet sich durch eine ausgeprägte und anhaltende Angst vor einer oder mehreren sozialen oder Leistungssituationen, bei denen die Person mit unbekannten Personen konfrontiert ist oder von anderen Personen beurteilt werden könnte (Kriterium A, DSM-5). Die Störung wurde im DSM-IV noch als Soziale Phobie bezeichnet und im DSM-5 in Soziale Angststörung unbenannt. Diese Namensänderung bietet ein neues und breiteres Verständnis der Störung in einer Vielzahl von sozialen Situationen. In der Vergangenheit wurde die Diagnose einer Sozialen Phobie in erster Linie dann gegeben, wenn eine Person extreme Beschwerden oder Angst empfand, wenn sie mit anderen Personen konfrontiert war. Die Forschung hat jedoch gezeigt, dass diese Definition zu eng ist und dass die Soziale Angst in einer Vielzahl von sozialen Situationen auftreten kann. Weiterhin ist die Zeitspanne von typischerweise sechs Monaten oder länger für die Dauer der Störung nun für alle Altersgruppen erforderlich. Anders als im DSM-IV verlangt das DSM-5 nicht mehr, dass das Individuum seine übertriebene oder unvernünftige Reaktion erkennen muss. Eine grössere Veränderung innerhalb der Diagnostik stellt die Ersetzung des Spezifikationsmerkmals „*generalisiert*“ durch „*nur Performanz*“ (Angst ist auf das Sprechen oder das Vorstellen vor einem Publikum begrenzt) dar. Das Spezifikationsmerkmal „*generalisiert*“ umfasste „die Angst vor den meisten sozialen Situationen“ und war schwierig zu operationalisieren. Individuen, die nur Leistungssituationen fürchten, scheinen jedoch eine deutliche Untergruppe der Sozialen

Angststörung im Bezug auf die Ätiologie, das Alter bei Beginn, die Physiologie und auf das Ansprechen einer Behandlung darzustellen (American Psychiatric Association, 2013).

Die Prävalenz

Epidemiologischen Studien zufolge ist die Soziale Angststörung eine der häufigsten Angststörungen (Fehm, Pelissolo, Furmark, & Wittchen, 2005; Ruscio et al., 2008; Wittchen & Fehm, 2003) mit einer Lebenszeitprävalenz zwischen 2.4% - 12.1% (Alonso et al., 2004; Fehm et al., 2005; Kessler, Demler, et al., 2005; Kessler, Petukhova, Sampson, Zaslavsky, & Wittchen, 2012; McEvoy, Grove, & Slade, 2011; Ruscio et al., 2008; Wittchen et al., 2011) und einer 12-Monateprävalenz zwischen 1.2%-7.1% für westliche Kulturen wie Europa, USA und Australien (Acarturk, de Graaf, van Straten, Have, & Cuijpers, 2008; Alonso et al., 2004; Fehm, Beesdo, Jacobi, & Fiedler, 2008; Fehm et al., 2005; Grant et al., 2005; Kessler, Chiu, Demler, Merikangas, & Walters, 2005; Kessler et al., 2012; McEvoy et al., 2011; Ruscio et al., 2008). Bezüglich Prävalenzdaten sind eindeutige kulturelle Unterschiede zu finden. Ostasiatische Staaten berichten von deutlich niedrigeren 12-Monate Prävalenzdaten, zwischen 0.2% - 0.8% (Cho et al., 2007; Kawakami et al., 2005; Shen et al., 2006). Frauen sind häufiger von einer Sozialen Angststörung betroffen als Männer (McLean, Asnaani, Litz, & Hofmann, 2011; Quilty, Van Ameringen, Mancini, Oakman, & Farvolden, 2003; Wittchen, Stein, & Kessler, 1999; Xu et al., 2012). Typischerweise tritt die Soziale Angststörung erstmals in der Adoleszenz auf (Fehm et al., 2008; Kessler, Berglund, et al., 2005; McEvoy et al., 2011; McLean et al., 2011) und in Komorbidität mit anderen psychischen Störungen wie anderen Angststörungen, Affektiven Störungen und substanzbezogenen Störungen (Fehm et al., 2008; Fehm & Wittchen, 2004; McEvoy et al., 2011; Ruscio et al., 2008; Wittchen et al., 1999). Weiterhin ist die Soziale Angststörung mit einer deutlich reduzierten Lebensqualität in sozialen, beruflichen und schulischen Bereichen assoziiert (Aderka et al., 2012; Eng, Coles, Heimberg, & Safren, 2005; Quilty et al., 2003; Ruscio et al., 2008).

Somit ist die Soziale Angststörung hoch prävalent, lebensbeeinträchtigend und sollte eingehender erforscht werden.

Das Kognitive Modell von Clark und Wells (1995)

Das theoretische Modell von Clark und Wells (1995) umfasst eine Erklärung zur Aufrechterhaltung der Sozialen Angststörung auf kognitiver Grundlage und ist bislang das umfassendste und meist untersuchte Modell. Clark und Wells postulieren, dass mehrere kognitive Prozesse bei der Aufrechterhaltung der Sozialen Angststörung involviert sind (Abbildung 1).

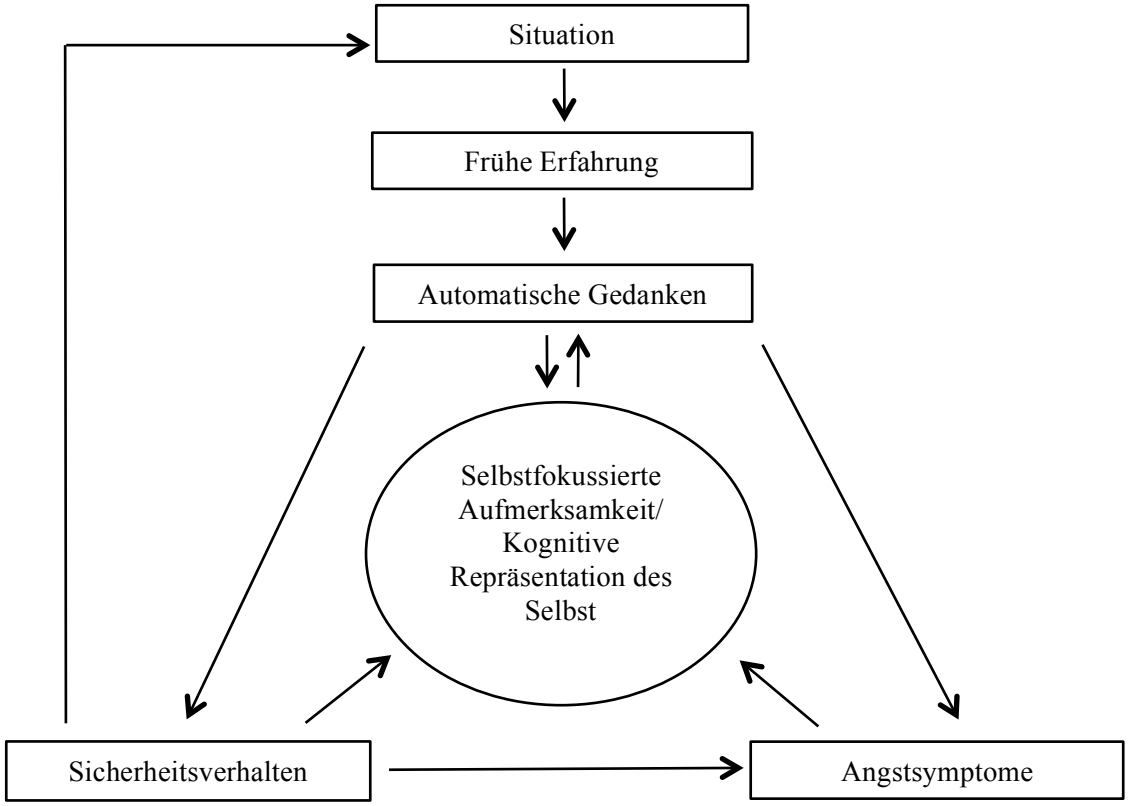

Abbildung 1. Das kognitive Modell von Clark und Wells (1995).

Betritt eine Person mit einer Sozialer Angststörung eine gefürchtete soziale Situation, so wird eine Reihe von Gedanken über die eigene Person aktiviert, welche auf frühere negative Erfahrungen basieren. Diese Gedanken sind automatisch und meist negativ („Ich bin uninteressant.“) oder beinhalten hohe unrealistische Leistungserwartungen an die eigene

Person („Ich muss immer etwas Kluges sagen."). Als Folge wächst das Gefühl der Bedrohung der sozialen Situation. Einerseits lösen diese Gedanken körperliche Angstsymptome aus, wobei die betroffene Person sich intensiv mit den körperlichen Empfindungen auseinandersetzt. Andererseits kommt es zu einer Aufmerksamkeitslenkung auf die eigene Person, welche als *Selbstfokussierte Aufmerksamkeit* bezeichnet wird. Um ein Bild von sich selbst zu konstruieren, wie andere die eigene Person sehen, werden interne Informationen herangezogen, die meist negativ verzerrt sind. Interne Informationen beinhalten Angstsymptome in Form von Gefühlen, Gedanken oder Körperempfindungen, wobei die betroffene Person annimmt, dass diese Angstsymptome auch von aussen sichtbar sind („Man wird mir anmerken, dass ich mich ängstlich fühle."). Weiterhin berichten Betroffene, dass während der sozialen Situation spontan negative Bilder bezüglich der eigenen Person auftreten, sogenannte *negative Selbstbilder*, in denen sie sich wie aus einer Beobachterperspektive sehen (Hackmann et al., 2000; Hackmann, Surawy, & Clark, 1998). Diese kognitive Repräsentation des Selbst ist entsprechend den negativen Erwartungen verzerrt. Somit sind Betroffene in einer sozialen Situation fortlaufend damit beschäftigt, Anzeichen für ein mögliches Versagen oder Peinlichkeiten zu suchen. SFA hat zur Folge, dass kognitive Ressourcen vermindert werden. Das bedeutet, die Aufmerksamkeit auf die externe Umwelt ist reduziert und Betroffene haben somit keine Möglichkeit negative Erwartungen oder Ängste durch objektive Informationen zu wiederlegen. Um die Angst in sozialen Situationen zu reduzieren, zeigen Betroffene *Sicherheitsverhalten*. Nach Clark und Wells (1995) sind Sicherheitsverhalten ein weiterer Bestandteil für die Aufrechterhaltung der Sozialen Angststörung und interagieren mit SFA. Sicherheitsverhalten sind als Strategien zu verstehen, die zum Ziel haben die Angst in sozialen Situationen zu reduzieren oder negative Beurteilung durch andere zu verhindern, zum Beispiel durch eine übermässige Vorbereitung auf eine Situation, Vermeidung von Augenkontakt oder Versuche, die Symptome zu verstecken (sich wegdrehen bei Angst vor Zittern). Jedoch erhöhen Sicherheitsverhalten die

SFA und verstärken Angstsymptome. Zudem können Sicherheitsverhalten die Betroffenen unsicher und unfreundlich wirken lassen, weshalb ihre sozialen Fähigkeiten als eingeschränkt betrachtet werden können. Durch die reduzierte Aufmerksamkeitskapazität auf die Umwelt kann es bei Personen mit einer Sozialen Angststörung tatsächlich zu einer Einschränkung der sozialen Performanz kommen. Nebst den dargestellten Komponenten des Modells sprechen Clark und Wells von einer *antizipatorischen* und *einer nachträglichen Verarbeitung* der sozialen Situation (1995), auf diese wird aber aus Relevanz Gründen nicht näher eingegangen

Für diese Arbeit relevante aufrechterhaltende Faktoren sind die SFA und das negative Selbstbild, beide werden im Folgenden mit Hilfe empirischer Befunde näher erläutert.

Selbstfokussierte Aufmerksamkeit

Gemäss Definition von Ingram (1990, p. 156) ist die SFA: *„ein Bewusstsein von selbstbezogenen, intern erzeugten Informationen, welche in Kontrast zum Bewusstsein von extern erzeugten Informationen stehen, abgeleitet durch Sinnesrezeptoren*".

Der Zusammenhang zwischen SFA und der Sozialen Angst beziehungsweise der Sozialen Angststörung wurde mehrfach empirisch untersucht (Bögels & Mansell, 2004; Morrison & Heimberg, 2013; Schultz & Heimberg, 2008; Spurr & Stopa, 2002). Fragebogenstudien zeigten, dass sowohl Probanden mit einer Sozialen Angststörung wie auch nicht klinische, hoch sozial ängstliche Gruppen (hoch sozial ängstliche, scheue, prüfungsängstliche Probanden) eine erhöhte SFA in sozialen Situationen berichteten als Kontrollgruppen (Alden & Mellings, 2004; Gaydukevych & Kocovski, 2012; Hackmann et al., 1998; Kashdan & Roberts, 2004; Mellings & Alden, 2000; Perowne & Mansell, 2002; Voncken, Dijk, de Jong, & Roelofs, 2010; Woody & Rodriguez, 2000). Nur die Studie von Stopa und Clark (1993) konnte keinen Zusammenhang finden. Ein Grund für die fehlende Assoziation könnte die Erhebung der SFA durch Erinnerungsaufgaben sein. Nach Annahme

der Autoren würde eine erhöhte SFA die kognitiven Ressourcen einschränken und somit zu Erinnerungsdefiziten an die Umwelt führen. Weitere Studien versuchten den Zusammenhang zwischen SFA und Sozialer Angst experimentell aufzuzeigen, in dem sie die SFA manipuliert und deren Effekt auf Soziale Angst untersucht haben. Verschiedene Techniken wurden zur Manipulation angewendet, wie etwa Anweisung zur Selbstfokussierung (vgl. Woody, 1996; Zou et al., 2007), Gebrauch von Spiegeln (vgl. Bögels, Rijsemus, & De Jong, 2002), Videokameras (vgl. Burgio, Merluzzi, & Pryor, 1986; George & Stopa, 2008) oder die Anwesenheit eines Publikums (vgl. Woody & Rodriguez, 2000), typischerweise während einer Interaktionssituation (Gespräch) oder einer Leistungssituation (Rede). Die SFA wurde dabei anhand von Fragebögen erhoben (Self-focused Attention Scale: Bögels, Alberts, & de Jong, 1996; Focus of Attention Questionnaire: Woody, 1996). Mehrere Studien konnten einen positiven Zusammenhang zwischen erhöhter SFA und Sozialer Angst bestätigen (Alden, Teschuk, & Tee, 1992; Bögels & Lamers, 2002; Burgio et al., 1986; George & Stopa, 2008; Voncken et al., 2010; Woody, 1996; Woody & Rodriguez, 2000; Zou et al., 2007). Andere Studien wiederum konnten gar keinen Effekt von SFA auf Soziale Angst finden (Bögels et al., 2002). Bögels und Kollegen argumentierten, dass die Verwendung eines Spiegels zur Manipulation von SFA womöglich eine korrigierende Rolle gespielt haben könnte. Die Probanden hatten objektive Informationen über ihr Aussehen und Verhalten und konnten somit ihre Wahrnehmung des Selbst objektiv überprüfen (zum Beispiel tatsächliches Erröten).

Bögels und Lamers (2002) postulieren einem kausalen Zusammenhang zwischen SFA und Sozialer Angst. In drei unterschiedlichen Gruppen (errötungs-ängstliche, sozial ängstliche Personen und Patienten mit Sozialer Angststörung) zeigten ihre Ergebnisse, dass die Soziale Angst durch SFA erzeugt wurde, auch bei Kontrollpersonen. Ebenfalls konnten Woody und Rodriguez (2000) zeigen, dass eine erhöhte SFA bei Patienten mit einer Sozialen Angststörung und in der Kontrollgruppe während einem Gespräch vor einem Publikum die

Soziale Angst intensivierte und die soziale Performanz beeinträchtigte. Bei beiden Studien jedoch ist die ökologische Validität in Bezug auf die soziale Situation eingeschränkt (starke Abweichung von alltäglichen sozialen Situationen). Interessanterweise argumentierten beide Studien, dass SFA nicht spezifisch für hoch sozial ängstliche Personen oder für Patienten mit einer Sozialen Angststörung sei. Auch Kontrollprobanden zeigten eine erhöhte Soziale Angst, wenn sie in einer SFA Bedingung waren (Bögels & Lamers, 2002; Woody & Rodriguez, 2000). Im Gegensatz dazu berichteten Zou und Kollegen (2007), dass hoch sozial ängstliche Individuen eine deutlich höhere Soziale Angst in der selbstfokussierten Bedingung (ein 5 minütiges Gespräch mit Aufforderung zur Selbstfokussierung) als in der aufgabenfokussierten Bedingung (Aufforderung zur Aufgabenfokussierung während dem Gespräch) zeigten. Für die niedrig sozial Ängstlichen wurde kein signifikanter Unterschied zwischen den beiden Konditionen gefunden. Ein Vorteil dieser Studie war es, dass die gewählte soziale Situation mehr einer Alltagssituation entsprach.

Weiterhin wurden einige modifizierte Probe-Detection Studien durchgeführt, die eine objektivere Messung der Aufmerksamkeit zum Ziel hatten. Ergebnisse von Probe-Detection Paradigmen zeigen, dass sozial ängstliche Personen stärker dazu tendierten, ihre Aufmerksamkeit auf innere Reize (z.B. auf körperliche Reaktionen, wie Herzrasen) als auf externe Reize (z.B. auf Bilder von neutralen Objekten oder emotionalen Gesichtern) zu lenken, wenn sie mit einer gefürchteten Situation konfrontiert waren (Deiters et al., 2013; Mansell et al., 2003; Mills et al., 2014; Pineles & Mineka, 2005). Eye-tracking wurde ebenfalls als Methode eingesetzt, um Aufmerksamkeitstendenzen zu erheben (Wieser, Pauli, Weyers, Alpers, & Muhlberger, 2009). Gamble und Rapee (2010), ebenso Garner, Mogg und Bradley (2006), untersuchten die Aufmerksamkeit auf bedrohliche emotionale Gesichter und konnten zeigen, dass sozial ängstliche Personen gegenüber bedrohlichen Signalen besonders wachsam waren und auf diese schnell reagierten. Weitere Eye-tracking Studien wiederum

konnten aufzeigen, dass sozial ängstliche Personen Schwierigkeiten hatten, sich von bedrohlichen Signalen abzuwenden (Buckner et al., 2010; Schofield et al., 2012).

Zusammengefasst indizieren Studien, dass die Ergebnisse stark von den verwendeten Methoden abhängen. Eine Erklärung dafür bietet die Schwierigkeit, SFA *während* einer sozialen Situation direkt zu erfassen. Fragebogenstudien sind subjektiv und können retrospektiv verzerrt sein. Weiterhin könnte es für Personen schwierig sein sich der Aufmerksamkeitsfokussierung während einer sozialen Situation bewusst zu werden und diese danach explizit zu berichten. Probe-Detection Messung sind zwar objektiver, stören aber womöglich die soziale Aufgabe und erheben die SFA auf indirekter Weise durch Reaktionszeiten. Eye-tracking scheint geeignet zur Messung von Aufmerksamkeitsprozessen zu sein, jedoch wurde die Eye-tracking Methode noch in keiner Studie zur Erhebung von SFA verwendet.

Negatives Selbstbild

Personen mit einer Sozialen Angststörung berichten häufig von einem spontanen, negativen Selbstbild in sozialen Situationen, wobei sie sich wie aus einer Beobachterperspektive heraus sehen (Hackmann et al., 2000; Hackmann et al., 1998; Wells, Clark, & Ahmad, 1998; Wells & Papageorgiou, 1999). Das kognitive Modell von Clark und Wells (1995) postuliert, dass ein negatives Selbstbild ebenfalls einen aufrechterhaltenden Faktor in der Sozialen Angststörung darstellt, in dem es die SFA aktiviert. Um die Assoziation zwischen einem negativen Selbstbild und der sozialen Angststörung zu untersuchen, haben Hirsch und Kollegen (2003; 2006; 2004) mehrere Studien durchgeführt, in denen sie das Selbstbild negativ versus positiv manipuliert haben. Ein negatives Selbstbild wurde mit erhöhter Sozialer Angst während einem Gespräch mit einem Fremden assoziiert, sowohl bei hoch sozial ängstlichen Personen (Hirsch et al., 2004) als auch bei Patienten mit einer Sozialer Angststörung (Hirsch et al., 2003). Dieser Zusammenhang konnte auch in einer anderen sozialen Situation – Halten einer

Rede vor Kamera – bei hoch sozial ängstlichen Personen repliziert werden (Vassilopoulos, 2005). Weiterhin konnten Hirsch und Kollegen (2006) zeigen, dass sogar selbstbewusste Sprecher eine erhöhte Angst berichteten, wenn sie aufgefordert wurden ein negatives Selbstbild in Gedanken zu halten. Hirsch und Kollegen (2003; 2006) sprechen von einem kausalen Zusammenhang zwischen negativem Selbstbild und erhöhter Sozialer Angst in sozialen Situationen. Weiterhin wurde ein negatives Selbstbild mit der Unterschätzung der eigenen sozialen Performanz (Hirsch et al., 2003; Hirsch et al., 2006; Hirsch et al., 2004; Makkar & Grisham, 2011; Vassilopoulos, 2005) in Verbindung gebracht. Ob Personen mit einem negativen Selbstbild tatsächlich eine schlechtere soziale Performanz leisten, ist nicht geklärt. In einigen Studien wurden Gruppenunterschiede gefunden (Hirsch et al., 2003; Hirsch et al., 2004), in anderen wiederum nicht (Hirsch et al., 2006; Vassilopoulos, 2005).

Im Einklang mit der Literatur scheint ein negatives Selbstbild in der Aufrechterhaltung der Sozialen Angst eine bedeutende Rolle zu spielen. Wie andere wichtige Faktoren des kognitiven Modells mit dem Selbstbild zusammenhängen, ist weniger klar. Makkar und Grisham (2011) sind bislang die Einzigen, die das Selbstbild und die SFA in demselben Paradigma untersucht haben. Hoch und niedrig sozial ängstliche Personen mit einem negativen beziehungsweise neutralen Selbstbild, hielten eine Rede vor einer Kamera. Die Ergebnisse zeigten, dass hoch sozial ängstliche Personen mit einem negativen Selbstbild eine erhöhte SFA berichteten, sich ängstlicher fühlten und ihre soziale Performanz schlechter einschätzten als hoch sozial ängstliche Personen mit einem neutralen Selbstbild. Weiterhin wird vorgeschlagen, dass eine erhöhte SFA zu einer schlechteren sozialen Performanz führt (Clark, 2001). Einige Studien unterstützen diese Annahme (vgl. McManus et al., 2008), andere wiederum nicht (vgl. Voncken et al., 2010; Woody & Rodriguez, 2000).

Trotz der Erkenntnisse von Clark und Wells (1995), nach welchen ein negatives Selbstbild die SFA aktiviert und somit zur Aufrechterhaltung der Sozialen Angststörung und

schlechterer sozialen Performanz führt, reichen die Forschungsergebnisse nicht aus um einen empirischen Zusammenhang zwischen SFA und negativem Selbstbild nachzuweisen.

Kulturelle Unterschiede in der Sozialen Angststörung

Ein Kriterium der Sozialen Angststörung ist die Befürchtung einer negativen Beurteilung durch andere. Diesbezüglich ist die Soziale Angststörung direkt mit sozialen Rollenerwartungen und sozialen Standards verbunden, welche kulturell abhängig sind (Hofmann, Anu Asnaani, & Hinton, 2010). Die Wahrnehmung körperlicher Symptome und entsprechende Attribution dieser, ist eng mit kulturspezifischen Störungen verbunden (Hofmann & Hinton, 2014; Lewis-Fernandez et al., 2010). Ein Beispiel ist das bereits in der Einleitung dargestellte *Taijin kyofusho* (TKS). Mittlerweile zeigen Studien, dass TKS Symptome auch in anderen Kulturen vorkommen, beispielsweise in den Vereinigten Staaten (Choy, Schneier, Heimberg, Oh, & Liebowitz, 2008), in Australien (Kim, Rapee, & Gaston, 2008) und in Indonesien (Vriends et al., 2013). In diesem Sinne stellt das TKS zwar eine kulturspezifische Angststörung dar, wobei kontextuelle Faktoren zu überwiegen scheinen. In diesem Zusammenhang spielen weitere kulturelle Faktoren eine Rolle bei der Sozialen Angststörung, wie zum Beispiel der kulturelle Kontext, die sozialen Normen, mit welchen die Person konfrontiert ist (Hofmann et al., 2010) sowie die Art und Weise, wie sich Personen wahrnehmen und ihr Selbst konstruieren (Vriends et al., 2013). Zwei Konzepte haben einen wichtigen Platz in der interkulturellen Literatur gefunden. Die Konzepte Individualismus/ Kollektivismus und das Selbstkonzept werden im Folgenden ausführlicher erläutert.

Individualismus und Kollektivismus

Hofstedes Konzept des Individualismus/ Kollektivismus (Hofstede, 1984, 2001) besagt, dass in kollektivistischen Kulturen die Harmonie in der Gruppe die höchste Priorität ist. Die Gruppe als Gesamtheit steht im Vordergrund, wobei die Leistung des einzelnen Individuums

und seine Selbstverwirklichung weniger bedeutsam sind. Zu den kollektivistischen Kulturen gehören die asiatischen und arabischen Länder, sowie Länder in Südamerika und Afrika (Hofstede, 1984; Singelis, 1994). In individualistischen Kulturen hingegen werden individuelle Erfolge und individuelle Leistungen geschätzt. Zu den individualistischen Kulturen gehören die Vereinigten Staaten, Europa, Kanada, Australien und Neuseeland (Hofstede, 1984; Singelis, 1994). Heinrichs und Kollegen (2006) konnten in ihrer Studie zeigen, dass Individuen aus kollektivistischen Kulturen sozial ängstlicher waren als Individuen aus individualistischen Ländern. Diese Ergebnisse wurden durch weitere Studien bekräftigt (Essau, Sasagawa, Chen, & Sakano, 2012; Heinrichs et al., 2006; Hong & Woody, 2007). In kollektivistischen Kulturen ist es besonders wichtig sich entsprechend den geltenden sozialen Normen zu verhalten (Suh, Diener, Oishi, & Triandis, 1998). Ein unangebrachtes Verhalten hat grössere Sanktionen zur Folge, wie zum Beispiel Ausschluss aus einer Gruppe (Heinrichs et al., 2006). Die Schwere der Folgen könnte eine Erklärung dafür bieten, warum in kollektivistischen Ländern die Soziale Angst häufiger berichtet wird.

Interdependentes und independentes Selbstkonzept

Das Selbstkonzept ist als eine Konstellation von Gefühlen, Gedanken und Handlungen zu verstehen hinsichtlich *„wie Individuen die Beziehung zwischen dem Selbst und den anderen wahrnehmen, insbesondere in welchem Ausmass sich Individuen von anderen separiert oder mit anderen verbunden betrachten* (Markus & Kitayama, 1991, p. 226). Individuen mit einem interdependenten Selbstkonzept sehen sich verbunden und integriert mit anderen in der sozialen Gruppe. Sie nehmen sich als eine Erweiterung ihrer sozialen Gruppe war und bemühen sich die Harmonie in zwischenmenschlichen Beziehungen aufrechtzuerhalten (Hofmann & Hinton, 2014; Singelis, 1994). Demnach tritt ein interdependentes Selbstkonzept eher in östlichen, kollektivistischen Kulturen auf. Das independente Selbstkonzept hingegen ist charakterisiert durch die Tendenz sich als autonom und vom sozialen Kontext separiert zu

betrachten. Personen mit einem independentem Selbstkonzept setzen den Schwerpunkt auf die Einzigartigkeit, auf eigene Fähigkeiten und auf eigene Ziele (Hofmann & Hinton, 2014; Singelis, 1994). Das independente Selbstkonzept tritt vermehrt in westlichen, individualistischen Kulturen auf. Markus und Kitayama (1991) postulieren, dass diese zwei Selbstkonzepte zwar Bespiele für kollektivistische und individualistische Kulturen sind, jedoch können Individuen aus allen Kulturen beide Selbstkonzepte aufzeigen. Vor allem durch Migration ist in vielen Ländern eine kulturelle Vielfalt anzutreffen. Singelis und Sharkey (1995) argumentieren, dass es sinnvoller ist, die interdependenten und independenten Selbstkonzepte in interkulturellen Untersuchungen zu verwenden anstatt von Individualismus und Kollektivismus zu sprechen, um interindividuellen Differenzen gerecht zu werden. Mehrere Studien haben den Zusammenhang zwischen Selbstkonzept und selbstberichteter Sozialer Angst in verschiedenen Populationen untersucht. Ein independentes Selbstkonzept korreliert durchwegs negativ mit Sozialer Angst (Dinnel et al., 2002; Essau et al., 2011; Moscovitch, Hofmann, & Litz, 2005; Norasakkunkit & Kalick, 2002; Okazaki, 1997, 2000; Vriends et al., 2013). Einige Studien fanden einen positiven Zusammenhang zwischen interdependentem Selbstkonzept und Sozialer Angst, wobei dieser deutlich unklarer und schwächer ist (Dinnel et al., 2002; Norasakkunkit & Kalick, 2002; Okazaki, 1997, 2000).

Zusammengefasst beeinflussen kulturelle Variablen die Soziale Angst stark. Je nach Kultur sind Wahrnehmung und Expression der Sozialen Angst unterschiedlich (Kleinknecht, Dinnel, Kleinknecht, & Hiruma, 1997). Diesbezüglich wird vermehrt davon ausgegangen, dass kulturelle Variablen in das Modell der Sozialen Angststörung eingebunden werden sollten (Dinnel et al., 2002; Heinrichs et al., 2006; Hong & Woody, 2007; Vriends et al., 2013). Die Ergebnisse der Studie von Norasakkunkit, Kitayama und Uchida (2012) beispielsweise zeigten, dass Personen mit einem independentem Selbstkonzept mehr zu selbstfokussierten Komponenten der Sozialen Angst tendierten (Symptome der Sozialen

Angststörung), während Personen mit einem interdependentem Selbstkonzept mehr zu andersfokussierten Komponenten der Sozialen Angst neigten (Symptome der TKS). Der Prozess der Aufrechterhaltung der Sozialen Angststörung nach dem Modell von Clark und Wells (1995), wie es für westliche Kulturen beschrieben wird, geschieht womöglich nicht durch den gleichen Prozess. Denn nach dem Modell ist eine erhöhte SFA ein aufrechterhaltender Faktor. Bei Personen mit einem kollektivistischen Hintergrund jedoch liegt die Aufmerksamkeit womöglich eher auf ihrer Umwelt. Die Assoziation zwischen dem Selbstkonzept und der SFA ist jedoch noch unklar. In diesem Zusammenhang könnte eine Erweiterung des kognitiven Modells mit kulturellen Variablen, wie dem Selbstkonzept, eine klinische Relevanz tragen, so dass Patienten mit verschiedenem kulturellen Hintergrund von optimierten Therapien profitieren können.

Methoden

Im folgenden Methodenabschnitt werden die Stichproben, die Studiendurchführung und die wesentlichsten Messinstrumente der drei Artikel vorgestellt. Eine detaillierte Methodenbeschreibung der jeweiligen Artikel ist im Anhang A bis C zu finden.

Eye-tracking SFA

Experiment 1: Das Eye-tracking Paradigma wurde zunächst in einer Pilotstudie durchgeführt, in dem HSÄ (*N*=25) und NSÄ (*N*=26) weibliche Probanden im Alter von 18-30 Jahren teilnahmen. Die Probandinnen wurden anhand von online Ausschreibungen auf der Universitätshomepage rekrutiert. Zunächst füllten sie den *Social Phobia Scale* (SPS: Mattick & Clarke, 1998; deutsche Version: Stangier, Heidenreich, Berardi, Golbs, & Hoyer, 1999) aus, worauf die beiden Gruppen gebildet wurden. Danach nahmen die Probandinnen an einem Videogespräch über Computer mit einem männlichen Studienmitarbeiter teil, wobei sie ihn und sich selbst auf dem Bildschirm sahen (ähnlich Skype). Den Probandinnen wurde mitgeteilt, dass der Studienmitarbeiter ein anderer Teilnehmer sei. Um unterschiedliche Stress-levels zu erzeugen, wurde das Gespräch in vier Phasen eingeteilt: (1) Aufwärmphase (neutrale Fragen bezüglich Alter, Name oder Studium), (2) positive Phase (Probandin erhielt Komplimente und fühlte sich entspannt), (3) kritische Phase (Probandin fühlte sich negativ beurteilt), (4) aktive Phase (Probandin leitete das Gespräch)[1]. Während dem Gespräch wurden die Augenbewegungen anhand eines Eye-trackers erfasst. Die Phasen sollten dazu dienen, die SFA in unterschiedlichen Stress-levels zu untersuchen. Nach dem Gespräch bewerteten die Probandinnen ihre SFA anhand des *Self-focused Attention Scale* (SFAS: Bögels et al., 1996) und die Soziale Angst während des Gesprächs mit Hilfe einer *Visual Analog Scale*, wobei sie auf einer 100mm Linie ihre Soziale Angst positionieren konnten.

[1] Eine ausführliche Beschreibung der Phasen ist in Tabelle 1 im Artikel 1, im Anhang A zu finden.

Experiment 2: Dasselbe Eye-tracking Paradigma wurde an einer klinischen Stichprobe getestet. Die Stichprobe wurde anhand von online Ausschreibungen auf der Universitätshomepage und auf Webseiten über die Soziale Angststörung rekrutiert. Frauen im Alter von 18-30 Jahren wurden zunächst in einem Telefoninterview über eine mögliche Soziale Angststörung befragt. Alle potenziellen Probandinnen wurden zu einem diagnostischen Interview, dem Diagnostischen Interview bei psychischen Störungen (DIPS) für die *DSM-IV* Achse I Störungen (Schneider & Margraf, 2011) eingeladen. Basierend auf den Diagnosen wurden die klinische Gruppe mit Primärdiagnose einer Sozialen Angststörung (*N*=32), sowie eine gesunde Kontrollgruppe (*N*=30) gebildet. Das Eye-tracking Paradigma verlief analog zum Paradigma in Experiment 1.

SFA und Selbstbild

Die Probanden wurden anhand von online Ausschreibungen auf der Universitätshomepage rekrutiert. HSÄ (*N*=27) und NSÄ (*N*=36) weibliche und männliche Probanden im Alter von 18-30 nahmen an der Studie teil. Nach dem Ausfüllen des SPS, wurde bei den Probanden mit einem halbstrukturierten Interview ähnlich wie bei Hirsch und Kollegen (2003) ein negatives oder positives Selbstbild aktiviert. Die Probanden wurden instruiert sich intensiv eine soziale Situation vorzustellen, in der sie sich entweder sozial ängstlich (negatives Selbstbild) oder in der sie sich entspannt gefühlt hatten (positives Selbstbild). Gleich nach der Selbstbildaktivierung nahmen die Probanden an einer Videogespräch über einen Computer mit einem gegengeschlechtlichen Studienmitarbeiter teil, wobei sie den Mitarbeiter für einen anderen Studienteilnehmer hielten. Nach dem Gespräch beurteilten sie ihre SFA anhand des *SFAS* und ihre eigene soziale Performanz. Auch die Studienmitarbeiter bewerteten die soziale Performanz der Probanden. Basierend auf den Ergebnissen des Fragebogens *SPS* wurden die beiden Gruppe gebildet. Um die Aktivierung des Selbstbildes zu überprüfen, wurde zum Schluss ein halbstrukturiertes Interview für den Manipulationscheck durchgeführt.

SFA und Selbstkonzept

Anhand von Ausschreibungen auf der Universitätshomepage und Aushängen in Universitätsgebäuden wurde die Stichprobe rekrutiert. Um die Varianz im Selbstkonzept zu erhöhen, wurden explizit Teilnehmer mit asiatischer Herkunft (China, Korea, Japan, Indien, Tibet, Thailand, Iran und Türkei) eingeladen. Teilnehmer nicht asiatischer Herkunft stammten aus der Schweiz, aus Deutschland, England und Italien. Weibliche und männliche Probanden im Durchschnittsalter von 28 Jahren beteiligten sich an der Studie. Zunächst wurden die Fragebögen *Self-construal Scale (SCS: Singelis, 1994)* zur Erfassung des Selbstkonzepts (independent versus interdependent) und SPS ausgefüllt, danach startete eine modifizierte Version des Probe-Detection Paradigmas von Mansell und Kollegen (2003) am Computer um die SFA zu messen. Die Probanden wurden instruiert so schnell wie möglich auf zwei Zielreize zu reagieren, indem sie eine bestimmte Antworttaste drückten. Der Zielreiz war entweder ein externer Reiz (der Buchstabe E auf dem Bildschirm) oder ein interner, taktiler Reiz (eine leichte Vibration am Oberarm). Die Reize wurden induziert während dem den Probanden eine Reihe von Bildern auf dem Bildschirm dargeboten wurde (emotionale Gesichter, neutrale Objekte und Bilder zum Thema Gentechnik[2]). Basierend auf dem Fragebogen *SCS* wurden die Gruppen in interdependentes Selbstkonzept (N = 30) und independentes Selbstkonzept (N = 55) unterteilt.

Statistische Analysen

Nachfolgend werden die statistischen Analysen der drei Artikel vorgestellt. Ausführliche Angaben sind im Artikel 1, 2 und 3 im jeweiligen Anhang zu finden. Die statistischen Analysen erfolgten mittels SPSS mit einem Signifikanzniveau von .05.

[2] Um den Probanden sozialen Stress zu induzieren, wurde der Hälfte der Probanden erzählt, dass sie nach der Computeraufgabe eine kurze Rede über Gentechnik halten und einen Intelligenztest machen werden. Da die Induktion des sozialen Stresses keinen signifikanten Effekt auf eine der Variablen hatte, wird in dieser Arbeit das vereinfachte Model dargestellt. Detailliertere Informationen sind im Anhang C zu finden.

Eye-tracking SFA

Um Gruppenunterschiede bezüglich Eye-tracking SFA zu berechnen, wurden *General Linear Models* (GLM) mit Messwiederholungen herangezogen. Innersubjektfaktor war SFA gemessen mit Eye-tracking über den Verlauf des Gesprächs mit den vier Phasen (aufwärm-, positive, kritische und aktive Phase) und Zwischensubjektfaktor war die Gruppe (HSÄ versus NSÄ für Experiment 1 und klinische versus Kontrollgruppe für Experiment 2). SFA wurde operationalisiert als relative Fixationszeit, in der die Probandin ihr eigenes Bild beobachtet hat im Vergleich zur Fixationszeit, in der sie den Studienmitarbeiter beobachtet hat.

SFA und Selbstbild

Um Gruppeneffekte von Selbstbild (positiv versus negativ) und Sozialer Angst (hoch versus niedrig sozial-ängstlich) auf die selbstbewertete Soziale Angst während dem Gespräch, SFA in Bezug auf das Gespräch und die soziale Performanz zu berechnen, wurden einzelne ANOVAS herangezogen. Da sich die beiden Gruppen HSÄ und NSÄ bezüglich Geschlecht signifikant unterschieden, wurden alle Analysen für Geschlecht kontrolliert. Regressionsanalysen wurden für die Berechnung der Zusammenhänge zwischen SFA, Sozialer Angst und sozialer Performanz herangezogen.

SFA und Selbstkonzept

SFA wurde anhand der Differenz der mittleren Reaktionszeit auf den externen Reiz und der mittleren Reaktionszeit auf den internen Reiz operationalisiert. Der Effekt von Selbstkonzept und Sozialer Angst auf SFA wurde anhand GLM berechnet, mit Selbstkonzept (independent versus interdependent) und Sozialer Angst (hoch versus niedrig-sozial ängstlich) und Geschlecht (männlich versus weiblich) als Zwischensubjektfaktoren. Die Interaktionen Soziale Angst und Geschlecht und die Interaktion Soziale Angst und Selbstkonzept wurden in das Modell eingefügt.

Resultate und Hauptschlussfolgerungen

Im Folgenden werden Auszüge aus den Ergebnissen der drei Artikel präsentiert. Ausführliche Angaben und Tabellen sind in den Artikel 1, 2, und 3 in den entsprechenden Anhängen zu finden.

Eye-tracking SFA

Experiment 1: Die Gruppen HSÄ und NSÄ unterschieden sich nicht in der SFA gemessen mit Eye-tracking. Die Höhe der Eye-tracking SFA variierte jedoch über die Phasen hinweg deutlich. Eine signifikante Interaktion zwischen Gruppen und Phasen zeigte, dass erwartungsgemäss die HSÄ Probandinnen eine erhöhte SFA zeigten wenn sie negativ beurteilt worden sind (kritische Phase), jedoch eine tiefere SFA in der aktiven Phase im Vergleich zu den NSÄ Probandinnen (Abbildung 2).

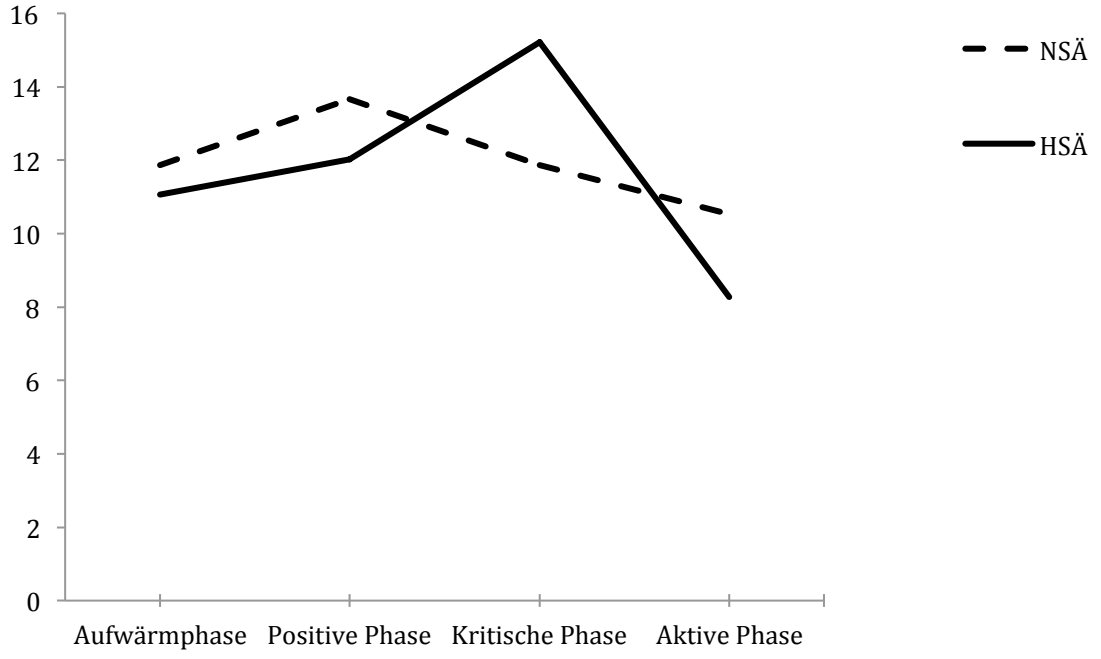

Abbildung 2. SFA gemessen mit Eye-tracking während den vier Phasen des Gesprächs mit dem Studienmitarbeiter, Experiment 1.

Folglich waren die HSÄ Probandinnen nicht unbedingt selbstfokussierter als die NSÄ, aber unterschieden sich in der SFA. Weiterhin berichteten HSÄ Probandinnen eine erhöhte SFA und höhere Werte in der Sozialen Angst während des Gesprächs als NSÄ Probandinnen. Die Ergebnisse unterstützen nur teilweise das Modell von Clark und Wells (1995), jedoch scheint Eye-tracking ein nützliches Messinstrument zur Erhebung von SFA zu sein ohne die soziale Situation zu interferieren. Diesbezüglich war es wichtig, das Paradigma an einer klinischen Stichprobe zu testen.

Experiment 2: In der klinischen Stichprobe unterschieden sich die beiden Gruppen bezüglich Eye-tracking SFA signifikant. Im Vergleich zur Kontrollgruppe waren die Probandinnen in der klinischen Gruppe während des Videogesprächs deutlich auf sich fokussiert (Abbildung 3). Der Verlauf der Eye-tracking SFA während dem Gespräch veränderte sich deutlich, der Verlaufsform war aber für alle Probandinnen ähnlich. Alle zeigten eine erhöhte SFA, gemessen mit Eye-tracking, in der Aufwärmphase und in der kritischen Phase. Bezüglich der selbstbewerteten SFA und Sozialer Angst während dem Gespräch, zeigte die klinische Gruppe deutlich höhere Werte als die Kontrollgruppe. Die Ergebnisse betonen die Annahme des kognitiven Modells von Clark und Wells (1995), dass Personen mit einer Sozialen Angststörung in sozialen Situationen deutlich selbstfokussierter sind als gesunde Personen. Weiterhin unterstützen diese Ergebnisse die Resultate der vorherigen Studie (Experiment 1) in der Annahme, dass SFA womöglich kein stabiles Konstrukt ist und durch die Phasen hinweg variiert. Nochmals wird deutlich, dass Eye-tracking eine praktische und nützliche Methode zur Messung von SFA sein könnte.

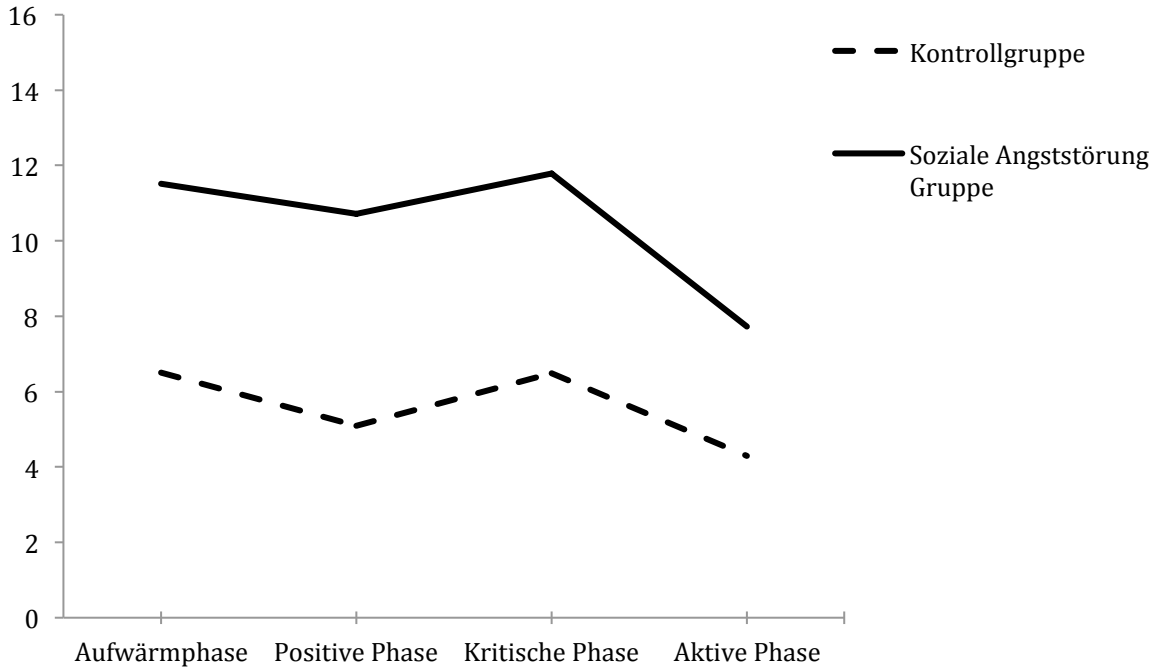

Abbildung 3. SFA gemessen mit Eye-tracking während den vier Phasen des Gesprächs mit dem Studienmitarbeiter, Experiment 2.

SFA und Selbstbild

Das Selbstbild hatte keinen Effekt auf die SFA, weder auf selbstbewertete Soziale Angst während des Gesprächs noch auf die soziale Performanz, obwohl der Manipulationscheck bestätigte, dass ein negatives oder positives Selbstbild erfolgreich aktiviert wurde.[3] Eine erhöhte SFA scheint nicht von einem negativen Selbstbild abhängig zu sein. Die Resultate bekräftigten jedoch die SFA als einen aufrechterhaltenden Faktor für die Soziale Angst. HSÄ Probanden berichteten höhere Soziale Angst, erhöhte SFA während dem Gespräch und schätzen ihre soziale Performanz schlechter ein als NSÄ Probanden. Der Zusammenhang zwischen SFA und sozialer Performanz zeigte, dass je höher die SFA während dem Gespräch war, umso schlechter wurde die soziale Performanz eingeschätzt. Bezüglich Bewertung der sozialen Performanz durch den Studienmitarbeiter unterschieden sich die beiden Gruppen nicht. Diese Ergebnisse passen gut in das kognitive Modell, welches besagt, dass sozial

[3] Ausführlichere Informationen bezüglich Manipulationscheck sind im Artikel unter Anhang B zu finden.

ängstliche Personen durch erhöhte SFA selbstbezogene Informationen (wie sie auf andere wirken) generieren.

SFA und Selbstkonzept

In der interdependenten Gruppe zeigten HSÄ Probanden deutlich weniger SFA als NSÄ Probanden. In der independenten Gruppe hingegen zeigten die HSÄ eine leicht erhöhte SFA im Vergleich zu den NSÄ. Weiterhin wiesen Männer in der HSÄ Gruppe deutlich tiefere SFA auf als Männer in der NSÄ Gruppe. Bei Frauen wurde kein solcher Unterschied gefunden. Die Ergebnisse unterstützen die Annahme, dass sich Personen mit einem interdependenten Konzept mehr auf ihre Umwelt fokussieren, da ein angepasstes Verhalten an das soziale Umfeld im Vordergrund steht. Das kognitive Modell von Clark und Wells (1995) ist aber eher an die westliche Kultur angepasst und weist auf die Wichtigkeit einer erhöhten SFA während sozialen Situationen hin.

Allgemeine Fragestellung 1

Die Frage, ob die SFA ein variables Konstrukt und situationsabhängig ist, wurde in den vorgestellten Studien bekräftigt. Eine interessante Erkenntnis aus den beiden Experimenten aus Artikel 1 ist, dass sich die SFA über den Verlauf des Gesprächs hinweg deutlich verändert. Der Inhalt des Gesprächs beziehungsweise der Stress-level spielt dabei eine bedeutende Rolle. Entsprechend dem kognitiven Modell ist die SFA im Experiment 2 zu Beginn des Gesprächs (Betreten einer gefürchteten sozialen Situation) und in der kritischen Phase (negative Beurteilung, mögliche Bedrohung) im Vergleich zu den anderen Phasen erhöht. Der Verlauf der SFA scheint für die beiden sozial ängstlichen Gruppen (HSÄ und klinische Gruppe) ähnlich zu sein. Interessanterweise zeigt die gesunde Kontrollgruppe zwar eine tiefere SFA, jedoch einen ähnlichen Verlauf wie die klinische Gruppe. Nur die NSÄ zeigen in dieser Studie einen unterschiedlichen Verlauf. Zusammenfassend scheint die SFA

von den Anforderungen der Situation abhängig zu sein. Obwohl die Kontrollgruppen einen ähnlichen Verlauf in der SFA zeigten, scheint die SFA spezifisch für die Soziale Angststörung zu sein, da die klinische Gruppe deutlich selbstfokussierter war. Diese Ergebnisse sind im Einklang mit dem kognitiven Modell und mit der Studie von Zou und Kollegen (2007), jedoch nicht mit früheren Studien, die keine Spezifizität der SFA für die Soziale Angst zeigen konnten (Bögels & Lamers, 2002; Woody & Rodriguez, 2000).

Allgemeine Fragestellung 2

Die zweite allgemeine Frage bezog sich auf die Erweiterung des kognitiven Modells von Clark und Wells (1995) durch das Selbstkonzept. Deutliche Unterschiede sind in der SFA in Bezug auf das Selbstkonzept zu finden. Daher sollte das kognitive Modell von Clark und Wells (1995) durch die Berücksichtigung vom Selbstkonzept profitieren, denn die Ergebnisse unterschützen die Annahme, dass eine erhöhte SFA nur bedingt ein aufrechterhaltender Faktor in der Sozialen Angststörung sein muss. Aktuelle kognitive Therapien basieren auf der Veränderung der Aufmerksamkeit von selbstfokussiert zu externfokussiert, wie zum Beispiel die Lenkung der Aufmerksamkeit auf die Aufgabe (Hofmann, 2000; Mortberg, Hoffart, Boecking, & Clark, 2015; Schreiber, Heimlich, Schweitzer, & Stangier, 2015). Das kognitive Modell baut aber auf Ergebnissen aus westlicher Forschung. Da bedeutende Unterschiede zwischen Kulturen in Bezug auf die Soziale Angststörung und in Bezug auf SFA zu finden sind, sollte das Modell das Selbstkonzept miteinbeziehen.

Diskussion

Das Ziel der vorliegenden Dissertation war es, den Zusammenhang zwischen SFA, dem Selbstbild und dem Selbstkonzept in Bezug auf die Soziale Angststörung zu untersuchen. Der erste Artikel (Eye-tracking SFA) hatte zunächst zum Ziel die SFA objektiv während einer sozialen Situation zu erheben. Mit dem Eye-tracking Paradigma konnte die SFA während einer sozialen Interaktion direkt und kontinuierlich gemessen werden, ohne die Interaktion dabei zu interferieren. Die Ergebnisse zweier Studien zeigten, dass die SFA ein variables Konstrukt ist und dass Probandinnen mit einer Sozialen Angststörung höhere SFA zeigten als die gesunde Kontrollgruppe. Der zweite dargestellte Artikel (SFA und Selbstbild) untersuchte den Zusammenhang zwischen negativen Selbstbild, SFA, Sozialer Angst und sozialer Performanz. Es konnte kein Effekt von einem negativen Selbstbild auf SFA, Soziale Angst noch auf soziale Performanz gezeigt werden. Jedoch berichteten hoch sozial ängstliche Probanden höhere Soziale Angst, höhere Selbstfokussierung während der sozialen Interaktion und schätzen ihre soziale Performanz schlechter ein im Vergleich zu den niedrig sozial Ängstlichen. Der letzte Artikel (SFA und Selbstkonzept) bekräftigte die Annahme, dass SFA vom Selbstkonzept abhängt. Sozial ängstliche Personen mit einem interdependenten Selbstkonzept zeigten deutlich niedrigere SFA im Vergleich zu denjenigen mit einem independenten Selbstkonzept.

Hauptimplikationen

Die Ergebnisse sollen zum besseren Verständnis der Sozialen Angststörung führen und zur Erweiterung des kognitiven Modells und zur Optimierung der Behandlung beitragen. Darüber hinaus könnten die Ergebnisse zu kulturellen Unterschieden eine Basis für die Ätiologie der Sozialen Angststörung bieten. Die spezifischen Ergebnisse der Studien und deren Implikationen wurden in den jeweiligen Artikeln im Anhang A bis C ausführlich diskutiert. In diesem Kapitel werden daher Implikationen für die Methodik, für das kognitive Modell von

Clark und Wells (1995) und Implikationen für die Behandlung der Sozialen Angststörung diskutiert.

Implikationen für die Methodik

Bis anhin wurde die SFA in sozialen Situationen anhand von subjektiven Fragebögen erhoben. Dabei besteht die Schwierigkeit darin die eigene SFA einzuschätzen, wenn gemäss Verständnis der SFA weniger kognitive Ressourcen für anderweitige Aufgaben bestehen. Objektivere Messmethoden sind Probe-Detection Paradigmen, welche die Aufmerksamkeit auf interne und externe Reize erheben. Da diese Paradigmen auf Reaktionszeiten basieren, messen sie die SFA indirekt. Zudem sind sie nicht ökologisch, da sie nicht in alltagsnahen sozialen Situationen durchzuführen sind. Eye-tracking wurde ebenfalls für die Untersuchung von Aufmerksamkeitstendenzen verwendet, wobei es die Aufmerksamkeit direkt messen kann (Bögels & Mansell, 2004). Unser Eye-tracking Paradigma ist jedoch innovativ, da die SFA direkt und kontinuierlich während einer sozialen Situation erhoben wurde. Wenn weitere Untersuchungen unsere Studien replizieren können, könnte Eye-tracking als ein effektives Erhebungsinstrument für SFA im diagnostischen und therapeutischen Kontext so wie in der Forschung eingesetzt werden.

Implikationen für das kognitive Modell

Überwiegend basiert die Forschung der Sozialen Angststörung auf dem kognitiven Modell von Clark und Wells (1995). Daher ist es einerseits wichtig, das Modell mit aktuellen Ergebnissen zu untermauern und anderseits, wenn nötig zu ergänzen. All unsere Ergebnisse unterstützen die Wichtigkeit der SFA. Eine erhöhte SFA steigert die Angst in der sozialen Situation und trägt zu einer schlechteren Einschätzung der eigenen sozialen Performanz bei, was wiederum die Soziale Angst aufrechterhält. In den zwei Eye-tracking Studien konnten wir die SFA direkt und kontinuierlich erheben und somit eine Variabilität der SFA aufweisen.

Die SFA scheint ein variabler Prozess zu sein, die sich je nach Situation verändert. Carver und Scheier (1981, 1998) legen nahe, dass eine flexible SFA einen Teil des funktionalen Prozesses darstellt, welcher die Diskrepanz zwischen dem wahrgenommenen Zustand und dem gewünschten Zustand aufzeigt, wobei zur Minderung der Diskrepanz eine Änderung im Verhalten angestrebt wird. Glick und Orsillo (2011) argumentieren, dass es unklar sei, ob SFA tatsächlich eine automatische Reaktion auf physiologische Erregung in sozialen Situationen ist oder ob SFA womöglich eine freiwillige, bewusste Bewältigungsstrategie zur Verhinderung von negativer Evaluation und Verlegenheit ist. Sie nehmen an, dass SFA ein Versuch zur Unterdrückung, Kontrolle oder Veränderung von negativen Erfahrungen ist, eine sogenannte Erfahrungsvermeidung. Die aktuelle Forschung zur Emotionsregulation vertritt vermehrt den flexiblen Einsatz der Bewältigungsstrategien, das heisst, die häufige Verwendung einer bestimmten Strategie (zum Beispiel Unterdrückung einer Erfahrung) und die begrenzte Verwendung anderer Strategien (zum Beispiel die Neubewertung einer Erfahrung) sind mit Symptomen der Depression und Angst verbunden (vgl. Campbell-Sills, Barlow, Brown, & Hofmann, 2006; Garnefski & Kraaij, 2006; Garnefski & Kraaij, 2007; Gross & John, 2003; Joormann & Gotlib, 2010). Vassilopoulos und Watkins (2009) wiederum vertreten die Meinung, dass das kognitive Modell von Clark und Wells (1995) von einer klaren Unterscheidung zwischen adaptiver und maladaptiver SFA Gebrauch machen könnte. In ihrer Studie konnten sie zeigen, dass bei hoch sozial ängstlichen Personen eine nicht-grüblerische, erlebnisbezogene SFA adaptiv, jedoch eine grüblerische, analytische SFA maladaptiv in Bezug auf Furcht vor negativer Evaluation war (Vassilopoulos & Watkins, 2009). Tatsächlich bekräftigen weitere Studien, dass die Selbstfokussierung adaptive und maladaptive Formen haben kann, jedoch wurden diese Studien im Zusammenhang mit der Depression untersucht (Rimes & Watkins, 2005; Watkins & Moulds, 2005; Watkins & Teasdale, 2001, 2004). Wells und Mathews postulieren (1994), dass eine erfolgreiche Interaktion eine Balance zwischen der selbstfokussierten und extern fokussierten

Aufmerksamkeit erfordert. Daraus kann schlussgefolgert werden, dass die SFA ein variables Konstrukt ist und bezüglich Variabilität eingehender erforscht werden muss.

Weiterhin sind unsere Ergebnisse der Selbstbild Studie in Bezug auf den Effekt eines negativen Selbstbilds auf die SFA und auf die Soziale Angst nicht im Einklang mit der aktuellen Literatur. Aktuelle Forschungsergebnisse liefern noch keine Klarheit darüber, ob ein negatives Selbstbild spezifisch für die Soziale Angst ist und wie sie mit anderen Faktoren, wie SFA, zusammenhängt (Ng & Abbott, 2014). Studien auf diesem Feld zeigen erhebliche Unterschiede in der Methodik, Qualität und in der Operationalisierung. Das Mass, in wie fern das Selbstbild die Symptomatik und den Prozess der Sozialen Angst beeinflusst, variiert stark über die Studien (Ng, Abbott, & Hunt, 2014). Die SFA ist womöglich nicht zwingend abhängig von einem negativen Selbstbild. Wenn unsere Ergebnisse repliziert werden könnten, würde das kognitive Modell von einer Simplifizierung profitieren.

Aktuelle Forschung deutet darauf hin, dass kulturelle Variablen in das kognitive Modell eingebunden werden sollten (Dinnel et al., 2002; Heinrichs et al., 2006; Hong & Woody, 2007; Vriends et al., 2013). Gemäss dem Modell ist eine erhöhte SFA ein zentraler aufrechterhaltender Faktor (Clark & Wells, 1995). Die Ergebnisse unserer Studie zeigen aber, dass hoch sozial ängstliche Personen mit einem interdependenten Selbstkonzept *keine* erhöhte SFA während einer sozialen Situation aufweisen. Möglicherweise wird die Soziale Angst bei Personen mit einem interdependenten Selbstkonzept nicht durch den gleichen Prozess aufrechterhalten, wie es für westliche Kulturen im Modell zur Aufrechterhaltung beschrieben ist. In Übereinstimmung mit Mansell et al. (2003) deuten unsere Ergebnisse weiterhin auf Geschlechtsunterschiede hin. Hoch und niedrig sozial ängstliche Männer zeigten deutliche Unterschiede in der SFA, während hoch und niedrig sozial ängstliche Frauen eine ähnliche erhöhte SFA zeigten. Epidemiologische Studien zu Prävalenzdaten zeigen höhere Werte bei Frauen als bei Männern (McLean et al., 2011; Xu et al., 2012). Barlow ist sogar der

Auffassung, dass die Angst primär eine „weibliche Störungen“ darstellen könnte (2002, p. 29).

Zusammenfassend unterstreichen unsere Ergebnisse die Wichtigkeit der SFA in der Sozialen Angststörung und liefern Hinweise, dass die SFA variabel und situationsabhängig ist. Werden unsere Ergebnisse repliziert und weitere Annahmen einer variablen SFA erforscht (zum Beispiel adaptive versus maladaptive SFA, SFA als Bewältigungsstrategie), könnte die SFA im kognitiven Modell erweitert und ergänzt werden. Zu dem sollten individuelle Unterschiede wie das Selbstkonzept und das Geschlecht im Modell mitberücksichtigt werden, damit zukünftige Studien den Zusammenhang zwischen den Faktoren untersuchen und eine Ergänzung zur Ätiologie und zur Behandlung der Sozialen Angststörung bieten können.

Implikationen für die Behandlung

Ein besseres Verständnis der Sozialen Angststörung und die Erweiterung des kognitiven Modells führen zu gezielteren Behandlungsmöglichkeiten. Kulturelle Unterschiede sollten in der Behandlung berücksichtigt werden. Obwohl epidemiologische Studien niedrigere Prävalenzdaten für die Soziale Angststörung in kollektivistischen Kulturen im Vergleich zu individualistischen Kulturen zeigen, berichten paradoxerweise Personen mit kollektivistischer Herkunft eine erhöhte Soziale Angst in Studien (Norasakkunkit & Kalick, 2002; Okazaki, 2000, 2002; Okazaki & Kallivayalil, 2002; Okazaki et al., 2002). Eine Erklärung dafür könnte die erwünschte Zurückhaltung und die Anpassung an die sozialen Normen in kollektivistischen Ländern sein (Okazaki et al., 2002). Da zurückhaltendes Verhalten die Harmonie in der Gruppe nicht stört, wird sie wahrscheinlich nicht als maladaptive betrachtet und womöglich sogar erwünscht und ermutigt (Chen, 2000; Heinrichs et al., 2006). Wie im vorherigen Kapitel diskutiert, zeigen sozial ängstliche Personen mit einem interdependenten Selbstkonzept eine erhöhte Aufmerksamkeit auf die Umwelt. In diesem Sinn nehmen sozial ängstliche Personen an, dass es nützlich wäre auf die Gruppe oder auf andere zu achten, um

Signale zu bemerken, die für die Erfüllung der sozialen Normen wichtig sind. Die übermässige Beobachtung der Umwelt könnte ähnlich angstauslösend wie übermässige Selbstbeobachtung sein. Kognitive Behandlungen für die Soziale Angststörung streben eine Aufmerksamkeitslenkung von intern auf extern an um Angstsymptome zu reduzieren, wobei sie sich als effektive Behandlungsmethoden erweisen. Studien zeigen, dass eine Verlagerung der SFA in sozialen Situationen auf externe oder aufgabenorientierte Aufmerksamkeit eine Reduktion der Sozialen Angst bewirkt (Bögels, 2006; Clark et al., 2006; Hofmann, 2000; McEvoy, 2007; McManus et al., 2009; Mortberg et al., 2015; Schreiber et al., 2015). Da unsere Studie entsprechend der Literatur zeigt, dass die Soziale Angststörung in östlichen Kulturen extern fokussiert ist (vgl. Norasakkunkit et al., 2012), stellt sich die Frage, wie die Wirksamkeit der klassischen kognitiven Therapie für Probanden mit kollektivistischer Herkunft ist. Die kognitive Therapie kann vom kulturellen Kontext profitieren, und den Aufmerksamkeitsfokus je nach Person individuell anpassen.

Allgemeine Stärken und Limitationen

Die dargestellten Studien haben mehrere Stärken und Schwächen. Diese sind ausführlicher in den jeweiligen Artikeln im Anhang A bis C aufgeführt.

Allgemeine Stärken

- *Stichproben:* In den Studien sind sowohl hoch und niedrig sozial ängstliche Probanden, als auch Probanden mit einer Sozialen Angststörung eingeschlossen worden. Dies ermöglicht Erkenntnisse für klinische wie auch für nicht klinische Populationen. Zudem sind die Werte bezüglich Sozialer Angst in der nicht klinischen Stichproben vergleichbar mit Werten aus klinischen Stichproben (Berger, Hohl, & Caspar, 2009).
- *Studiendesign und Messmethoden:* Alle Studien basieren auf einem experimentellen Design. Das innovative Eye-tracking Paradigma konnte die SFA im Vergleich zu früheren

Studien direkt während einer sozialen Interaktion erheben. Durch die verwendeten unterschiedlichen Messmethoden in den Studien können Vor- und Nachteile verglichen und Implikationen für objektivere Methoden gezogen werden.

- *Stress-level:* In den Eye-tracking Studien konnte die SFA in verschiedenen Phasen mit unterschiedlichem Stress-level erhoben und somit die Variabilität der SFA aufgezeigt werden.

Allgemeine Limitationen

- *Stichproben:* Die Stichprobengrösse in den Studien *Selbstbild* und *Selbstkonzept* war eher klein. Die Gruppen in den jeweiligen Studien wurden in HSÄ/ NSÄ und negatives/ positives Selbstbild (Artikel 2) beziehungsweise in HSÄ/ NSÄ und independentes/ interdependentes Selbstkonzept (Artikel 3) unterteilt, wobei die Anzahl der Probanden in den einzelnen Untergruppen gering ausfiel.
- *Studiendesign:* Die Verwendung eines Videogesprächs über Computer könnte die SFA manipuliert haben. Frühere Studien haben gezeigt, dass die Verwendung von Spiegeln zur Manipulation von SFA und zu einer möglichen Korrektur der SFA geführt haben könnte (Bögels et al., 2002; Hofmann & Heinrichs, 2003). Die Phasen des Videogesprächs waren nicht randomisiert und der Verlauf des Gesprächs könnte einen Zeiteffekt beinhalten. Allerdings würden wir dann eine lineare Abnahme erwarten. In der Selbstbild Studie wurde die vorgestellte negative beziehungsweise positive soziale Situation inhaltlich nicht kontrolliert oder vorgegeben, wie es bei früheren Studien der Fall war. Des Weiteren gab es keine Kontrollgruppe ohne eine Selbstbildmanipulation.

  Obwohl die Studien ein experimentelles Design hatten, sind kausale Schlüsse aus den Ergebnissen limitiert.
- *Geschlecht und Alter:* Geschlechtsunterschiede wurden nur in der Selbstkonzept Studie untersucht. In der Selbstbild Studie wurden zwar beide Geschlechter erhoben, da sich aber

die Gruppen bezüglich Geschlecht signifikant unterschieden, wurde diese Variable für die Analysen kontrolliert. In den Eye-tracking Studien wurden nur Frauen miteingeschlossen. In allen Studien waren die Teilnehmer im Alter von 18-30 Jahren. Da die Soziale Angststörung ohne Behandlung einen chronischen Verlauf aufweist (McManus et al., 2009), sollte eine breitere Alterspanne miteinbezogen werden.

- *Generalisierbarkeit:* Die Generalisierbarkeit der Studien ist begrenzt. In den Eye-tracking Studien treffen die Ergebnisse nur auf Frauen zu. Die Studien Selbstbild und Selbstkonzept untersuchten Frauen und Männer mit hoher und niedriger Sozialen Angst, weshalb nicht auf Patienten generalisiert werden kann.

Ausblick auf künftige Forschung

Eye-tracking könnte eine nützliche Methode zur objektiven Messung der SFA sein. Um den genauen Prozess einer variablen SFA zu verstehen, sollten zukünftige Studien verschiedene soziale Situationen miteinbeziehen, wie zum Beispiel Leistungssituationen. Dies würde ein besseres Verständnis dafür geben, in welchen Situationen SFA adaptiv beziehungsweise maladaptiv ist. Weiterhin sollten beide Geschlechter untersucht werden, da Geschlechtsunterschiede bezüglich SFA und Sozialer Angst zu finden sind (vgl. Mansell et al., 2003; Vriends et al., 2016). Um den Einfluss von Selbstbild auf die Soziale Angst und auf die SFA zu untersuchen, sollten Studien in einer klinischen Stichprobe und mit einer Kontrollbedingung (keine Manipulation des Selbstbildes) durchgeführt werden. Weiterhin sollten verschiedene soziale Situationen (Interaktions- und Leistungssituationen) miteinbezogen werden, um die Spezifizität eines negativen Selbstbilds zu erfassen. Da die Soziale Angststörung und der Prozess der SFA kulturabhängig sind, könnte die Replikation unserer Selbstkonzept Studie wertvolle Implikationen für die Behandlung von Sozialen Angststörungen liefern.

Fazit

Die in dieser Dissertation dargestellten Studien untermauern die Wichtigkeit der SFA im kognitiven Modell von Clark und Wells (1995). Mehr noch, sie erweitern den Umfang des Modells und heben die Variabilität der SFA hervor. SFA als aufrechterhaltender Faktor wird in den Studien mit direkter und objektiver Erhebung unterstrichen, wobei die SFA nicht zwingenderweise von einem negativen Selbstbild abhängt. Der Zusammenhang zwischen Sozialer Angst und SFA scheint jedoch von individuellen Unterschieden - dem Selbstkonzept und dem Geschlecht – abhängig zu sein. Ätiologische und kognitive Modelle könnten um diese Faktoren erweitert werden. Werden diese Ergebnisse repliziert, können Patienten mit einer Sozialen Angststörung von kulturspezifischen Präventionen und Interventionen profitieren, die den Schwerpunkt auf verzerrte und maladaptive Aufmerksamkeitsprozesse setzen.

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Anhang A bis C

Anhang A

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Anhang B

Meral, Y., Vriends, N., & Meyer, H. A. (submitted). Self-image, Self-focused Attention, and Social Performance in a Social Interaction Situation: What is relevant for Social Anxiety? *Behaviour Change.*

Anhang C

Vriends, N., Bolt, O. C., Meral, Y., Meyer, A. H., Bögels, S. M., & Wilhelm, F. H. (2016). Does self-focused attention in social anxiety depend on self-construal? Evidence from a probe Detection paradigm. *Journal of Experimental Psychopathology, 7*(1), 18-30.

Anhang A

The variable use of Self-focused Attention during a Social Interaction

The variable use of Self-focused Attention during a Social Interaction

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Abstract

The present two experiments investigated the use of self-focused attention (SFA, measured through eye-tracking and ratings) in social anxiety and social anxiety disorder (SAD) in an ecologically valid way. Experiment 1 piloted a new paradigm in which high (*N* = 26) versus low socially anxious (N = 25) single women between 18 – 30 years had a video ("skype") conversation with an attractive male confederate, seeing themselves and the confederate on-screen. The conversation was divided in four phases, namely (I) '*warm-up', (II) 'positive'* (confederate was friendly to the participant), (III) '*critical*' (confederate was critical to the participant), and (IV) '*active'* (participant leaded the conversation). Participant's eye-tracked SFA (measured by gaze duration at their own relative to the confederates' video image), self-rated SFA, and social anxiety were measured. Results show that high socially anxious participants were more self-focused in the critical phase and less self-focused in the active phase than low socially anxious participants. In Experiment 2 women with a diagnosis of SAD (*N* = 32) and controls (*N* = 30) conducted the same experiment. Compared to controls, participants with SAD showed increased SFA (eye-tracked and self-rated) during the conversation and increased self-rated social anxiety. In both experiments the use of SFA varied significantly across the social tasks during the conversation. The results suggest that SFA depends on the demands of the social task and highlights that a variable use of SFA might be important in social anxiety.

Keywords: social anxiety disorder; self-focused attention; arousal; cognitive model; eye-tracking

1. Introduction

Since the publication of Clark and Wells' (1995) cognitive model of social anxiety disorder (SAD) that predicts that self-focused attention (SFA) plays a central role in maintaining social anxiety, the association between SFA and social anxiety has been repeatedly investigated. Studies including *self-rated SFA* report higher SFA in high socially anxious individuals compared to low socially anxious individuals during a social situation (e.g., Alden & Mellings, 2004; Bögels & Lamers, 2002; Perowne & Mansell, 2002; Spurr & Stopa, 2003; Woody, 1996; Woody & Rodriguez, 2000). Yet, studies that *experimentally manipulated* SFA (e.g., with mirrors, video cameras, speech in front of an audience) report mixed results: Several studies found that SFA was positively related to social anxiety during conversation tasks (Meral, Vriends, & Meyer, 2013; Zou, Hudson, & Rapee, 2007) and speech tasks (e.g., Woody & Rodriguez, 2000), whereas others failed to show any anxiety-provoking effects of SFA (e.g., Bögels, Rijsemus, & De Jong, 2002, see for review: Bögels & Mansell, 2004). *Probe-detection paradigms* investigating attention to internal cues (e.g., physical cues, such as heart rate, HR) versus external cues (e.g., a visual probe of household objects or emotional faces) in social anxiety, found an attentional bias toward internal cues in speech-anxious individuals for a social stress situation (Deiters, Stevens, Hermann, & Gerlach, 2013; Mansell, Clark, & Ehlers, 2003) and for socially anxious individuals (Mills, Grant, Judah, & White, 2014; Pineles & Mineka, 2005). Vriends et al. (2016) showed with an equivalent to Mansell et al. (2003) probe-detection paradigm that SFA was enhanced in socially anxious participants with an independent (independent self-construal emphasizes individual autonomy, separate from the collective) self-construal, whereas those with an interdependent self-construal (interdependent self-construal emphasizes the relatedness of the self to a collective) were not.

Meanwhile cognitive behavioral treatments for SAD include exercises to reduce SFA and show to be effective in reducing SFA and social anxiety, as measured by questionnaires (e.g. McManus et al., 2009; Schreiber, Heimlich, Schweitzer & Stangier, 2015).

Thus, the broader picture of the association between SFA and SAD shows that 20 years after the publication of the cognitive model (Clark & Wells, 1995), results depend often on the method, which is used to understand if SFA plays a central role in maintaining SAD. A main reason for this rather confusing picture might be the difficulty to measure SFA within social situations. Namely, subjective report might be biased by the mindset of the social anxious person or by a memory bias. Also it might be that participants have difficulties being aware of the focus of their attention during social interaction and, thus, to report their focus of attention explicitly. It is therefore worthwhile to use implicit assessment methods for self-focused attention. Probe-detection tasks do this, but might interfere with the social task itself. Another reason might also be that social situations are dynamic, continuously demanding different tasks. There is the need to explore more creative ways to implicitly measure this process.

In the present study, we measured SFA *within* a social situation, using eye-tracking methods. Eye-tracking methods have proven to be an adequate method to asses attentional processes in social anxiety (e.g. Buckner, Maner, & Schmidt, 2010; Gamble & Rapee, 2010; Schofield, Johnson, Inhoff, & Coles, 2012; Wieser, Pauli, Alpers, & Muhlberger, 2009), but none of these studies investigated SFA. In Experiment 1 we pilot the paradigm with high versus low socially anxious participants. In Experiment 2 we tested the paradigm on a clinically relevant sample.

Experiment 1

To address the issues described above, we developed a design to measure SFA in a novel way during a social interaction, namely, with eye-tracking. Clark and Wells' (1995) SAD model proposes that socially anxious participants focus on monitoring themselves

during feared situations. They direct too much attention to themselves during social interactions and have little attention for other people, their task, or their environment. Therefore, we assume that watching one's own video image on a computer screen during an online-chat situation would indicate increased SFA. Furthermore, we assume that eye-tracking methods during a social interaction situation provide higher ecological validity than other methods, which were used in the past (such as questionnaires or reaction time paradigms. Chatting online is nowadays a common way of online-dating or peer-to-peer communication, especially for people below 25 years (Smith & Anderson, 2016). The advantage is that eye-tracking allows a non-invasive direct and continuous measurement of attention within the situation without interfering in the actual social task. In sum, we investigated SFA during a conversation in high versus low social anxious participants. According to the SAD model and the literature, SFA increases in stressful social situations. Therefore, we arranged four different phases of social stress during the conversation (warm-up, social-positive, social-stress, and social-active phase). High and low socially anxious participants had a real-time video conversation with an opposite-sex confederate. During the conversation, SFA was measured directly by eye-tracking (focusing on self-image versus on image of confederate). After the conversation, participants rated their level of SFA and anxiety.

We expected (I) increased SFA (measured by self-report and eye-tracking) during the conversation in the high socially anxious group, (II) increased SFA in high socially anxious participants during the critical phase, (III) increased anxiety during the conversation in high socially anxious participants compared to low socially anxious participants.

2. Material and Methods

2.1 Participants

Single women with an age between 18 and 30 years participated in a chat study. They were recruited with advertisements on the University of Basel study advertisement webpage

and with posters at local University restaurants. We recruited only female individuals due to found sex effects with respect to self-focused attention in previous studies (Mansell et al., 2003; Vriends et al., 2016). To recruit people with high social anxiety, potential participants were asked to fill out an online screening questionnaire (Social Interaction Anxiety Scale SIAS: Mattick & Clarke, 1998; german version: Stangier, Heidenreich, Berardi, Golbs, & Hoyer, 1999). Individuals (N = 52) with a SIAS-score above 40 and below 20 were invited for the experiment. One woman was excluded from the analyses due to outlier results (more than 2 SD's from mean on relevant variables). The study-sample (N = 51) was median-split on the scores of the Social Phobia Scale for a high and low social anxiousness groups. The two groups (both high socially anxious N = 25 and low socially anxious N = 26) did not differ in age and education (see Table 2).

2.2 Materials

Social anxiety. The German version of the Social Phobia Scale (SPS: Mattick & Clarke, 1998; German version: Stangier et al., 1999) was used to measure social anxiety. The SPS assesses anxiety in performance situations and includes 20 items rated on a 5-point scale ranging from 0 (*not at all*) to 4 (*very much*). A total score (ranging from 0 to 80) consists of the sum of all items. Scores above 24 on the SPS indicate social anxiety disorder (Heimberg, Mueller, Holt, Hope, & Liebowitz, 1992). The questionnaire showed high internal consistency for the present study (Cronbach's alpha = .91).

Actual social stress. To investigate the participants' actual social stress, they filled out four 100 mm visual analogue scales (VASs) to measure actual *nervousness, anxiety, self-confidence* (reversed)*,* and *arousal,* running from "not at all" to "extremely". The VASs were used three times, 1) at the beginning of the experiment, 2) immediately after the instruction about the video conversation, 3) and after the video conversation.

Instruction for social interaction. The experimenter informed the participant that she would have a video conversation with a male participant (who was our confederate, but the

participant was led to believe that it the male counterpart was also a participant), who was sitting in another experimental room. The task was to get to know each other. The experimenter instructed the participant that the confederate was instructed to ask her some questions in the first 4 minutes and after that she would have 4 minutes to get to know him by asking questions. Participants were also informed that their gaze would be tracked during the video conversation.

Confederates. Seven male confederates were involved in this study. They were briefly informed about the study (they were told that our study was about attentional processes during a conversation with different phases of social stress) and were blind to the participants' condition (high versus low socially anxious) and to the study's hypotheses. Confederates received 1,5-day training before the start of the study on how to induce the different phases during conversation. Confederates were paid according to Swiss norms of paying a student assistant.

Social interaction with the confederate – the Swiss Social Interaction Task (SSIT). The participant sat at a comfortable chair about 80 cm behind a computer screen and was led to believe that they were having a video conversation with another study participant. During the conversation, participants observed the video image of the confederate and the same-sized image of themselves displayed on their computer screen (see Figure 1). The video conversation was composed of four phases: (I) warm-up phase, in which neutral questions were asked (II) positive phase, during which the confederate was playful flirty (III) critical phase, during which the participant was felt to be negatively evaluated and (IV) active phase, when the participant leaded the conversation (see a detailed description of the phases in Table 1). For each phase the confederate followed a script with a battery of questions and verbal/nonverbal behaviors.

The content of the first three phases were not communicated to the participants – they only were aware two phases that were used as the cover story of the paradigm: the phase in

which the confederate was asking questions (warm-up, positive, and critical phase) and the phase in which she herself would ask questions (active phase). The experimenter instructed the confederate regarding timing through a small display at his computer screen. The side of the video-image (right or left) was counterbalanced.

Self focused attention. SFA was measured directly by tracking participants gaze behavior (hereafter referred to as eye-tracked SFA to distinguish it from self-rated SFA). During the conversation with the confederate, an eye-tracker (SMI) was placed below the monitor and recorded eye movements with 60 Hz on a 1,680×1,050-pixel screen. Before starting the conversation, an eye-tracker calibration was performed. Eye-tracking data were analyzed using the software BeGaze 3.3 (SMI). Mean fixation times for the four phases for each participant were calculated, with fixations defined as eye movements within 1° of visual field for a minimum duration of 80 ms. SFA was measured by the gaze duration of participants' observation of their own video image relative to their observation of the confederate's video image. Positive values mean higher SFA.

Self-rated SFA was measured with the Self-Focused Attention Scale (SFAS; Bögels, Alberts, & de Jong, 1996), translated to German and rephrased to retrospectively ask about subjective SFA during conversation. The SFAS consists of 11 items on a 5-point scale from 0 (*never*) to 4 (*very often*). Total scores range from 0 to 44, with higher scores indicating increased SFA. The internal consistency of the SFAS in this study was high, with Cronbach's alpha = .85.

Self-rated social anxiety during the conversation. Participants filled out a 100 mm VAS (ranging from not at all to extremely) about how socially anxious they felt during the conversation.

Credibility check. At the end of the experiment, participants were asked in interview form if they noted something special in the experiment and/or the male participant (our confederate). Three independent experimenters coded these answers of the participants into

one score “probably believed that confederate was a participant” or “probably did not believe that the confederate was participant”. To the last 31 participants, we also asked the following question: “In this experiment, half of the participants had the video conversation with another real participant and the other half of the participants had the video conversation with an instructed participant by us. In which group do you think you were, in the real participant-group or in the instructed participant-group?”.

Integrity check. To assess integrity of the confederates, two observers rated the confederates’ behavior towards the participants during 50% of the video conversation. Using 5-point Likert-scales they answered how friendly the confederate interacted, speech flow (how easily the confederate chatted without stumbling) and if he behaved in line with the instructions for the phases of the conversation.

2.3 Procedure

The experiment took place at the social behavior and physiology lab at the Faculty of Psychology of the University of Basel and was approved and accepted by the ethical commission of Basel (EKBB, 338/08). After signing informed consent (all participants who came to the experiment signed) participants completed questionnaires about socio-demographic details and the Social Phobia Scale (SPS: Stangier et al., 1999). To investigate the participants’ actual social stress they then filled out the visual analogue scales (VASs) for their actual *nervousness, anxiety, self-confidence,* and *arousal*. Then the experimenter informed them about the video conversation with the other male participant (our confederate). After this instruction the participants filled out the social stress VASs again, performed the eye-tracker calibration, and started the conversation. After the conversation, participants filled out the VAS question about how socially anxious they felt. They also filled out the SFAS (Bögels et al., 1996) to retrospectively ask about subjective SFA during the conversation and the social stress VASs for the third time. Finally, participants were asked about the credibility of confederate being another participant, were debriefed and dismissed.

2.4 Statistical analyses

Data preparation and data checking were conducted using SPSS 23. Group differences for interval variables were analyzed using *t*-test. Differences between experimental groups on the four social stress VASs during the experiment were analyzed with General Linear Model (GLM) for repeated measures with the four "scales" and the "course" (beginning of experiment, after instruction about video conversation, and after video conversation) as within subject factors and the experimental groups (high versus low socially anxious) as between subject factor. Credibility of confederate was tested with Chi-Square tests. Differences between high and low socially anxious groups on self-rated social anxiety during the conversation and self-rated SFA after the conversation was analyzed with independent *t* tests. Group differences for eye-tracked SFA were analyzed with GLM for repeated measures. Within subject factor was SFA over the course of the conversation consisting of the four phases (warm-up, positive, critical, and active) and the between-subject factor was group (high versus low socially anxious). The eye-tracked SFA data were log transformed t*o* increase normality and make the patterns more visible. An alpha level of $<.05$ was used for all analysis.

3. Results

3.1 Manipulation check: Social stress of the high versus low socially anxious groups

High socially anxious were in general more stressed during the whole experiment (all VASs) than the low socially anxious group (F (1,48) = 10.25, p = .002, $\eta 2$ = .18). Both groups showed increased social stress (all VASs) after the instruction (given right before the conversation), when they learned that they would have a conversation with a male participant (F (1,48) = 12.80, p = .000, $\eta 2$ = .21).

3.2 Credibility and integrity of confederate

52% of the participants believed that the confederate was a participant, with no differences between high and low socially anxious groups ($\chi 2$ = .023, p = .879). 31

participants were told that their conversation partner could either be another participant or an instructed confederate. Out of this group, 52% believed that their counterpart was also a participant. The high and low socially anxious participants did not differ in this regard ($\chi 2$ = .819, p = .366).

Also no significant differences for integrity of the confederates as rated by high vs. low socially anxious groups were found, F (4,18) = 1.176, p = .355, indicating that the confederates treated both groups equally.

3.3 Self focused attention during social interaction

The main effect for Phase was significant (F (3,147) = 6.395, p = .000, $\eta 2$ = .11), whereas the main effect for group was not (p > .05). There was a significant interaction between *group* (high versus low socially anxious) and *phase* (F (3,147) = 3.121, p = .028, $\eta 2$ = .06). This result shows that the high socially anxious focused differently compared to the low socially anxious (see Figure 2).[4]

Self-rated SFA during the conversation was higher for the high socially anxious than the low socially anxious (high socially anxious, M = 16.44, SD = 8.12; low socially anxious, M = 10.88, SD = 6.53; t(49) = -2.70, p = .010).

3.4 Self-rated social anxiety during the social interaction

A significant difference was found for self-rated social anxiety t(49) = -3.20, p = .002). The high socially anxious group (M = 41.08, SD = 21.22) felt more social anxiety during the whole conversation compared to the low socially anxious group (M = 22.50, SD = 20.28).

4. Discussion

The results of Experiment 1 show that the paradigm worked well in imitating a social situation for young adolescents, in which self-focused attention was measured by eye-tracking

[4] The cubic contrast between the two groups was significant (F (1,49) = 8.280, p = .006, $\eta 2$ = .15). The high socially anxious focused more on themselves in the critical phase and less on themselves during the active phase than the low socially anxious (see Figure 2).

(gaze duration at own video display). Half of participants believed that the confederate was another participant and social stress was successfully induced through the whole experiment. As expected, self-focused attention, as measured by eye-tracking, was higher in the critical phase in high socially anxious. Interestingly, in the active phase (the phase in which participants had the lead over the social situation), the high socially anxious focused less on themselves compared to the low socially anxious. Thus the socially anxious group did not necessarily show increased self-focused attention, but *different* focus of attention. The course of the conversations shows that the use of SFA depends on the phase. High socially anxious shows increased SFA when the confederate becomes critical, whereas low socially anxious focus more on the confederate when he becomes critical. Thus, the high socially anxious avoids looking at the objective danger (critical phase). These results only partly support Clark and Wells' model. It seems that a variable use of SFA is important. Maybe our non-clinical sample (not diagnosed with a clinically relevant SAD) weakens the effects and thus, a clinical sample would reveal different results.

In sum, this novel paradigm can be useful for measuring SFA directly using eye-tracking within a social situation and should be replicated with a clinical group.

Experiment 2

5. Introduction

Experiment 1 showed that the new paradigm performed as expected and that eye-tracking is a useful method to measure SFA. The next relevant step was to replicate the experiment with a clinical sample for social anxiety disorder.

In line with Experiment 1 and with the cognitive model, we hypothesized increased self-rated SFA and increased social anxiety during the conversation in participants with SAD compared to control participants. Furthermore, we expected a variation in eye-tracked SFA during the different phases of the conversation. Especially, we assumed increased eye-tracked SFA for participants with SAD during the critical phase compared to controls.

6. Material and Methods

6.1 Participants

The sample was recruited with online advertisement at the University of Basel website and at several websites providing information about SAD. Also flyers with information about the study were distributed on regional postings and in general medical institutions. Again, we recruited only female individuals due to sex effects in previous studies (Mansell et al., 2003; Vriends et al., 2016). Inclusion criteria for the SAD group were age between 18 and 30 years, fluent in German, primary social anxiety disorder, heterosexual and not consuming any drugs. Exclusion criteria for the SAD group were a lifetime history of *DSM-IV* (*Diagnostic and Statistical Manual of Mental Disorders,* 4th ed.; American Psychiatric Association, 1994) criteria for schizophrenia, bipolar disorder, dementia, current major depressive disorder, substance and alcohol abuse, current use of any recreational drugs, or current medication on psychoactive drugs (including selective serotonin reuptake inhibitors) and homosexual. The inclusion criteria for the control group were no lifetime history of anxiety and mood disorders, heterosexual, and matching the SAD group for age, ethnicity, and education. All interested individuals were first screened in a telephone interview. Potential participants were then invited to a diagnostic interview. SAD and comorbid disorders were diagnosed with a clinical interview (DIPS, Diagnostisches Interview bei psychischen Störungen) for *DSM-IV* Axis I disorders (Schneider & Margraf, 2011). The interrater reliability of the diagnostic interview was high with .95. Interviewers for the DIPS were intensively trained and supervised by the author (NV). On the basis of diagnoses, we composed the SAD and control groups. The SAD sample consisted of 32 participants with a primary diagnosis of SAD and the control group consisted of 30 participants. Three women were excluded from the analyses due to outlier results (more than 2 SD's from mean on relevant variables). The sample details are presented in Table 3. No group differences were found for age and education (see Table 3).

6.2 Materials

For materials see section 2.2 of Experiment 1, except for the following changes and supplements:

Social anxiety. Beside the Social Phobia Scale, the German version of the Social Interaction Anxiety Scale (SPS/SIAS: Mattick & Clarke, 1998; German version: Stangier et al., 1999) was also used to measure social anxiety, which assesses anxiety in social interactions. The SIAS includes 20 items rated on a 5-point scale ranging from 0 (*not at all*) to 4 (*very much*). A total score (ranging from 0 to 80) consists of the sum of all items. Scores above 24 on the SPS indicate social phobia (Heimberg et al., 1992). Both questionnaires had high internal consistency in the present study with a Cronbach's alpha of .95 for the SPS and .88 for the SIAS.

Confederates. Five male confederates were involved in this study. Training and information about the study was identical to Experiment 1

Credibility and integrity check. We performed the credibility and the integrity check in the same way as in Experiment 1. In addition, we included a 10-point scale assessing the authenticity of the conversation and the confederate. At the end of the credibility interview all participants were told that there was a 50% chance of having been interacting with a confederate.

6.3 Procedure

The experiment took place at the social behavior and physiology lab at the Faculty of Psychology of the University of Basel and was reviewed and approved by the local ethics committee (Ethikkommission beider Basel 338/08). All participants were first screened in a telephone interview, which was developed for the present study. The screening comprised questions about social situations in which participants felt anxious, impairment because of social anxiety, fears about what could happen in that social situation, physical symptoms, and

medication. Ethical permission (338/08) was obtained and participants signed an informed consent[5]. The procedure was identical to Experiment 1.

6.4 Statistical analyses

Data preparation and data checking were conducted using SPSS 23. Differences between the SAD and control groups on sample characteristics were computed with *t* tests for interval variables and chi-squared analysis for education. Differences between the SAD and control groups on the social stress VASs were analyzed with GLM for repeated measures, with the four scales (nervousness, anxiety, self-confidence, arousal) and course (beginning of experiment, after instruction about video conversation, and after video conversation) as within subject factors and group (SAD versus control) as between subject factor. We used GLM for repeated measures to analyze effects of social anxiety on eye-tracked SFA during conversation. The within-subject variable was SFA over the course of the conversation consisting of four phases (warm-up, positive, critical, and active) and the between-subject variable was group (SAD vs. control group). The eye-tracked SFA data were log transformed t*o* increase normality and make the patterns more visible. The differences between social anxiety during the conversation and self-rated SFA after conversation were analyzed using independent *t* tests. An alpha level of $<.05$ was used for all analysis.

7. Results

7.1 Manipulation check: Social stress of the SAD and control groups

Participants in the SAD group were in general more stressed during the whole experiment (all VASs) than the control group (F (1,60) = 50.59, p = .000, $\eta 2$ = .46). Measurement time of actual stress (measured at the beginning of the experiment, immediately after the instruction about the video conversation, and after the video conversation) was not significant (F (2,60) = 1.67, p = .193, $\eta 2$ = .03).

7.2 Credibility and integrity of the confederates

[5] Heart rate and skin conductance was also measured, but not presented because it is behind the scope of this paper.

The mean rating of the authenticity of the conversation was 6.90 (*SD* = 2.06) on a 10-point scale. After participants were told about the 50% chance of having been interacting with a confederate, still 50% believed that the conversation partner was a real participant. No significant differences between the groups were found on the credibility of the confederates, $\chi^2(1)= 2.36$, $p = .127$, and confederates' behavior toward SAD and control participants did not differ, $F(3, 56) = 2.01$, $p = .123$, $\eta^2 = .10$.

7.3 Eye-tracked SFA and self-rated SFA during the conversation

We found a main effect of group for eye-tracked SFA $F(1, 60) = 5.42$, $p = .023$, $\eta^2 = .08$. Participants with SAD were significantly more self-focused (observed their own image more than the image of the confederate) during the whole conversation compared to participants in the control participants. A main effect of phase was found $F(3, 180) = 8.43$, $p = .000$, $\eta^2 = .12$. SFA changed during the phases of the conversation. As presented in Figure 3, SFA was higher at the warm-up phase and in the critical phase compared to the positive and the active phase. The predicted interaction between group and phase was not found ($F(3, 180) = .96$, $p = .415$, $\eta^2 = .02$).

As expected, participants in the SAD group rated their SFA significantly higher than participants in the control group (SAD: *M* = 25.97, *SD* = 6.86; control: *M* = 11.20, *SD* = 7.05), $t(60) = 8.36$, $p < .001$).

7.4 Self-rated social anxiety during social interaction

Participants in the SAD group (*M* = 58.87, *SD* = 22.89) reported retrospectively more social anxiety during the conversation compared to the control group (*M* = 21.57, *SD* = 18.86, $t(59) = -6.94$, $p = .000$).

8. Discussion

Results of Experiment 2 show that participants with SAD were more self-focused (eye-tracked and self-rated) during the video conversation than the healthy controls, but SFA varied significantly along with the actual social task at hand. As expected, participants with

SAD were more stressed and reported more social anxiety during the whole conversation than controls.

The results of Experiment 2 support the hypotheses of Clark and Wells' (1995) cognitive model of social anxiety disorder, which proposes that individuals with SAD are more self-focused than control individuals in social situations. In line with Experiment 1, we see that SFA is not stable, though varies significantly across the phases of the conversation. And again, it shows eye-tracking to be a useful method of measuring SFA directly in social situations.

9. General Discussion

We used a new paradigm to test SFA (measured with eye-tracking and self-ratings) during a social interaction with different phases of social stress (warm-up, social positive, social stress, and social active) for high versus low socially anxious single young women (Experiment 1) and in young women with a current social anxiety disorder (SAD) versus without any lifetime anxiety or depressive disorder (Experiment 2). The result of Experiment 1 showed that SFA (eye-tracked and self-rated) was increased during the critical phase of a social interaction in socially anxious participants. Furthermore, our results showed that eye-tracked SFA varied during different phases of the conversation. This led us to replicate the experiment with a clinical SAD and control sample. We were interested in the idea that SFA changes during phases of a conversation with different contents. In line with Clark and Wells' (1995) cognitive model of SAD, eye-tracked and self-rated SFA during social interaction was increased in women with SAD compared to controls (Experiment 2). Self-rated social anxiety during social interaction was also increased in high socially anxious and SAD compared to the controls. A very interesting finding of the present experiments is, that eye-tracked SFA varies strongly across the phases.

To our knowledge the present study is the first that succeeded in measuring SFA directly using eye-tracking in a social interaction without inferring with the social task. Our

results are in line with questionnaires studies (see for reviews: Bögels & Mansell, 2004; Morrison & Heimberg, 2013; Schultz & Heimberg, 2008; Spurr & Stopa, 2002) and with experimental research measuring SFA with dot-probe-detection paradigms that found faster reaction times on internal (self-focused) probes than external probes in anticipation to social stress situation (Deiters et al., 2013; Mansell et al., 2003; Mills et al., 2014; Pineles & Mineka, 2005). The additional benefit of measuring SFA within the social situation is that we can investigate the direct effect of SFA *within different social stress levels* (warm-up, positive, critical, and active phase) and *different social tasks* (e.g. answering and asking questions) within the situation. In line with cognitive models, our results show that eye-tracked SFA increased during social-stress (feeling socially anxious or feeling a little negatively evaluated). On the one hand, indeed, SFA is generally higher in SAD, but on the other hand SFA varies in controls, in high socially anxious and in individuals with SAD according to the task at hand. During an active phase, where the individual is challenged to have the control over the social situation (in our case by asking question to the confederate in order to get to know him better), eye-tracked SFA is lower in all groups and in social anxiety apparently too low (Experiment 1). If our results can be replicated, the model of SFA and SAD should include the importance of a variable SFA in line with the task at hand. Also in other psychological disorders, current literature underlines the variable use of strategies. Studies support the claim that more frequent use of certain strategies and less frequent use of other strategies are related to levels of symptoms of depression and anxiety (e.g. Campbell-Sills, Barlow, Brown, & Hofmann, 2006; Garnefski & Kraaij, 2006; Garnefski & Kraaij, 2007; Gross & John, 2003). Furthermore, the importance of a variable use of strategies has been proven by some studies. For example the findings of Joormann and Gotlib (2010) suggest that individual differences in the use of emotion-regulation strategies play an important role in depression. Also many psychophysiological studies show that flexibility (for example in cardiovascular responsibility) is a predictor for mental health (Thayer & Lane,

2000) and that cognitive processes and physiological variability are related (e.g. Thayer, Hansen, Saus-Rose, & Johnsen, 2009; Williams et al., 2015).

The following limitations should be noted in the current study. First, our findings are only applicable to female samples. Other studies investigating SFA found gender effects (e.g. Mansell et al., 2003), thus, replication of these findings with male need to be investigated. Second, the conversation through video might have influenced SFA. The presence of a video image might reduce typical self-focus, increase it, or interact with diagnostic status. Hoffmann and Heinrichs (2003) and Bögels et al. (2002) used mirrors in their studies to induce SFA and did induce self-focus in a manner consistent with predictions. The mirrors might have acted as an external source of information that socially anxious individuals used to correct their self-awareness, which would be inconsistent with Clark and Wells' (1995) model but more consistent with Rapee and Heimberg's (1997) claiming that external information is important in the modulation of the mental representation of the self. Third, the effect of phases could be an effect of time because the four phases of the social interaction were not randomized. However, probably, in case of time effect SFA would linearly decline during the conversation. Fourth, we used a laboratory getting-acquainted interaction: the extent to which the observed models generalize to real-life-situations needs to be established.

Although it delimits to draw clinical implications from a new paradigm, we still think that the present study has clinical potential. If the present results can be replicated in further research, eye-tracking might be a good instrument for measuring SFA in social situations and might be a useful intervention method such as providing feedback in interventions targeting attention problems in social anxiety. For example it would be scientifically relevant to investigate eye-tracked SFA during a performance task (seeing oneself, the audience and the task at hand, e.g. PowerPoint slide) and to show the results of the eye-tracking to the person with the SAD. Also it would be innovative to feedback the eye-tracking to the person during the task – in that way attention could directly be trained. Our results show that SFA varied

during the conversation. Thus, it might be helpful to the therapist to know in which situations increased SFA would be adaptive or maladaptive. Moreover, emotional and attentional responses that are consistent with environmental demands represent adaptive emotional regulation and promote physical and mental health (Thayer & Lane, 2000).

In conclusion, the present results partly support Clark and Wells' (1995) cognitive model of social anxiety disorder, which says that individuals with SAD are more self-focused than control individuals in social situations. Much more, it extents the model by highlighting that SFA and its effect is not a one-way process, though, should be regulated variable according to many factors such as the social task demands.

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Table 1.

Content of the four phases of the video conversation – the Swiss Social Interaction Task

Number of Phase	Title of Phase	Length in minutes	Description
1	Warm-up	1	The confederate first asked the participant's name, age and some neutral questions about study/work-situation, living situation, or the actual weather.
2	Positive	1,5	The confederate was friendly and showed that he liked the participant by making compliments such as "that sounds nice – could you tell me more about that?" and "you are cool". His behavioral facial and verbal expressions were kind and playful flirty (not intimidating) to the participant.
3	Critical	1,5	The confederate was critical. He tried to make the participant feel socially anxious, or a little negatively evaluated. He focused on negative characteristics, making comments such as "Tell me about your negative characteristics" or "That was embarrassing!" or asking the participant to sing: "What is your favorite song? I don't know that song; can you sing it for me?"
4	Active	4	The participant was invited to lead the conversation and could direct questions to their conversation partner (the confederate). The confederate was instructed to answer the questions during this phase

Table 2

Characteristics of the Participants in the High Socially Anxious and Low Socially Anxious Group in Experiment 1

Variable	Group		χ^2	*t*	*p*
	High socially anxious (*N*=25)	Low socially anxious (*N*=26)			
Mean age, in years (*SD*)	23.27 (3.317)	23.24 (4.18)		.03	.978
Education (*n*, compulsory education/high school/university)	2/18/6	4/17/4	1.076		.584
Social anxiety[a]					
SPS, mean (*SD*)	32,88 (9.79)	10.92 (5.97)		9.71	.001

Note. SPS = Social Phobia Scale;
[a]Scores above 24 on the SPS indicate social phobia.

Table 3

Characteristics of the Participants in the Social Anxiety Disorder and Control Groups in Experiment 1

Variable	Group		χ^2	*t*	*p*
	Social anxiety disorder (*N*=32)	Control (*N*=30)			
Mean age, in years (*SD*)	22.41 (3.90)	23.00 (2.99)		0.67	.506
Education (*n*, compulsory education/high school/university)	6/19/7	5/14/11	1.675		.433
Social anxiety[a]					
SPS, mean (*SD*)	41.66 (13.43)	11.30 (9.92)		10.07	.001
SIAS, mean (*SD*)	37.06 (11.12)	18.40 (6.85)		7.90	.001
No. (%) with comorbid anxiety disorders in the social anxiety disorder group					
Panic disorder	1 (3.1%)	-			
Agoraphobia	2 (6.3%)	-			
Specific phobia	8 (25%)	-			
Generalized anxiety disorder	7 (21.9%)	-			
Posttraumatic stress disorder	1 (3.1%)	-			
Somatic symptom disorder	1 (3.1%)	-			

Note. SPS = Social Phobia Scale; SIAS = Social Interaction Anxiety Scale.
[a]Scores above 34 on the SIAS and above 24 on the SPS indicate social phobia.

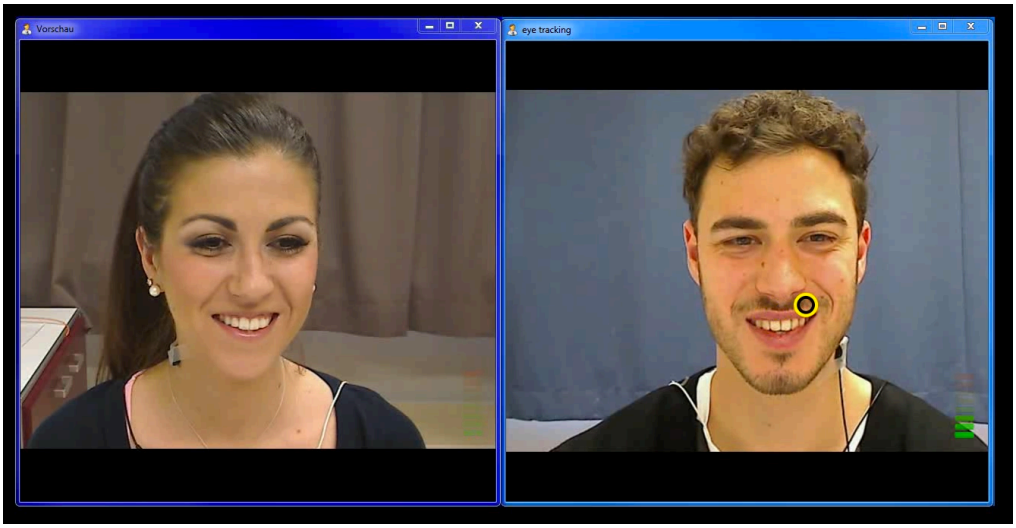

Figure 1. Video conversation with the confederate. Participants observed their own video image and a same-sized video image of the confederate on the computer screen.

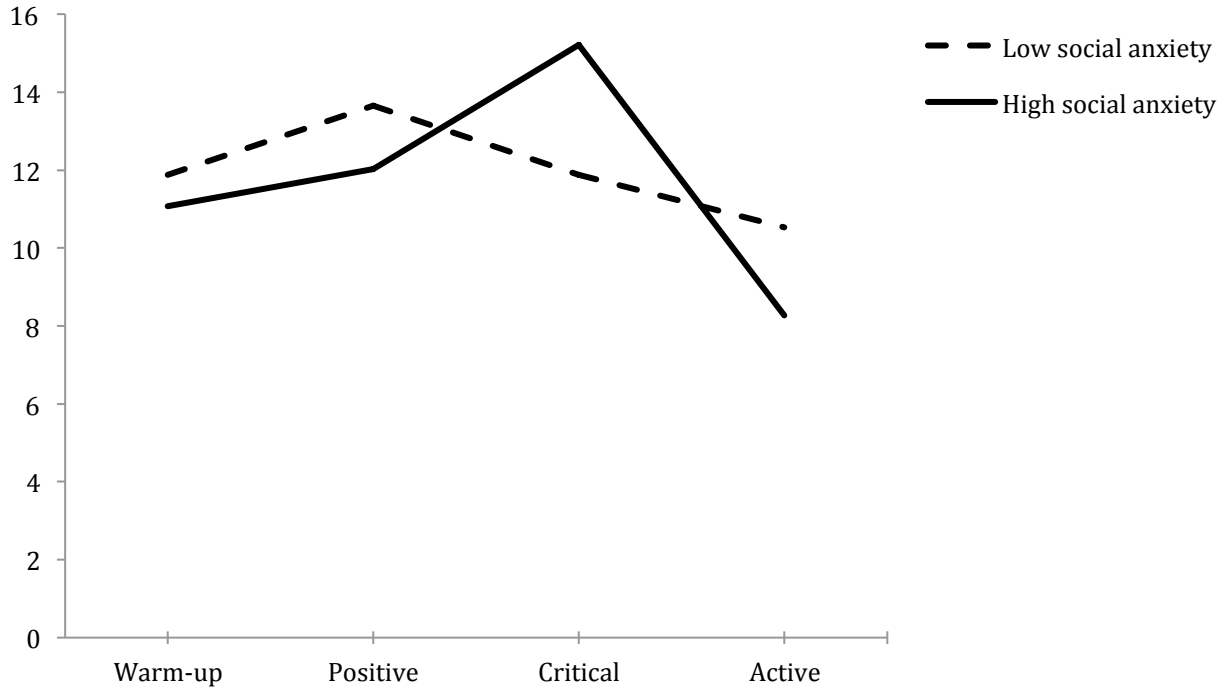

Figure 2. Eye-tracked SFA during the four phases of the conversation with the confederate in Experiment 1.

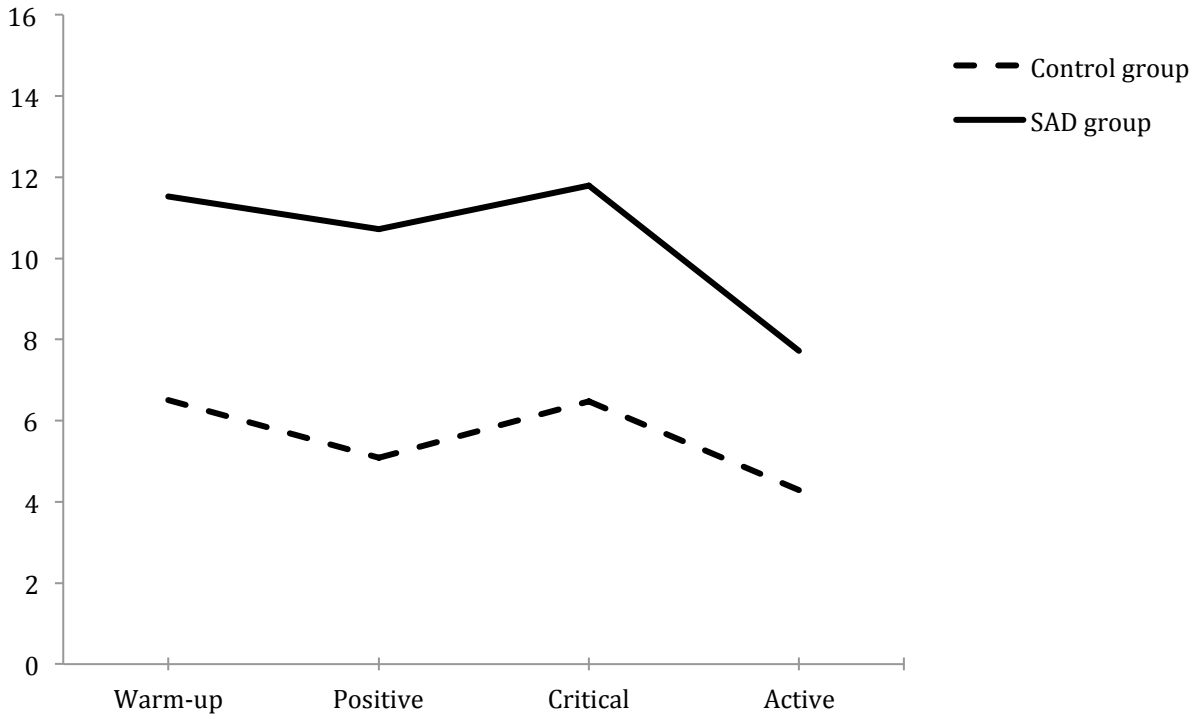

Figure 3. Eye-tracked SFA during the four phases of the conversation with the confederate in Experiment 2.

Anhang B

Self-image, Self-focused Attention, and Social Performance in a Social Interaction Situation:

What is relevant for Social Anxiety?

Self-image, Self-focused Attention, and Social Performance in a Social Interaction Situation: What is relevant for Social Anxiety?

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Abstract

Negative self-image and heightened self-focused attention (SFA) may play a crucial role in increasing social anxiety and negatively affecting social performance, through which social anxiety is maintained (Clark & Wells, 1995). This experiment involving a real social interaction, investigated two paths of Clark and Wells's cognitive model of social phobia: from actual positive or negative self-image to SFA and from SFA to social performance. High (n=27) and low (n=36) socially anxious participants holding a negative versus positive self-image in mind had a real-time video conversation with a confederate. After that participants rated their SFA, anxiety, and social performance. The confederate rated participants' social performance. Whereas actual self-image influenced neither SFA nor participants' social performance (self and confederate ratings), increased SFA was associated with increased anxiety and poorer self-rating of social performance. The confederate's ratings of social performance did not differ between anxiety groups. Results show the power of SFA for maintaining social anxiety, though it also shows that increased SFA is not necessarily dependent on a negative self-image and that SFA seems to affect the subjective experience of poorer social performance and not social performance itself.

Keywords: social anxiety, self-focused attention, self-image, social performance, cognitive model

Introduction

A prominent cognitive model (Clark & Wells, 1995) of social anxiety disorder (SAD) assumes that a negative self-image activates self-focused attention (SFA), which in turn contributes to the maintenance of social anxiety through poorer social performance. Studies that manipulated self-image (negative or positive) in high and low socially anxious participants or in patients indeed found an association between a negative self-image and greater anxiety during a conversation with a stranger (in patients: Hirsch, Clark, Mathews, & Williams, 2003; in high socially anxious participants: Hirsch, Meynen, & Clark, 2004) and during a speech in front of a camera (in high and low socially anxious participants: Vassilopoulos, 2005). Similar results were also found in confident public speakers (Hirsch, Mathews, Clark, Williams, & Morrison, 2006). Moreover, participants holding a negative self-image in mind underestimated their social performance compared to when they focused on a control image (Hirsch et al., 2003; 2006; 2004), and an independent assessor (who was blind to the image condition) also rated participants' performance in the negative self-image condition as less positive (expect in Hirsch et al., 2006, assessor ratings did not differ for both groups). Self-underestimation of performance (negative self-rating relative to assessor rating) was greater when a negative rather than a control image was kept in mind. In Vassilopoulos (2005), high socially anxious participants in the negative self-image condition rated their specific behaviors as more negative, compared to low socially anxious participants in a control condition. Overall performance ratings were equal for the two groups, and participants holding the negative self-image in mind were not rated as performing worse by independent observers.

In sum, research indicates an involvement of negative self-image in maintaining social anxiety (see for review: Ng & Abbott, 2014). The direct relationship between self-image and social anxiety persists, but may be not through SFA. The relationship between self-image and other important maintaining factors (such as SFA) are currently unclear. Moreover, the

findings on whether negative self-image affects social performance are inconsistent, showing either underestimation of social performance, poorer actual social performance or no differences in social performance.

The association between SFA and social anxiety has been proven in many investigations (see for reviews: Bögels & Mansell, 2004; Morrison & Heimberg, 2013). Studies that experimentally manipulated SFA (e.g., with mirrors, video cameras, speech in front of an audience) reported mixed results. In Zou, Hudson, and Rapee (2007), high blushing-anxious participants reported higher social anxiety in the SFA condition compared to a task-focused attention condition during a conversation, while low blushing-anxious participants showed no differences across the two conditions. Woody and Rodriguez (2000) showed that SFA intensified social anxiety in participants with social phobia and normal control participants during a speech task, but other studies have failed to show any anxiety-provoking effects of SFA (e.g. Bögels, Rijsemus, & De Jong, 2002, see for review: Bogels & Mansell, 2004).

Even though enhanced SFA has been proposed as a mechanism that decreases social performance in social anxious individuals (Clark, 2001), there is, to our knowledge, no convincing empirical evidence showing that increased SFA indeed affects individuals' social performance. However, socially anxious individuals underestimate their social performance compared to control individuals (Rapee & Lim, 1992; Stopa & Clark, 1993; Voncken & Bogels, 2008). In Woody and Rodriguez (2000), SFA increased anticipated anxiety, but social performance was not affected by SFA. Voncken, Dijk, de Jong, and Roelofs (2010) investigated two pathways hypothesized to lead to poorer social performance in social anxiety—increased SFA and negative beliefs. Their results demonstrate that state social anxiety was related to heightened SFA and negative beliefs, but only negative beliefs were associated with poorer social performance. On the other hand, the study of McManus, Sacadura, and Clark (2008) suggests that decreased social performance may be accounted for

by SFA. Thus, the current state of the art does not allow any final conclusions about the effect of SFA on social performance.

Up to now very few studies have tested more than one path of Clark and Wells's (1995) model. Makkar and Grisham (2011) investigated self-image and SFA in the same paradigm in which participants with a negative or positive self-image held a videotaped speech. Results show that high socially anxious participants holding a negative self-image in mind reported more SFA, felt more anxious, and evaluated their performance less well than those holding a control image in mind. These interesting findings now need to be investigated in other social situations, such as social interaction.

In sum, separate paths of Clarks and Wells's (1995) model have been investigated empirically. Some have been supported by evidence (self-image to anxiety, SFA to anxiety) but others still need stronger and more consequent evidence (self-image to SFA, SFA to social performance, self-image to social performance) or need to be rethought in the model. Moreover, evidence for the mechanisms underlying the paths (subparts of the model) is still sparse. This might be because experimental investigation of more than one path of a theoretical model is difficult to design, a challenge we took up in the present experiment.

We sought to investigate two of the most prominent paths of Clark and Wells's (1995) model—namely, the influence of self-image on SFA and anxiety and the influence of SFA on anxiety and social performance—within one experimental paradigm. To our knowledge we are one of only two studies that investigate self-image and SFA in social anxiety in the same paradigm (as we know of only Makkar & Grisham, 2011).
High and low socially anxious participants holding an activated negative or positive self-image in mind had a real-time video conversation with an instructed confederate. After the conversation, participants rated their own SFA, anxiety, and social performance, and the confederate rated the participants' social performance.

In line with Clark and Wells's model, we expected that high socially anxious participants with a negative self-image would report more SFA and more anxiety during the conversation than low socially anxious participants with a negative self-image. The model does not predict for non-anxious individuals or for socially anxious individuals with a positive self-image. Though, according to the literature, we expected that participants with a negative self-image would also report more SFA and higher anxiety than participants with a positive self-image. Independent of self-image, high socially anxious participants would rate their SFA higher than would low socially anxious participants. Regarding social performance, taking the existing findings into account, we hypothesized that high socially anxious participants would underestimate their social performance and that a negative self-image and increased SFA during the conversation would affect self-rated social performance. In keeping with Clark and Wells's model, we hypothesized that the confederate would rate social performance as poorer in high socially anxious participants compared to low socially anxious participants, and in those holding a negative self-image in mind.

Methods

Participants

The sample was recruited from an online advertisement on the university's homepage and flyers with information about the study were distributed in university's buildings, coffee shops, and libraries. Individuals aged 18–30 years, fluent in language skills, and not consuming any drugs participated in our experiment. Using the results of the Social Phobia Scale (SPS: Mattick & Clarke, 1998; german version: Stangier, Heidenreich, Berardi, Golbs, & Hoyer, 1999), we divided participants ad hoc into two groups. The high social anxiety (HSA) group included 27 participants (scores above and equal 20) and the low social anxiety (LSA) group included 36 participants (scores below 20). A score above the cut-off score of 20 indicates social phobia (Stangier et al., 1999). The sample details are presented in Table 1.

Materials and Procedure

Imagery task. Similar to Hirsch et al. (2003), we activated a negative or positive self-image with an imagery task using a semi-structured interview. High and low socially anxious participants were randomly instructed to vividly recall a negative social situation (in which they felt anxious) or a positive social situation (in which they felt relaxed) that they had experienced before. Once a memory was brought to mind, participants closed their eyes and were instructed to visualize this memory and were asked a series of questions related to how they appeared, sounded, and felt in order to help to visualize the situation.

Manipulation check. For the manipulation check we asked participants what emotions the imagery task released, if they could recall the image, and what they sensed and felt during the imagery task. On a 10-point scale (ranging from not at all to extremely) the participants rated how intense their feelings and sensations were.

Video conversation with a confederate. The participants had a video conversation[6] with a confederate but they believed that they were talking to another study participant. The video conversation lasted for 8 min on average. Three male and three female confederates were involved in this study. They were briefly informed about the study (they were told that our study is about attentional processes during a conversation) and were blind to the condition to which they had been assigned (positive vs. negative self-image, HSA vs. LSA group). Before the start of the study the confederates received several hours of training where they were instructed to hold the conversation as similar as possible for all participants and to follow a script with questions during the conversation (e.g. what is your name? Do you study or do you work? What kind of music do you like?). The conversation took eight minutes in total.

Social anxiety. Social anxiety was measured with the SPS (SPS: Mattick & Clarke, 1998; German version: Stangier et al., 1999), which includes 20 items on a 5-point scale

[6] We used a video conversation (similar to Skype) compared to a live social interaction because during the conversation gaze duration was recorded with eye tracking. Results concerning gaze duration are not presented in this paper.

ranging from 0 (not at all) to 4 (extremely). A score above the cut-off score of 20 indicates social phobia (Stangier et al., 1999). The SPS had high internal consistency in the present study with a Cronbach's alpha of .91.

Anxiety during the conversation. A visual analogue scale (VAS) was deployed for measuring anxiety during the conversation. Participants could specify their level of agreement by indicating a position along a continuous line (100 mm) between the two poles (not at all anxious and extremely anxious). The VAS was deployed immediately after the conversation.

Self-focused attention. The 11-item Self-Focused Attention Scale (SFAS; Bögels, Alberts, & de Jong, 1996) was translated into German. Using a 5-point scale from 0 (never) to 4 (very often) participants filled out five items referring to SFA on one's arousal and six items referring to SFA directed to one's interpersonal behavior. Total scores range from 0 to 44, with higher scores indicating increased SFA. The SFAS was deployed twice: first at the beginning of the experiment, which measured trait SFA, and then a slightly adapted version after the conversation that referred to SFA during the video conversation, which measured state SFA. The internal consistency in this study was high with a Cronbach's alpha of .89 for trait SFAS and a Cronbach's alpha of .85 for state SFAS.

Social performance—self-rating and confederate rating. Participants filled in Bögels et al.'s (2002) modified version of the Social Behavior and Anxious Appearance Rating Scale (SBAARS). This questionnaire comprised 11 specific items (e.g., "had smiled," "was nervous," "had a clear voice") and 4 global items (e.g., "kept conversation partner interested," "generally spoke well"). The 15 items were rated on a 9-point scale from 1 (not at all) to 9 (very much). Participants rated their own social performance and were also rated by their conversation partner—the confederate. The scale had a good internal consistency (Cronbachs's alpha of .85 for self-ratings, and .88 for confederate ratings) and a inter-rater reliability ranging from .57 to .76 (Bögels et al., 2002).

Credibility of confederates being another participant. To measure the credibility of the confederates we developed a semi-structured interview for this study, which included open questions (e.g., "how did you perceive the conversation with your counterpart?") and one question measured on a 10-point scale assessing the authenticity of the conversation with the confederate. At the end of the interview we asked the following question: "In this experiment, half of the participants had the video conversation with another real participant and the other half had the video conversation with a confederate, who was instructed and involved in this study. In which condition do you think you were?" At the end, the experiment investigator debriefed participants and ensured that they were not upset by the falsehood about the confederate.

Integrity of the confederates. At the end of data collection, two independent observers watched all videos of the confederates and rated confederates' behavior on three items (on a 5-point Likert scale), namely, friendliness, speech flow (clear and fluent language), and body language (open and interested behavior).

Procedure

The experiment took place at the Department of Psychology, University of Basel and was reviewed and approved by the local ethics committee (Ethikkommission beider Basel 338/08). At the beginning, the participants were informed in detail about the course of the experiment except they were not told about the confederate (they were told that they would have a conversation with another participant) and they signed an informed consent form. Then they completed a demographic questionnaire about age, education, and sex, the SPS, and the trait SFAS on the computer. Next, participants received instructions about the imagery task and the video conversation. Then we activated a negative or a positive self-image with the imagery task and immediately thereafter participants had a video conversation with the confederate. During the conversation, participants observed the video image of themselves and the confederate's image on their computer screen. After the conversation participants

filled out the VAS, the SFAS, and the SBAARS on the computer, completed the credibility interview, and the manipulation check interview. At the end, participants were debriefed about the experiment and the fact that they were falsely informed about the confederate, thanked, and paid (40 CHF in cash). The confederate evaluated the participant's social performance directly after the conversation.

Statistical Analyses

Data preparation and data checks were conducted using SPSS 20. Differences between the HSA and LSA groups on sample characteristics were computed with *t* tests and chi-square tests. Group differences regarding anxiety during the conversation, self-rated SFA after the conversation, and social performance ratings were analyzed using analyses of variance (ANOVA), with between-subjects factors social anxiety (high vs. low) and self-image (positive vs. negative). We were interested in main effects for social anxiety and self-image as well as in the interaction between these two factors. The ANOVA for anxiety during the conversation included seven missing[7]. Regression analyses were conducted for the association between anxiety and SFA during the conversation and also for the association between social performance ratings, self-image, and SFA. All statistical models were controlled for sex. An alpha level of .05 was used for all analyses to denote a significant result and partial eta squared was specified for effect size.

Results

Differences Between HSA and LSA Groups

The two experimental groups did not differ in age and education (see Table 1). The HSA group included more female participants; therefore all analyses were controlled for sex. As expected, the HSA group showed significantly higher social anxiety, higher trait SFA, higher state SFA, higher anxiety during the conversation, lower self-ratings on social

[7] Because of technical problems the VAS of 7 participants could not be recorded.

performance, and higher underestimation of social performance compared to the LSA group. Both groups did not differ in the self-image condition (see Table 1).

Manipulation Check, Credibility and Integrity of the Confederates

Eighty-six percent of the participants reported that they had recalled their image well. No significant differences between recalling positive and negative self-image was found (positive self-image: $M = 1.09$, $SD = .29$, negative self-image: $M = 1.21$, $SD = .41$, $t(61) = -1.34$, $p = .185$). The intensity of the relived image was $M = 5.79$, $SD = 2.08$ with no significant differences for reliving between the HSA group ($M = 1.15$, $SD = 0.36$) and the LSA group ($M = 1.14$, $SD = .35$), $t(61) = -0.31$, $p = .756$, or for intensity (HSA: $M = 5.89$, $SD = 1.58$; LSA: $M = 5.72$, $SD = 2.41$), $t(61) = -0.10$, $p = .919$.

Thirty-eight percent of the participants believed that their conversation partner had prepared their questions. The authenticity of the conversation had a mean rating of 6.37 ($SD = 2.31$). After participants were informed about the 50% chance of having been interacting with a confederate, still 32% believed that the conversation partner was a real participant. There were no significant differences between the social anxiety groups on the credibility of the confederates. $\chi^2(1) = = 0.055$, $p = .815$. No significant differences were found in confederates' behavior toward high and low socially anxious participants, $F(3, 32) = 1.16$, $p = .339$, $\eta^2 = .10$.

The Influence of Social Anxiety and Self-Image on Anxiety, SFA, and Social Performance During the Conversation

Table 2 presents the main and interaction effects of social anxiety and self-image. No interaction effects between social anxiety and self-image were found for anxiety, SFA, or any social performance rating. However, we found a significant main effect for social anxiety on anxiety, SFA, and self-ratings of social performance. Thus, participants in the HSA group reported higher anxiety and SFA, and poorer social performance during the conversation compared to those in the LSA group. No main effect for social anxiety was found in

confederates' performance ratings, resulting in a significantly higher underestimation of participants own social performance in the HSA group compared to the LSA group. No main effects for self-image and no interaction effects between social anxiety and self-image were found for anxiety, SFA, or any social performance rating.

The Association Between Self-image, SFA, and Social Performance Ratings

Table 3 presents the regression coefficients for the associations between self-image, SFA, and social performance ratings. Higher state SFA during the conversation and higher social anxiety were both associated with poorer self-ratings of social performance, but not with confederates' social performance ratings. Trait SFA and self-image were not associated with either self-ratings or social performance.

The Association Between Self-image, SFA, and Anxiety During the Conversation

State SFA was associated with anxiety. The higher SFA was reported to be during the conversation, the higher was anxiety during the conversation, b=.372, t(55)=2.80, p=.007. No association between self-image and anxiety was found, b=.100, t(55)=.839, p=.405.

Discussion

The current experiment investigated two of the most prominent paths of Clark and Wells's (1995) model—namely, the influence of self-image on SFA and the influence of SFA on anxiety and social performance—within an experimental paradigm including a low and a high social anxiety group. According to the model, we found that high socially anxious individuals reported more SFA and more anxiety during the conversation than low socially anxious participants. We found also evidence for the path from increased SFA to increased anxiety and poorer self-rated social performance maintaining social anxiety. Confederate ratings for social performance did not differ between the two social anxiety groups. The path of a negative self-image to enhanced SFA was not proven in this experiment, nor did self-image influence anxiety or social performance, despite well functioning self-image manipulation.

To our knowledge we are exceptional in investigating self-image and SFA in the same paradigm, as we know of only Makkar and Grisham (2011) investigating similar paths of the SAD model.

Regarding the path from SFA to anxiety and social performance, we found an association between increased SFA and anxiety during the conversation. The higher participants rated their SFA, the greater the anxiety they felt. These results are in line with the cognitive model and previous research (e.g. Woody & Rodriguez, 2000; Zou et al., 2007). Our finding that socially anxious participants underestimated their social performance during the conversation is also consistent with results of previous studies (Rapee & Lim, 1992; Stopa & Clark, 1993; Voncken & Bogels, 2008). However, in contrast to the theoretical model of Clark and Wells (1995), but in line with the existing empirical evidence (e.g. Rapee & Lim, 1992), high socially anxious participants seemed to perform similarly to low socially anxious participants, as rated by their social interaction partner. Thus, high socially anxious individuals subjectively underestimated their social performance, which seems to maintain social anxiety. It is possible that socially anxious participants perceived themselves as more anxious than they actually were. Furthermore, the association between SFA and social performance was confirmed, as higher state SFA was related to poorer self-ratings of social performance. However, confederate ratings were not affected by SFA, which is in line with previous studies (Voncken et al., 2010; Woody & Rodriguez, 2000). This fits well to Clark and Wells's theory, which suggests that socially anxious individuals use self-referent information, produced by SFA, to generate an impression of how they appear to others.

In contrast to Makkar and Grisham (2011), we found no effect of self-image on self-reported SFA and anxiety. The contradictory findings could be the result of a difference in the social situation that was investigated. In Makkar and Grisham, participants were involved in a *performance* situation—they had to be videotaped giving a brief speech—whereas participants in the present study were involved in a *social interaction* situation. Thus, a

negative self-image might be more involved in performance situations than in social interaction situations. A social interaction situation (such as a conversation) might call upon more complex interpersonal social behaviors than a speech. A conversation requires participants to listen, ask, and respond to questions, whereas a speech does not require an interaction with the audience. Therefore, it might be that cognitive resources for holding a self-image in mind are limited. Another explanation might be that participants in Makkar and Grisham's study recalled a congruent speech situation and were especially instructed to hold the actual self-image in mind. In our experiment, we did not instruct participants to keep in mind one particular self-image that was defined by us and so we did not control the recalled image. Therefore, the recalled image was perhaps incongruent with our social interaction situation and did not have much impact on the conversation. Perhaps negative self-image influences cognition (SFA and/or emotions such as anxiety) only in performance situations, or maybe only a self-image in an imagined social situation that is congruent with an actual situation has an influence on attention processes.

Contrary to the research of Hirsch and colleagues (2003; 2004) our results showed no effect of self-image on anxiety. Also we did not find any influence of negative self-image on participants' or confederates' social performance ratings. An explanation could be that participants in Hirsch and colleagues' investigations had two conversations (one with a negative and one with a control self-image) with a stranger or another volunteer. So, the differences between negative and control image were within-subject. Thus, within-subject and between-subjects differences (such as in the present study) render a comparison between the two studies difficult.

Taken together, the present results confirm once again the strong influence of SFA on social anxiety and subjective rated poorer social performance, which is described in Clark and Wells' model (1995). Moreover, the present results suggest that SFA does not necessarily to

be preceded by a negative self-image, as the present results do not show an association between self-image and SFA.

The present study has the following limitations. First, it did not include a patient sample, who is seeking treatment. The HSA group had social anxiety scores comparable with that from clinical samples (Berger, Hohl, & Caspar, 2009), but were recruited in the community. Thus, our results cannot be generalized to patients, who seek treatment. Second, the current study did not include a control condition without self-image manipulation, leaving the hypothesis open that having any self-image in mind in a social situation, positive or negative, affects SFA. Finally, the video conversation in which the participants could observe their own video image might have manipulated SFA. By watching the own video image, the perception of their own SFA could have increased.

The present study underlines the following research implications. Future research should include a clinical sample and a condition without self-image manipulation. To understand the specificity of self-image, different social situations (such as a brief speech and conversation) should be conducted in future studies. Furthermore, it is important to investigate if the influence of self-image works better when an individual holds congruent images in mind, that is, images that relate to the social interaction task. Self-image manipulation with congruent and incongruent images could be conducted in future studies. To investigate this manipulation of SFA, a control group without participants' own video display should be added.

In conclusion, the current study shows again the power of SFA for maintaining social anxiety, though it also shows that increased SFA is not necessarily dependent on a negative self-image and that SFA seems to affect the subjective experience of poorer social performance and not social performance itself. If other studies can replicate the present results, the cognitive model of Clark and Wells (1995) might profit from a simplification.

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Table 1

Characteristics of the Participants in the High and Low Social Anxiety Group

Variable	Group		Test	
	HSA	LSA	*t*	χ^2
Sample size (*N* = 63)	27	36		
Age (in years; *M*, *SD*)	23.67 (2.70)	22.56 (2.71)	1.61$^{n.s.}$	
Education (*n*, university/high school/compulsory education)	10/22/4	8/19/0		3.22$^{n.s.}$
Sex (*n*, female/male)	18/9	13/23		5.76*
Social anxiety (*M*, *SD*)	32.44 (10.41)	11.42 (6.11)	10.04*	
Self-rated trait SFA (*M*, *SD*)	20.30 (6.60)	11.89 (6.28)	5.15*	
Self-rated state SFA (*M*, *SD*)	20.11 (5.92)	13.75 (6.94)	3.83*	
Anxiety during conversation (M, SD)	4.52 (2.07)	2.26 (1.55)	4.68*	
Social performance self-rating (M, SD)	5.93 (.87)	6.99 (.89)	–4.74*	
Social performance confederate rating (*M*, *SD*)	6.64 (1.16)	6.41 (.93)	0.89$^{n.s.}$	
Social performance underestimation (*M*, *SD*)	0.71 (1.53)	-0.58 (1.02)	4.03*	

Note. HSA= High social anxiety, LSA= low social anxiety, *M* = mean; *SD* = standard deviation, SFA = self-focused attention. Social anxiety was measured with the Social Phobia Scale. Anxiety during conversation was measured with a visual analogue scale. Social performance underestimation = confederate rating minus self-rating.

*$p < .05$; $^{n.s.}$ not significant

Table 2

Main and Interaction Effects of Social Anxiety (High vs. Low) and Self-image (Positive vs. Negative) Groups on Anxiety, Self-focused Attention, and Social Performance Ratings During the Conversation, Controlled for Sex

Effect	Anxiety			SFA			Social performance ratings								
							Self-ratings			Confederate ratings			Underestimation		
	$F(1, 56)$	p	η^2	$F(1, 63)$	p	η^2	$F(1, 63)$	p	η^2	$F(1, 63)$	p	η^2	$F(1, 63)$	p	η^2
Social anxiety (SA)	14.64	.000	.22	13.88	.000	.19	17.44	.000	.23	0.34	.563	.01	11.25	.001	.16
Self-image	0.54	.468	.01	0.46	.501	.01	0.04	.842	.00	0.84	.365	.01	0.39	.535	.01
SA × Self-image	3.03	.088	.06	0.01	.917	.00	2.23	.114	.04	0.00	.989	.00	1.08	.304	.02

Note. SFA = self-rated state self-focused attention. Anxiety = Anxiety during conversation was measured with a visual analogue scale.

Table 3

Multiple Regression Coefficients (Standard Error) for the Associations Between Self-image, Self-focused Attention, and Social Performance Ratings (Self and Confederate)

Variable	Social performance ratings	
	Self	Confederate
Self-image	.076 (.22) $^{n.s.}$	.148 (.27) $^{n.s.}$
Social anxiety	-.329 (.23)*	.093 (.35) $^{n.s.}$
Trait SFA	.043 (.02) $^{n.s.}$	.118 (.02) $^{n.s.}$
State SFA	-.352 (.02) *	-.172 (.02) $^{n.s.}$

Note. SFA = self-focused attention; social anxiety measured with the Social Phobia Scale.
*$p < .05$; $^{n.s.}$ not significant. Standard Errors are given in parentheses.

Anhang C

Does self-focused attention in social anxiety depend on self-construal?

Evidence from a probe detection paradigm

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Does self-focused attention in social anxiety depend on self-construal? Evidence from a probe detection paradigm

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Abstract

Cognitive models of social anxiety disorder propose self-focused attention as a key maintenance factor of the disorder. However, whether this holds true for different cultural contexts has not been investigated. The present experiment investigated the influence of self-construal (interdependent versus independent) on self-focused attention in high and low socially anxious individuals. Eighty-seven participants, divided into high versus low socially anxious and interdependent versus independent self-construal, performed a self-focused attention probe detection paradigm. A reaction time metric relating to attention deployment on the self versus the other served as an index of self-focused attention. In individuals with an interdependent self-construal those who are highly socially anxious showed decreased self-focused attention compared to those who are low socially anxious. In individuals with an independent self-construal the effect of social anxiety was less strong and in the opposite direction (but congruent with cognitive models). These results indicate that self-focused attention in social anxiety depends on self-construal. These findings implicate different therapies for people with social anxiety disorder, depending on their self-construal.

Keywords: self-focused attention, self-construal, social anxiety, social phobia, interdependence, culture, cognitive-behavior therapy, exposure treatment

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Introduction

Several cognitive models propose that social anxiety disorder (SAD, also called social phobia) is associated with increased self-focused attention (SFA) (Clark & Wells, 1995; Rapee & Heimberg, 1997). These models assume that in social situations patients with SAD excessively monitor themselves and their internal processes (which is called SFA) to find out how they are coming across to others rather than monitoring the audience or an interaction partner to find out what impression they are making. According to these models excessive SFA enhances fear symptoms and impairs social performance both of which maintain social anxiety. Consistent with these models, questionnaire studies (e.g. Perowne & Mansell, 2002; Voncken, Dijk, de Jong, & Roelofs, 2010) have shown increased SFA in high socially anxious individuals compared to low socially anxious individuals. The association between increased SFA and social anxiety was also investigated experimentally (e.g. Mansell, Clark, & Ehlers, 2003; Pineles & Mineka, 2005). Mansell et al. (2003) found in a probe detection task, that in an enhanced social stress condition (anticipation of giving a speech), high socially anxious women showed more SFA than low socially anxious women, whereas no such pattern was found in men. In a no social stress condition, high and low socially anxious participants did not differ in SFA in both women and men. However, when Mansell et al. (2003) divided the sample into high and low speech-anxious individuals, they found that high speech-anxious women *and* men showed more SFA in the social stress condition than low-speech anxious individuals. Mansell et al. (2003) suggested as a possible explanation that when participants are divided on social anxiety, the difference in speech anxiety between high and low groups was greater in women than in men. Again, in the no social stress condition there were no differences between the speech-anxiety groups. In contrast, Stevens and colleagues (Stevens, Cludius, Bantin, Hermann, & Gerlach, 2014) found that high socially anxious individuals focused more on external probes than on internal probes, whereas for controls no differences were found between internal and external probes. High socially anxious individuals were also more externally focused than controls, but there was no difference between groups for internal probes. Their explanation for the contradictory findings was that samples of earlier studies (e.g. Mansell et al., 2003) were based on predominantly speech anxious individuals, whereas the sample of Stevens et al. (2014) was screened with the Social Phobia Scale (Mattick & Clarke, 1998), which contains a broader band of social situations. Research investigating the effect of experimentally heightened SFA on social anxiety usually finds that the latter increases if the former is enhanced (Bögels & Lamers, 2002). For a review of the evidence on the role of SFA in social anxiety, see Bögels and Mansell (2004). Based on the result of this body of research, cognitive behavioral treatment programs have started to include attention trainings (i.e. the patient learns to focus externally during a social task) into their SAD

interventions (Bögels, 2006; Bögels & Lamers, 2002; Clark et al., 2003; Kitanishi, Nakamura, Miyake, Hashimoto, & Kubota, 2002).

Despite growing recognition that cultural variables should be added to models of SAD (e.g. Dinnel, Kleinknecht, & Tanaka-Matsumi, 2002; Heinrichs et al., 2006; Hong & Woody, 2007; Kleinknecht, Dinnel, Kleinknecht, & Hiruma, 1997; Takahashi, 1989; Tanaka-Matsumi, 1979; Vriends, Pfaltz, Novianti, & Hadiyono, 2013), the influence of cultural variables on SFA in social anxiety has not been investigated. One cultural variable that has been proposed as a factor that might play a role in models of SAD is self-construal (also called self-concept) (Dinnel et al., 2002; Kleinknecht et al., 1997), which has two culturally based dimensions, namely an interdependent and an independent self-construal (Markus & Kitayama, 1991).

Interdependent self-construal emphasizes the relatedness of the self to a collective, the feeling to be part of a larger whole. The self is defined and experienced within the context of relationships and group memberships. Independent self-construal emphasizes individual autonomy, and defines the self as a bounded and distinctive locus of awareness and action, separate from the collective. Although both dimension of self-construal can be found in all cultures, an interdependent self-construal has been observed more in so-called collectivistic cultures of East Asia (Markus & Kitayama, 1991; Triandis, 1989; Triandis, Chan, Bhawuk, Iwao, & Sinha, 1995), whereas independent self-construal has been observed more in so-called individualistic cultures of North America and most Western European countries (Markus & Kitayama, 1991; Triandis, 1989; Triandis et al., 1995).

Social anxiety has been reported to be higher in Eastern cultures (with a more interdependent self-concept) than in Western cultures (with a more independent self-concept) (e.g. Heinrichs et al., 2006; Vriends et al., 2013). Moreover, an interdependent self-construal correlates positively with social anxiety and an independent self-construal correlates negatively with social anxiety (Vriends et al., 2013). Based on these correlations between these different types of self-construal and social anxiety, we assume that self-construal might influence SFA in socially anxious individuals. Socially anxious people with an interdependent self-construal may tend to focus more externally in social situations – they might focus on other people to monitor expressions relating to social norms besides focusing on their own behavior. Focusing on the external social norms might prevent them from breaking them and risking social costs such as exclusion from the group. Fear of offending *others* has been recognized more often in cultures with a predominant interdependent self-construal, which is in line with this hypothesis (Kleinknecht et al., 1997; Nakamura, Kitanishi, Miyake, Hashimoto, & Kubota, 2002). In cultures with a predominant independent self-construal, however, fear of embarrassing *oneself* is reported more often (Norasakkunkit, Shinobu, & Yukiko, 2012). Therefore, it is possible that in individuals with an interdependent self-construal social anxiety is not maintained through the same processes as proposed in maintenance models for social anxiety that were developed based on predominantly Western patients by Western researchers. An extension of models of SAD with self-construal might therefore be clinically relevant, so that patients with different culture backgrounds can benefit from adapted interventions.

The present study investigated the influence of a primarily interdependent versus primarily independent self-construal on SFA in social anxiety. SFA was measured using a modified probe detection paradigm (Mansell et al., 2003) which is one of the few paradigms that measures SFA using reaction times and is considered to be more objective than self-report measures of SFA. Self-report biases may be particularly a source of error when assessing cultural differences. For example, social desirability response tendencies may be associated with interdependent self-construal. Participants, divided into high versus low socially anxious and independent versus interdependent self-construal groups, performed the modified probe detection paradigm. They watched pictures on a computer screen and were asked to react as fast as possible to a self-focused (vibration on skin) and an other-focused (letter on pictures of persons) stimulus. Assuming that reaction time is longer when attention needs to shift from the place of interest (or socially relevant place) to the target stimulus, the SFA score is derived from *comparing* reaction times between the self-focused stimuli and the other-focused stimuli. Half of the participants were randomized to a social stress condition. Based on the cognitive model of SAD we expected an interaction between social anxiety and social stress showing that in the social stress condition, high socially anxious individuals show more SFA than low socially anxious individuals. For the no social stress condition, we did not expect a difference between the groups. Based on our assumption that in social situations socially anxious people with an interdependent self-focus might focus more externally on other people than on themselves to monitor the social norms of the collective, we expected self-construal to interact with social anxiety. High socially anxious individuals with an interdependent self-construal were

expected to show less SFA than high socially anxious individuals with an independent self-construal. For low socially anxious individuals we expected no significant differences. Based on Mansell et al.'s (2003) finding that only socially anxious women, and not men, showed higher SFA in a social stress condition, we investigated whether social anxiety would interact with sex to determine the level of SFA under social stress.

Methods

Participants

The present sample consisted of 87 participants and was recruited through advertisement on the homepage of the University of Basel and through advertisement at pin boards of local restaurants and libraries. To try to enhance variance in self-construal, we explicitly also invited participants with an Asian origin[1] (from China, Korea, Japan, India, Tibet, Thailand, Iran and Turkey). Participants with a non-Asian background were Caucasian and came from Switzerland, Germany, England and Italy. Two participants were excluded from the analyses, as the experimental software (E-Prime) did not properly record their reaction times during the attention task. Table 1 shows the sample characteristics. Participants received vouchers (15 Swiss Francs) for study participation.

Table 1: Characteristics of the total study sample (N = 85) and comparison of the independent self-construal group (N = 55) with the interdependent self-construal group (N = 30)

	Total sample	Independent self-construal group	Interdependent self-construal group	Test	
				t [a]/χ^2 [b]	*p*
Age (*M, SD*)	28.1 (8.09)	28.4 (8.16)	27.6 (8.05)	.434[a]	n.s.
Female sex *(N, %)*	49 (58)	30 (55)	19 (63)	.614[b]	n.s.
Asian origin *(N, %)*	45 (53)	24 (44)	21(70)	7.49[a]	.006
Independent self-construal (*M, SD*)	2.60 (0.41)	2.76 (0.35)	2.30 (.35)	5.42[a]	<.05
Interdependent self-construal (*M, SD*)	2.29 (0.51)	2.07 (0.44)	2.68 (.38)	–6.34[a]	<.001
Social Phobia Scale (*M, SD*)	34.6 (10.3)	31.7 (9.33)	39.2 (10.04)	–3.419[a]	<.001
High social anxiety (*N*, %)	46 (54)	26 (48)	20 (67)	2.94[b]	n.s.

Note. M = Mean, *SD* = standard deviation, *n.s.* = not significant, [a] *t*-Test, [b] Chi-square test

Materials

Self-report measures

Social anxiety.

Social anxiety was measured with the German version of the Social Phobia Scale (SPS; Mattick & Clarke, 1998; German; Stangier, Heidenreich, Berardi, Golbs, & Hoyer, 1999). This 20-item scale measures anxiety symptoms related to performing various tasks while being observed. Each SPS item is rated on a 5-point Likert-type scale that ranges from 0 (not at all characteristic or true of me) to 4 (extremely characteristic or true of me). A total score is obtained by summing the ratings of all the items, resulting in scores ranging from 0–80. Scores above the cut-off of 24 indicate social phobia for Western populations (Heimberg, Mueller, Holt, Hope, & Liebowitz, 1992). No cut-off scores for Asian populations have been established so far. The scale shows high internal consistency and moderate test-retest reliability (Heimberg et al., 1992). In the present study the Cronbach alpha was .86. The groups high versus low social anxiety were formed by median-split on the SPS scores (Median = 32; high social anxiety *N* = 45,

[1] Research into collectivism and individualism has shown that collectivistic (interdependent) self-concepts are more common in Asian cultures than in Western cultures and individualistic (independent) self-concepts are more common in Western cultures than in Asian cultures (Hofstede, 1984; 2001).

low social anxiety *N* = 40). Some of the low socially anxious individuals (n = 26) were above the clinical cut-off defined in Heimberg et al.'s (1992) paper. We assume that this is the case because we specifically also recruited participants with a higher likelihood of interdependent self-construal. In Eastern cultures social anxiety scores might be higher than in Western cultures, although no social phobia can be diagnosed (Heinrichs et al., 2006; Vriends et al., 2013). Therefore overall social anxiety scores in our sample were higher than would be expected in a purely Western sample of participants.

Self-construal.

The German version of the Singelis Self-Construal Scale (Mokry, 2011; Singelis, 1994) consists of two 12-item subscales, assessing interdependent and independent self-construal. An example from the independent self-construal scale is ''I enjoy being unique and different from others in many respects'' and one from the interdependent self-construal is ''I will sacrifice my self-interest for the benefit of the group I am in''. The participants responded on a 5-point Likert-type scale from "strongly disagree" to "strongly agree". The mean score of the 12 items of each subscale was computed. Multiple studies have shown the subscales to have acceptable internal consistency (Norasakkunkit & Kalick, 2002; Sato & McCann, 1997; Singelis, 1994; Singelis & Sharkey, 1995), although lower reliability estimates have also been reported (Levine et al., 2003; Okazaki, 2000). In the present study the Cronbach alpha was .48 for the interdependent self-construal scale and .70 for the independent self-construal scale. Both subscales were normally distributed. Based on the difference between the two self-construal subscales and following recommendations of Singelis (1994), author of the Self-construal Scale, participants were divided into two groups: an independent group including participants with a dominance for an independent self-construal (difference between interdependence and independence scale was negative, *N* = 55) and an interdependent group including participants with a dominance for an interdependent self-construal (difference between interdependence and independence scale was positive, *N* = 30). Table 1 shows demographic and questionnaire information comparing the groups.

Experimental task

Social stress manipulation.

Before the SFA probe detection task, the experimenter informed half of the participants that after the computer task they would have to give a 2-minute speech about genetic engineering and to do a short intelligence test (social stress condition). The experimenter showed the participants a large VHS camera standing 2 meters in front of them and told them that the speech and test would be recorded, so that psychology students, who will be depicted on the pictures of the following computer task, could rate the speech, as well as the social and intelligence skills of the participant. This social stress manipulation was based on Mansell et al. (2003), but we also added an intelligence test next to giving a speech in order to broaden the social stressor to a non-speech task, and thus incorporate other fears of socially anxious individuals. To find out whether the manipulation made participants in the social stress condition more anxious the German version of the Spielberger's State-Trait Anxiety Inventory, State Scale (STAI-state) (Knight, Waal-Manning, & Spears, 1983; Laux, Glanzmann, Schaffner, & Spielberger, 1981; Ramanaiah, Franzen, & Schill, 1983; Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983) was applied before and after the social stress manipulation. At the end of the experiment, the participants in the social stress condition were asked to rate on a 0 to 100% scale how much they had believed that they had to give a speech and had to perform an intelligence test. They were also asked how much they had believed that the persons depicted in the computer task were psychology students who would rate their speech and intelligence test.

Self-focused attention paradigm.

The self-focused attention task was a modified version of Mansell and colleagues' probe-detection task (2003). The task started with the instruction that the participants had to react as fast as possible, by pressing a response button, to two target stimuli, namely to the character *E* (other stimulus) and to a vibration of a tactile stimulus on the upper arm (feels like soft vibration of a cell phone) (self stimulus), both presented during a stream of pictures on a 19'' PC monitor. In the original paradigm (Mansell et al. 2003), the vibration had been delivered to a finger of the non-dominant hand and participants had been led to believe that the vibration happened due to changes in their

physiological arousal. No such instruction was given in the present study due to concerns that participants may not believe it. However, the self stimulus was on the upper arm, close to the body area that is often monitored and focused on by people with social anxiety. The pictures consisted of a set of 20 full screen pictures: 12 pictures of faces of two men and two women, one from each sex and origin (Asian or European), with three different emotional expressions (neutral, critical and friendly; Tottenham et al., 2009), four pictures of neutral objects, and four pictures related to the theme genetic engineering (to remind the participants in the social stress condition of their speech task). The experimenter informed the participants in the social stress condition that the people depicted on the pictures are the judges of their speech and intelligence test. In the original version of the paradigm, no pictures related to the content of the speech that was supposed to follow the attention task had been used, only 12 pictures of faces and four pictures of neutral objects. Before the task started, the participant practiced the task on a picture of a light bulb. If the participant successfully understood the task, the experimenter turned on the video in the social stress condition and left the room. During the task the participant watched the 20 pictures in random order. The self and the other stimuli were presented each three times at random intervals during the presentation of each picture and disappeared or stopped vibrating either if the participant pressed the response button or if the participant did not react 3'000 ms after onset of the target stimulus. To keep the participant actively involved and focused, the first target stimulus was presented either 150 or 500 ms after the onset of the picture (building up of picture took approximately 120 ms). The inter-trial intervals of the remaining five target stimuli during each picture were 2'250 (2x), 3'000 (2x) or 3'700 ms (1x) (randomized). As such, each picture presentation took a minimum of 15'370 ms and a maximum of 32'820 ms. The total duration of the SFA task was approximately 9 min. In the original paradigm, four self and other stimuli had been presented on each picture. We reduced this to three stimuli per picture, as we included four more pictures (genetic engineering) and did not want to increase the length of the task too much.

Procedure

After the participant provided informed consent and filled out the questionnaires (SCS, SPS, and STAI-State), the experimenter prepared psychophysiological measurements (heart rate, facial temperature and respiration)[2]. Then the participant was asked to sit quietly for the assessment of the physiological baseline measure. After this, the experimenter gave half of the participants the social stress induction instruction. The other half did not receive any instruction at this point. Before starting the SFA paradigm, both groups filled out the STAI-State a second time and then started with the paradigm. After that, the experimenter told the participants in the social stress condition that they did not have to give a speech or do an intelligence task, and asked the participants to retrospectively rate how much they had believed the information on the speech task and rating of judges (see above, Social Stress Manipulation). Finally the participants were debriefed, thanked, and reimbursed for their time.

Statistical analyses

Self-construal group differences (independent versus interdependent) on sample characteristics were analysed with *t*- and Chi-square tests. Participants were divided into high versus low on the Social Phobia Scale based on a median split. Despite the limitations of a median split, we wished our design to be comparable to Mansell et al. (2003) in terms of having a high versus low social anxiety group, and the median approximated previous clinical cut scores (e.g. Heimberg et al., 1992).

STAI-State scores were analysed as a manipulation check for social stress versus non-social stress condition using a repeated measures general linear model (GLM), including 'Condition' (social stress versus no social stress), 'Self-construal' (independent versus interdependent) and 'Social anxiety' (high versus low) as between-subjects factors, and 'Time' (before and after the social stress induction) as within-subject factor. A significant condition x time interaction or a significant condition main effect would indicate that the social stress induction was successful, namely that participants in the social stress condition indeed felt more anxious after the social stress manipulation than

[2] Physiological results are not presented here. Physiological measurement was unobtrusive and was not expected to influence the present data directly.

beforehand. We also analysed if the participants in the social stress manipulation believed that they would have to give a speech and do an intelligence test judged by a jury.

Reaction times to the self-focused and the other-focused target stimuli below 100 ms and above 1,000 ms were recoded into missing values (Mansell et al., 2003). Reaction times below 100 ms are expected to be arbitrary, not reflecting focus of attention, and reaction times above 1,000 ms would represent other attention processes that were not the focus of this study. Reaction times were log-transformed to better meet model assumptions (normality and homoscedasticity of residuals). Self-focused attention was computed through the difference of the mean reaction time to the other-focused target stimuli and the mean reaction time to the self-focused target stimuli. Higher values indicated that the participant reacted relatively faster to the self-focused target stimuli compared to the other-focused target stimuli.

The hypothesis that self-construal will interact with social anxiety for SFA during a social stress situation was analysed with a GLM including the between-subjects factors 'Self-construal' (independent versus interdependent), 'Social anxiety' (high versus low), 'Condition' (social stress versus no social stress) and 'Sex (male versus female)'. First we entered all effects in the model (including all higher order effects) and then removed all effects with *F*-value < 2 (Green & Tukey, 1960) . Main effects were only dropped from the model if their terms were not included in significant interactions. The following interactions were included in the reported model: Social anxiety x sex, social anxiety x condition, social anxiety x self-construal, and social anxiety x self-construal x condition. Figures display the estimated means of the factor interactions. An alpha level of .05 was considered statistically significant. A η^2 level of < .01 was considered as small effect size, of < .06 as medium and of < .14 as large (Cohen, 1988).

Results

Manipulation check

A significant main effect for social anxiety (F (1, 77) = 7.54, p = .008, η^2 = .09) indicated that participants with high social anxiety were generally more anxious independently of condition and time. However, this main effect was qualified by a significant condition x time interaction for STAI-State (F (1, 77) = 11.25, p = .001, η^2 = .13), which indicated that anxiety was successfully induced in the social stress condition. No main or interaction effects for self-construal were revealed, indicating that self-construal groups did not differ in their anxiety levels. All other main effects and interactions were not significant (p > .05 for each effect)[3].

The mean rating of participants in the social stress condition about their conviction that they had to give a speech and perform an intelligence test was 89% (SD = 18.05), indicating that this manipulation was believed. The mean rating of participants in the social stress condition regarding the belief that some pictures of the attention task depicted the students, who would judge their skills, was 71% (SD = 38.50). As expected GLM including social anxiety and self-construal as between-subjects factors revealed no significant group differences or interactions on credibility of the social stress manipulation (p >.05 for each effect). Thus, both groups believed to the same extent that they would have to give a speech and perform an intelligence test that would be judged.

In sum, the stress manipulation was successful, but participants with high social anxiety were more anxious than participants with low social anxiety throughout the experiment.

[3] Details about the F, p and η^2 values of the non-significant effect can be requested at the corresponding author.

Table 2: Main and interaction effects of the ANOVA model including the factors social stress condition (stress versus no stress), sex, self-construal (independent versus interdependent) and social anxiety (high versus low) (Model A) and the same model without the factor social stress condition (Model B)

	Model A			Model B		
	***F* (1, 75)**	***P***	**η^2**	***F* (1, 79)**	***p***	**η^2**
Social stress	.04	n.s.	.00	-	-	-
Sex	.73	n.s.	.01	.90	n.s.	.01
Self-construal	1.43	n.s.	.02	1.73	n.s.	.02
Social anxiety	2.53	n.s.	.03	3.37	n.s.	.04
Social stress x social anxiety	1.31	n.s.	.02	-	-	-
Social anxiety x sex	8.26	.005	.10	8.18	.005	.09
Social anxiety x self-construal	5.00	.028	.06	6.16	.015	.07
Social stress x social anxiety x self-construal	1.02	n.s.	.03	-	-	-

Self-construal and self-focused attention in high and low social anxiety

In our model, including self-construal, social anxiety, sex, and social stress condition as between-subjects factors (model A, Table 2), the interaction between social anxiety and sex, as well as the interaction between social anxiety and self-construal were significant. All other main and interaction effects were not significant. Because the social stress condition did not show a significant main effect nor any significant interaction effects (F-value < 2 for the main effect and each interaction effect involving social stress condition) we repeated the analysis using a simplified model without this factor (model B). The model was robust with respect to the significant interactions of model A (see model B, Table 2). The other main and interaction effects remained non-significant. The significant interaction between self-construal and social anxiety is illustrated in Figure 1. In participants with an interdependent self-construal, high socially anxious participants showed less SFA (*M* = 0.019, *SE* = 0.031) compared to low socially anxious participants (*M* = 0.155, *SE* = 0.043), whereas in participants with an independent self-construal, high socially anxious participants showed slightly more SFA (*M* = 0.056, *SE* = 0.026) compared to low socially anxious participants (*M* = 0.037, *SE* = 0.025).

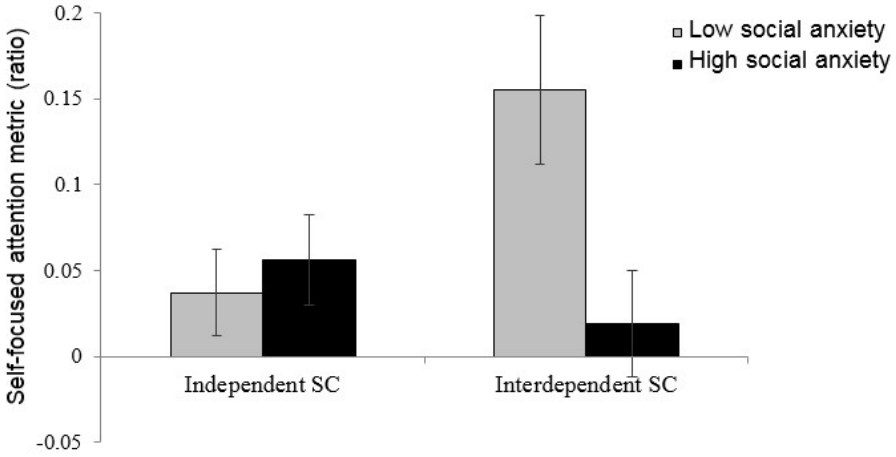

Figure 1: Self-focused attention metric (estimated means) in independent self-construal and interdependent self-construal groups divided into low and high socially anxious participants. Error bar presents +/– 1 standard error.

The significant interaction effect between sex and social anxiety is depicted in Figure 2. SFA was lower in high socially anxious men (*M* = –0.018, *SE* = 0.031) compared to low socially anxious men (*M* = 0.124, *SE* = 0.037) whereas in

women no such differences were observed (high socially anxious women: *M* = 0.094, *SE* = 0.026; low socially anxious women: *M* = 0.068, *SE* = 0.031).

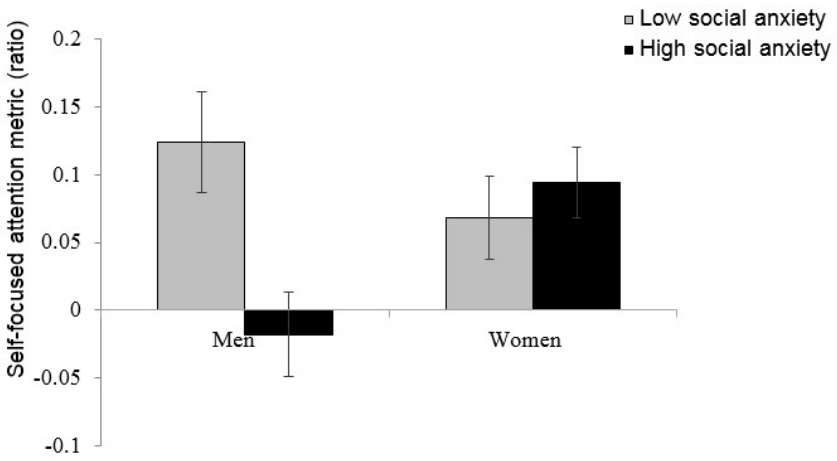

Figure 2: Self-focused attention metric (estimated means) in men and women divided into low and high socially anxious participants. Error bar presents +/– 1 standard error.

Discussion

The present study showed that self-construal (independent versus interdependent) and sex moderate the relationship between social anxiety and self-focused attention (SFA). Whereas high socially anxious participants with an independent self-construal were more self-focused than low socially anxious participants with an independent self-construal, the opposite was found for participants with an interdependent self-construal – those with high social anxiety showed *less* SFA than those with low social anxiety. The result in participants with an independent self-construal is in line with contemporary conceptualizations of social anxiety disorder, in which SFA is assumed to be a central factor in the maintenance of the disorder (Bögels & Mansell, 2004; Clark & Wells, 1995), because indeed high socially anxious participants showed somewhat increased SFA compared to low socially anxious participants. The result of the participants with an interdependent self-construal that high socially anxious participants show *decreased* SFA compared to low socially anxious participants support our hypothesis and has a less good fit with these conceptualizations as it does not support the idea of SFA being a maintaining factor of social anxiety. Note that these conceptualizations are based on research in individualistic, Western cultures, and were not adapted for cultural differences.

Socially anxious participants with an interdependent self-construal might show less SFA because they fundamentally embed themselves within a larger social whole (Markus & Kitayama, 1991), have more interests to focus on the social situation (e.g. social interaction partner), and focus on the social norms that apply in the given situation rather than on internal processes. They might want to monitor external indicators of how to behave correctly and appropriately to the social context. Namely, if an individual from a collectivistic culture (which is associated with an interdependent self-construal) deviates from social rules, they tend to be threatened by sanctions, such as exclusion from the group. It is therefore highly relevant for such individuals that their social behavior is evaluated as appropriate and positive (Suh, Diener, Oishi, & Triandis, 1998). In that sense, socially anxious persons might think that it is useful to keep an eye on the group or on the other to notice signals about the social norms that have to be met. One might assume that excessively monitoring the social other to find out whether one is not breaking the social rules could be as anxiety provoking and performance lowering as excessively monitoring oneself. This hypothesis is supported by a recent study that asked participants during a social situation to either focus on themselves (their thoughts, feelings, body sensations), or on their conversation partner to find out how well they were coming across (Bolt, 2011). Results showed that both conditions were equally anxiety inducing and lowered the performance of participants. However, further studies are needed to investigate the influence of enhanced external focus of attention on social anxiety in individuals with an interdependent self-construal.

Results indicate that the effect of social anxiety on SFA depends on sex. SFA was lower in high socially anxious men than in low socially anxious men, whereas in women no such differences were found. This finding is in line with Mansell et al. (2003) who developed the present paradigm. However, they found that the association between social anxiety and SFA was only supported in women under social stress, unless they divided their sample in high versus low speech anxious individuals. In sum, the results indicate that the model that social anxiety is maintained by SFA might not hold for persons with an interdependent self-construal and for women.

The finding that social stress did not have an effect on SFA was not in line with Mansell et al. (2003) and unexpected, as the manipulation checks indicated that the manipulation was credible and had heightened state anxiety. However, we also found that high socially anxious participants were more anxious than low socially anxious participants throughout the experiment. Perhaps this level of state social anxiety in high socially anxious participants was (independent from the social stress manipulation) sufficiently high for SFA to show its effects.

The present findings of individual differences influencing attention processes in social anxiety might be of relevance for the etiology and treatment of social anxiety disorder, as well as for methodological considerations. With regards to the etiology of SAD, in line with the notion that models of social anxiety should be extended by cultural variables (Heinrichs et al., 2006; Norasakkunkit, Kitayama, & Uchida, in press; Rapee et al., 2011), the present findings indicate that individual differences such as self-construal and sex might have to be added to current models of SAD. Possibly, in individuals with an interdependent self-construal social anxiety is not maintained through the same processes as proposed in Western maintenance models for social anxiety. Whereas in cultures with a predominately independent self-construal enhanced SFA is considered to be an important maintenance factor of SAD, social anxiety may be maintained by an enhanced focus on the social other in cultures with a predominantly interdependent self-construal. Should this be confirmed in future studies, also including clinical samples, it might indicate that specifically for individuals with a predominantly interdependent self-construal an attention training that focuses on a reduction of external focus of attention or cognitive restructuring regarding the importance of others' opinions about oneself may be helpful in therapy.

The methodological relevance of the present results lies in the fact that for the participants with an independent self-construal we replicated (to our knowledge for the first time) some of the findings of Mansell et al. (2003), using their paradigm (with slight modifications). Thus, the paradigm of Mansell et al. (2003) has been shown to be effective in measuring self- and other focused attention in another laboratory. Even though Mansell et al. (2003) did not measure self-construal, it might be assumed that their sample included rather independent self-construal participants, as they did not explicitly include a group of non-Caucasian participants. Additionally, the present study showed that experimental designs might be useful when investigating cultural differences in social anxiety. So far, social anxiety across cultures has mainly been investigated by questionnaire and interview studies. A shortcoming of these studies is that they rely on subjective ratings, which may be subject to cultural biases. Particularly individuals with an interdependent self-construal might respond to questions in a manner that will be viewed favorably by other. In contrast, experimental paradigms have the potential to provide more direct measures of attention. The present results might be encouraging future studies into cultural and sex differences in social anxiety using experimental designs.

Besides these advantages, the present investigation has some limitations. The sample consisted of non-clinical participants and was rather small. Also, the groups were not equally distributed, because of the natural correlation between social anxiety and an interdependent self-construal (e.g. Dinnel et al., 2002), and because of the lower proportion of individuals with an interdependent self-construal compared to the individuals with an independent self-construal. Future studies should increase sample sizes and use groups with more extreme values on the self-construal scales to better balance cell sizes. Furthermore, although seventy percent of the interdependent group contained Asian origin, we did not especially compare Asian participants with participants from other cultural backgrounds because in this study we were specifically interested in the influence of self-construal on social anxiety. Many of our Asian participants had a high independent self-construal and therefore comparing Asians with other ethnicities would not have answered our research question. However, future studies might want to investigate self-focused attention in a cross-cultural setting (i.e. comparing samples from diverse cultural backgrounds). In addition, the present results do not necessarily imply causal association of enhanced SFA increasing social anxiety (as it is proposed in the cognitive models), but rather represent an individual-difference correlation that may be bidirectional or influenced by third variables. Furthermore, the Cronbach alpha for the interdependent self-construal of the Self-

Construal Scale was low with .48. We employed this scale, which is widely used, to allow for comparison with other studies that have investigated self-construal in cross-cultural settings and defined our groups based on this measurement. As we were interested in the balance between interdependent and independent self-construal within a person, using only independent self-construal to define the groups of comparison would not assess what we were interested in. Finally, it is not clear yet what the correlates, causes and consequences of enhanced external attention are in socially anxious individuals with an interdependent self-construal. Future studies should examine the cognitive and affective processes associated with external focus in these individuals.

Despite these limitations, the present study demonstrated that individual differences in self-construal and sex moderate the relationship between social anxiety and SFA. Etiological models of social anxiety disorder might have to be extended by these factors. If these findings will be replicated, patients with social anxiety disorder could profit from culturally and gender sensitive prevention and intervention programs focusing on distorted attention processes.

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