Friends with Benefits: Perceived Social Support in Social Anxiety Disorder

Relations between Childhood Maltreatment, Perceived Social Support and Social Anxiety Disorder

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Abstract

Research in the influences of childhood maltreatment shows a negative influence of Childhood Maltreatment (CM) on Social Anxiety Disorder (SAD). On the contrary, Perceived Social Support (PSS) is a rising force for positive influence in SAD. However, both PSS and CM have not yet been researched in SAD specifically. This study observes the relationships between those three factors, in which PSS is expected to show a positive effect and CM a negative effect in SAD. Furthermore, this study hypothesizes PSS as a moderator in SAD

Method: This study included participants from a prior research sample (Baljé et al., 2016), who had complete data on CM, PSS and SAD, resulting in a research sample of 34 participants with a mean age of 36 (*SD*=12) and N=17 for male and female. Data covering full DSM-IV diagnosis, medication use, experienced trauma, substance (ab)use, years of complaints and prior treatment are presented. Furthermore, frequencies of both CM and PSS in different severities of SAD are researched.

Results: ANOVA's were used to test the influence of PSS and CM on social anxiety disorder and on treatment effect. A moderation analysis investigating the moderation of PSS on the relationship between CM and SAD. A significant effect was found of CM on SAD with Emotional Maltreatment as main influence. Significant effects for the relation of PSS on SAD, the relation of PSS and CM on treatment effect and the effect of PSS on the relation between CM and SAD were not found.

Conclusion: Childhood Maltreatment is a large influence in onset and severity of SAD and needs to be addressed. Research in treatment for Childhood Maltreatment in adults is recommended. Based on multiple studies, PSS promises to be an effective and important addition to treatment as usual, but these effects are not found. Further research is needed for actual implementation of PSS in treatment.

Introduction

Anxiety disorders are a specific group of disorders in which excessive anxiety plays a central feature. Amongst those anxiety disorders, the Social Anxiety Disorder (SAD) is the one with the highest long-term disability (Hendriks et al., 2016, Rachman, 2013). Social Anxiety Disorder (SAD) interferes significantly with the life of an individual, resulting in isolation, avoidance and an low quality of life (Rachman, 2013). This study discusses growing research into SAD with an aim to further investigate between different factors contributing to SAD. Furthermore, it is investigated whether these factors can possibly improve treatment as usual. In order to present the research questions and hypothesis, short description of Social Anxiety Disorder and its working components is given. Based on those components, current treatment methods and two known influences with great impact in SAD are described

Social Anxiety Disorder (SAD)

Social Anxiety Disorder is an anxiety disorder in which people experiences severe anxious sensations when confronted with social contact. When confronted with social interaction persons experience severe anxious symptoms, including excessive blushing, sweating, inability to write, eat or speak in public and stage fright (American Psychiatric Association, 2013). Persons are anxious that they might behave in a manner that is embarrassing or unacceptable in a certain situation, and they fear scrutiny (Rachman, 2013). Feelings of being judged, insecurity and a negative evaluation of oneself mostly result in avoidance of any form of social contact. Besides living in constant fear, Kashadan, Weeks and Sovostyanova (2012) found that higher rates of social anxiety also account for a decrease in positive experiences. Positive experiences of SAD persons are less frequent, with lower intensity and less long-lasting than those of healthy individuals. Kashadan et al., (2012) conclude that in general, socially anxious persons tend to have a poor quality of life based on the diminished positive experiences. To further understand the onset and maintaining mechanisms of SAD, the main cognitive and behavioral components of Social Anxiety Disorder are shortly described.

Cognitive and behavioral components of SAD

The main cognitive component of a person with SAD are both a distorted assumption about themselves (for example "I am inadequate, I am not a nice guy) as well as the way they should behave in social contact (Clark & Wells, 1995, Rachman, 2013). More recently, Hendriks et al. (2016) found that SAD persons have distorted beliefs about the self and social evaluation, which together with excessively high standards for social performance, result in developing numerous negative self-images. These negative self-images tend to contribute to the dysfunctional beliefs as described above, resulting in a vicious negative cycle. This makes an individual highly self-conscious in social contact, which is not effective for improvement of their condition (Rachman, 2013, Hirsch, Mathews, Clark, Williams & Morrison, 2003).

Beside cognitive components, a typical behavioral component of SAD is avoidance, mostly described as any type of behavior which provide avoidance for the fearful stimuli. (Rachman, 2013). The effects of avoidance are mostly isolation, inhibition and changing behavior or surroundings to avoid fearful stimuli. Avoidance is a short-term solution for fearfull symptoms but it significantly increases fear in the long-term, so avoidance is seen as a very maladaptive behavioral treat for improvement of SAD. Further research learned that avoidance behaviors arise when the persons over-predict the amount of fear they will experience in a certain situation. They overestimate the amount of anxiety, concluding that they cannot handle the expected anxiety and thus the initial behavior is declined, resulting in avoidance of fearful activities (Rachman, 2013).

Most of the current treatment guidelines recommend CBT for treatment of SAD. The format of treatment differs between individual or group therapy. The Dutch guidelines recommend group CBT-therapy (Van Balkom et al., 2013). CBT is the leading and not yet topped standard, with respect to pharmacotherapy, and has good, long lasting results (Van Balkom et al., 2013). The combination of cognitive restructuring alongside exposure therapy seems to be effective. Currently, at PsyQ Den Haag, a RCT is running to investigate the difference in treatment between cognitive behavioral therapy and schema therapy in SAD with comorbid Avoidant Personality Disorder traits (Baljé et al., 2016), suggesting different maladaptive schemas in SAD/APD might be treated better with Schema Therapy.

There are, however, a lot of factors influencing psychological disorders. Besides treatment, factors like loneliness, intelligence, socioeconomic status and many more all have positive or negative effects regarding the disorder, which might cause interference in treatment. Current research shows two main components with clear influence throughout almost every psychological disorder: Social Support and Childhood Maltreatment. Social Support seems to be an all-round great positive influence in the life of both healthy individuals and patients (Taylor, 2011, Hansen, Fuentes and Aranda, 2017), whereas Childhood Maltreatment seems to be the opposite with many negative effects and influences in both healthy individuals and patients (Child Welfare Information Gateway, 2013, Teicher, Samson, Polcarin and McGreenery, 2006). A lot of research into both Social Support and Childhood Maltreatment has been done, but this research will only focus on the effects of Social Support and Childhood Maltreatment in Social Anxiety Disorder, and what those effects might imply for the maintenance as well as treatment of Social Anxiety Disorder.

Perceived Social Support and Childhood Maltreatment in SAD

Definitions of Childhood Maltreatment and Perceived Social Support

The World Health Organization defines Childhood Maltreatment (CM) as following:

> Child maltreatment is the abuse and neglect that occurs to children under 18 years of age. It includes all types of physical and/or emotional ill-treatment, sexual abuse, neglect, negligence and commercial or other exploitation, which results in actual or potential harm to the child's health, survival, development or dignity in the context of a relationship of responsibility, trust or power. (World Health Organization, 2006, "Fact Sheet Childhood Maltreatment", para.1)

CM is an umbrella term covering 5 forms of maltreatment: Physical Abuse (PA), Physical Neglect (PN), Emotional Abuse (EA), Emotional Neglect (EN) and Sexual Abuse (SA).

Social Support is mostly defined by "the perception or experience that one is loved and cared for by others, esteemed and valued, and part of a social network of mutual assistance and obligations" (Wills, 1991, pp 266). As one of the first studies regarding Social Support, Zimet, Dahlem, Zimet & Farley (1988) found three main sources of support: friends,

family and significant other, with no difference in strength between the three. So, for an individual to perceive the beneficial effects of support, at least one of these sources should be present. But, as the definition suggests, there is a catch. Current research confirms the mere *perception* of the availability of these forms, should they be needed in times of stress, as the most beneficial factor of social support (Taylor, 2011). Following today's research, this study will speak of Perceived Social Support (PSS) as the beneficial factor gained from perceiving the availability of one of the forms of social support as described by Zimet et al. (1988), should they be needed. Both PSS and CM are very interesting to investigate in SAD, due to the nature of the disorder. Regarding Social Support, it is known that SAD influences friendship quality (Rodebaugh, Fernandez & Levinson, 2012), but to the researchers knowledge there is no study which proves that SAD patients cannot perceive social support. Hence, it might be possible for SAD patients to still feel supported by the one or two contacts they have. This feeling of support could attribute to faster recovery from SAD, when implemented in treatment. Childhood Maltreatment on the other hand is a major moderator of SAD severity and most likely the largest influence in the onset of SAD (Hofman, 2013, Simon et al., 2009), making maltreatment adults with SAD even more anxious than SAD patients without histories of maltreatment. The clinical implications of PSS and CM will now be described, to further investigate the underlying relations between PSS, CM and SAD and how both Perceived Social Support and Childhood Maltreatment might be used to optimize treatment for Social Anxiety Disorder.

Effects and Clinical Implications of Childhood Maltreatment in Social Anxiety Disorder

With regard to the influence of Childhood Maltreatment on SAD, several studies show many different, complex effects. During childhood, the impairing effects of maltreatment are directly noticeable in peers, because maltreatment impairs children in interacting with their peers (King, 2016). They also tend to be more negatively appraised and rejected by their peers (King, 2016), which leaves them with fewer friends and fewer social interactions which are essential for adequate development as a child. Kashdan et al. (2011) found that these rejections and difficult attachments predict social difficulties and anxiousness toward social contact in the future.

Current views show that, as a result of Childhood Maltreatment, a child generates early maladaptive schemas (EMSs) to cope with the abusive situation (Calvete, 2014). When not changed, these EMSs are the leading risks for developing different emotional disorders. The

same study by Calvete (2014) found evidence for a mediating role of these EMSs into symptoms of depression and SAD. They concluded that EMSs are a shared cause for both Social Anxiety Disorder and depression, explaining the high comorbidity between the two disorders (Calvete, 2014, Hovens et al., 2009).

Further investigating these EMS, Shahar, Doron and Szepsenwol (2015) studied one specific schema as a result of emotional maltreatment (the shame-based cognitive-affective schema). Early experience of abuse creates aversive shame states, in which self-criticism is used as a safety behavior to conceal this shame. But, self-criticism maintains negative self-perception and insecurity in social situations, resulting in maintenance of social impairment. (Shahar et al., 2015). Their study found evidence of the maintenance of SAD by self-criticism and shame, as a result of mostly Emotional Maltreatment. This maintenance of SAD due to EMSs has also been studied by Ng and Abbott (2016) who found interesting results. During their study into negative self-imagery, SAD patients were primed into different self-imagery groups (negative, positive and neutral). Social anxious patients reported higher anxiety ratings than healthy controls, but there was no intergroup difference between the negative, positive or neutral imagery groups. Instead, SAD patients reported similarly high anxiety levels whether their self-image was negative, positive, or neutral. As explanation they offer the possibility that the idea of a negative social outcome is persistent in SAD patients amongst all types of self-images. Thus, even though patients uphold a positive self-image, the underlying expectations of social outcomes is still negative and not changed by their primed self-image.

Besides EMSs as a onset and maintaining factor in SAD, maltreatment has also strong influences in the general severity of SAD. A study by Simon et al. (2009) showed that Childhood Maltreatment is linked to greater symptom severity and poorer quality of life in Social Anxiety Disorder. Life function and resilience were also significantly lower in maltreated patients, leaving patients more vulnerable to develop psychopathology, and especially emotional abuse and neglect had strong associations with SAD severity. Furthermore Hovens et al. (2009) showed the relation of childhood trauma in anxiety and depressive disorders. Strong associations suggested that childhood trauma significantly contributes to the severity of psychopathology in both anxiety and depression. In contrast to Simon et al. (2009), Hovens et al., (2009) did not find unique predictions based on different forms of childhood trauma.

With the influences of CM on onset and maintenance of SAD mostly visible, Bruce, Heimberg, Goldin and Gross (2013) focused on the effect of CM on treatment of SAD. They found that CM does not affect treatment adherence or rate of response of CBT, but there seems to be evidence for its negative effect while being in treatment. Abuse or neglect did not affect the disability over the course of treatment, but Emotional and Sexual forms of maltreatment showed greater symptom severity and impairment at pre- and posttreatment. Authors suggest additional attention for Childhood Maltreatment in current CBT for SAD.

But there seems to be a problem with assessing Childhood Maltreatment in adults in the current clinical settings. It is not an actual disorder, nor is it described as disorder or additive for psychopathology in the DSM-IV or DSM-V (American Psychiatric Association, 2013). The chance of CM being overlooked in intakes or screenings for Social Anxiety is rather big, which is, given its large impact in the disorder, not feasible. Even when it is not part of a patient's initial problem, the negative influence of CM is still persistent in SAD. Integrating protective factors in treatment, which account for CM in SAD could be a fitting additive to account for these negative influences.

Many studies regard Perceived Social Support as a protective factor against (early) life stress, maladaptive schemas and childhood maltreatment in general EMSs (Taylor, 2011, Lin, Ye & Ensel, 1999), Panayoto & Karekla, 2013, Dour et al., 2014, Hermano, Zuroff, Kelly and Leybman, 2017). But, to reduce a certain impact of CM in SAD with the use of Perceived Social Support, a patient must rely on some form of social support (Zimet et al., 1988). This may sound controversial at first glance: how could a person with SAD, with by definition a low social support system (if even apparent) due to excessive fears regarding social contact, benefit from social support as a buffer? To further investigate these relationships, Perceived Social Support as second major component with influence in SAD is described.

Effects and Clinical Implications of Perceived Social Support in Social Anxiety Disorder

With regards to PSS, not many studies investigated the direct effects of PSS on SAD. But, a lot of research of PSS on anxiety disorders in general, depression and burnout has been performed. Now, these general known effects of Perceived Social Support are described and the possible contributions of these effects in the recovery of patients with Social Anxiety Disorder is investigated.

Beneficial effects of PSS are amongst others: reducing psychological distress like anxiety or depression during times of stress (Lin, Ye, & Ensel, 1999) promoting psychological adjustment to chronic stressful conditions (e.g. certain types of cancer, heart diseases, diabetes, HIV, and strokes) and protect against cognitive declines in older adults and support physical health and survival (Taylor, 2011). The most effective support is invisible to the recipient, so it occurs without awareness of the recipient. Thus, the availability of a supportive network may act in a supportive manner without one's realization, thereby reducing distress in response to threatening effects (Taylor, 2011).

A different effect of PSS is that it improves general treatment adherence. DiMatteo (2004) found in a meta-analysis of 122 studies that adherence to treatment is significantly higher in people with cohesive families and friend groups. Adherence is 1.74 times higher in cohesive families, and 1.53 times lower in conflicting groups. So, a cohesive system would not directly influence treatment, but would provide more adherence to treatment. The assumption that being in treatment longer would also increase treatment rate is not discussed in the study by DiMatteo (2004).

But as suggested by DiMatteo (2004), PSS seems to be very good at keeping the patient in healthcare (Hansen, Fuentes & Aranda, 2017): in 992 adults with depression, PSS was measured as a moderator between service use (actually using social support) and health impairment. They concluded with PSS as a significant positive moderator between health impairment and service use at 57-months follow-up, if patients actively used social support. The authors suggest assembling support resources for patients in primary mental health care, which would increase availability of PSS for patients. Since PSS might act without one's realization, simply making it available might already be a positive impact for patients.

More specific focused on SAD, Panayoto and Karekla (2013) found PSS to be a direct effect on quality of life and perceived stress in SAD patients by its ability to create positive life experiences, and indirectly buffers against the effects of stress. Rapee, Peters, Carpenter and Gaston (2015) found that PSS appears to reduce future SAD (and may even protect against it). Besides that, the effects of intervention are positively enhanced by PSS. However, avoidance support (supporting avoidance behavior, mostly coming from romantic relationships) was positively associated with SAD, suggesting that support of avoidance behavior is not feasible for the treatment and improvement of SAD.

More focused on the working process of PSS, Dour et al., (2014) found mediating effects of PSS in reducing anxiety and depressive symptoms. Dour et al. suggest that PSS might be essential for anxiety and depressive symptom changes during treatment. This might be an overlooked quality of PSS, but if PSS is indeed essential for treatment change it deserves more attention in treatment.

Finally, Hermano et al. (2017) describe the Social mentality theory, researching the effects of giving and receiving social support. They found that individuals who received and gave more support than others were more self-reassuring. Based on this finding, the authors suggest clinical implications of the social mentality theory for people who are highly self-critical and resistant to being self-compassionate. Those individuals might, through giving and receiving support, develop a less self-critical view and more self-compassion, breaking certain negative self-images. As stated above, SAD patients are known to be self-critics with low compassion and self-esteem. Giving and receiving support might make them more "soft", breaking their vicious cycle of negative appraisal and therefore reducing the maladaptive schemas imbedded in the disorder. The authors carefully suggest social contact as actual clinical treatment for SAD.

Perceived Social Support, Childhood Maltreatment and treatment of Social Anxiety Disorder

As described above, PSS and CM both have large influences on SAD patients. With growing knowledge of these factors, the possibility to implement these factors in treatment seems to be a logical next step. Substantial research found numerous positive effects of PSS on SAD, so why would PSS not be implement those in treatment? The same accounts for CM, with such large negative influences, one could argue that treatment should also account for these negative effects. As shortly described earlier in this research, in the Netherlands, treatment as usual for SAD is currently Cognitive Behavioral Therapy, with main components of exposure and cognitive restructuring. The mediators of change in treatment for SAD are researched by Hofmann (2006), who suggest different cognitive mediators with influence in treatment change of SAD. With the main mediators of change being negative cognitive appraisal, perceived self-efficacy and perceived emotional control, they change the focus of SAD treatment from cognitive appraisal (changing underlying cognitive patterns in SAD

patients) to perceived social skills and perceived social control (empowering self-efficacy and countering dysfunctional beliefs). With PSS being able to increase perceived social control (Taylor, 2011), Perceived Social Support could suffice as the same treatment moderator proposed by Hofmann (2006).

Based on the general effects of PSS and the effectiveness of PSS in other disorders, integration of Perceived Social Support in current CBT treatment for SAD seems to be a valuable addition for both patients with and without histories of childhood maltreatment. Forms of treatment with integrated aspects of social support start to emerge, for example the study by Delsignore et al. (2016), who have proven that email support is a good addition to regular CBT, based on principals of PSS. In group therapy for SAD (CBGT, cognitive behavioral group therapy) some patients received supportive emails during therapy, which was more effective in reducing symptom severity than the patients who did not receive supportive emails. Besides, patients who missed at least two sessions improved more through email-support than patients who missed more than two sessions in the control group. Authors conclude by stating that semi-personalized emails should be considered as an addition to CGT in clinical practice.

As mentioned earlier, the attention of PSS and CM in current health care is low, but starts to show more and more of its possibilities. Combining all of the information above, current treatment for SAD can be more efficient, faster, and simply better with a specific screening for Childhood Maltreatment to acknowledge possible negative effects of CM in patients and by integrating forms of PSS as an all-round protective and positive factor. As a result, the practical implication of integrating PSS in treatment requires one thing: for PSS to function as a moderator.

Moderation of PSS on CM and SAD in treatment of Social Anxiety.

For PSS to be a helpful addition to treatment, it is essential that it actually has a negative effect on SAD, resulting in lower SAD scores. Besides that, it needs to have a negative effect on the of dysfunctional thoughts and cognitions that might have led to SAD in the first place. By knowledge of the researchers, these specific relationships are not yet tested in SAD. But as well as in general stress and in depression, a lot of research has been done into this so called “buffer hypothesis” of Perceived Social Support.

Lin, Ye and Ensel (1999) found direct effects of Perceived Social Support on depression, where a patient with a good social support system would report less depressive symptoms than those without. Lin, Ye and Ensel (1999) were the first to describe this effect as the buffer hypothesis of social support. The buffer hypothesis is based on the assumption that Perceived Social Support would buffer against the stress-effects of the disorder, and the actual disorder itself, resulting in lower symptom severity and a higher quality of life for those experiencing social support.

A similar buffer effect of PSS has yet to be found in SAD. However, with regards to CM, it is known that PSS plays a significant role in mediating and moderating some long term consequences of Childhood Maltreatment (Sperry & Widom 2013). To fully utilize these effects they suggest that more investigations in timing and mechanisms of PSS are needed to guide preventive interventions and treatment with the use of PSS. A first indication of the buffer hypothesis of PSS in SAD is set up by Horan & Widom (2015), who investigated the stability of Perceived Social Support through middle adulthood in individuals with documented histories of childhood abuse and neglect, with matching controls. They measured the influence of PSS with a composite measure of psychological stress which they named allostatic load (the wear and tear of the body). The higher the allostatic load, the more stress an individual has experienced. Social Support partially mediated the relationship between Childhood Maltreatment and allostatic load, suggesting implications for prevention of negative consequences of CM. They also found significant differences in usage of social support systems between men and woman: Women are more likely to actively seek out social support than men and women also seem to experience more benefits of social support then men.

The moderation effect of PSS is a strong factor with regards to treatment. As described earlier, CM tends to have negative effects on SAD. With current treatment only focusing on SAD itself, treatment with regards to underlying factors should also be researched. If PSS can moderate the negative effect of CM in SAD patients, implementing forms of social contact which can generate PSS for SAD patients could become a very good additive to the current CBT treatment for SAD.

Aim of the study

To establish this addition in treatment, first the underlying relationships of Perceived Social Support, Childhood Maltreatment and Social Anxiety Disorder needs to be observed. The primary goal of this study will therefore be to observe the relationships between PSS and CM on treatment effect as well as on severity of SAD in patients with Social Anxiety Disorder.

Research questions

Question 1: What is the relation between PSS and CM on Social Anxiety in SAD patients?

Sub question 1: Is there a relation between CM and SAD?
Sub question 2: Is there a relation between PSS and SAD?

Question 2: What is the effect of PSS and CM on treatment of SAD patients?

Sub question 1: Is there a relation between CM and treatment effect?
Sub question 2: Is there a relation between PSS and treatment effect?

Question 3: Does PSS moderate the influence of CM on SAD in SAD patients?

Hypothesis

Based on literature described above, it is expected that PSS has a positive effect on SAD and CM has a negative effect on SAD. It is also expected that the same relations are present in the effects of PSS and SAD on treatment effect. Furthermore, based on the knowledge of the positive benefits of PSS, a moderation effect of PSS on the relation of CM on SAD is expected

Method

Prior Study Sample

This study was part of a larger study on treatment effectiveness for Social Anxiety Disorder with comorbid Avoidant Personality Disorder (Baljé et al., 2016). The pilot study population consisted of 73 participants. The participants each received either cognitive behavioral therapy or schema therapy (Baljé et al., 2016). They were former patients of two PsyQ treatment facilities in The Hague and Rotterdam.

Inclusion criteria were: A diagnosis of Social Anxiety Disorder, or enough traits of SAD to benefit from treatment regarding SAD. Besides that, they also needed to be willing (and able) to attend the 30 group therapy sessions and withhold from treatment elsewhere. Medication usage was permitted (antidepressant or benzodiazepine, but only if the current dose was stable for at least 3 months prior to the start of the trial). Further requirements from the participants were the completion of daily between-session homework assignments and before taking part in the study, patients had to give their informed consent (Baljé et al., 2016).

Patients could not participate when the following exclusion criteria were met: A previous (or current) diagnosis of bipolar or psychotic Axis-I disorder, suicidal traits, substance abuse (or dependence) for which detoxification was required (after successful detoxification, participation was possible). Also participants with a primary Axis-II diagnosis (borderline-, antisocial-, schizoid- or schizotypal personality disorder) were excluded. Patients who had problems talking, reading and writing Dutch and patients with an IQ lower than 80 were also excluded (Baljé et al., 2016). Prior to treatment, patients were requested to complete multiple questionnaires as a baseline measurement. Repeated measures were performed at: baseline (T0), mid-test (T1), post-test (T2), 3-months follow-up (T3), half year follow-up (T4) and one year follow-up (T5). The questionnaires were sent through a link by email and could be completed online through Qualtrics. This study will use the measurements of T0 and T2 for all its variables (Baljé et al, 2016).

Current Study Procedure

Electronic Patient Files research

To find more descriptive information about the prior pilot sample, the electronic patient files (EPF) were examined (N=73). Multiple factors were investigated: full DSM-diagnosis, medication usage, drug (ab)use, prior treatment, family pathology, the current years of symptoms, (early life) trauma and social support system. Most of these factors are standardized questions in the first clinical intake at the anxiety disorders department of PsyQ The Hague, and this study used only those files to collected data (other clinical intakes at e.g. different departments or follow-up intakes were not investigated).

Data reduction

The former pilot population of N=73 contained many missing values in the key variables (SAD, CM and PSS) required to answer the research questions of this study.

It is not possible to observe all of the hypothesized relationships when one of these variables is missing in a participant. Therefore, it was chosen to delete 39 patients with missing data on the questionnaires for either SAD, CM or PSS (see "measurements"). First, the CM data was checked, which had N= 30 missing values (13 patients did not receive their questionnaires, 8 patients did not fill in their questionnaires and 9 patients were marked as "missing" in the dataset, without a clear cause). These 30 participants were deleted from the prior pilot data, resulting in N=43. From that sample, one participant was deleted due to missing T0 SAD data (the patient did not fill in his questionnaire), resulting in N=42**.** From T2, another 6 participants with missing SAD values were deleted (they also did not fill in their questionnaires). Finally 2 missing PSS values (no recordings of PSS in EPF) were deleted, resulting in a final dataset of N=34. This sample had a mean age of 36 (*SD*=12), ranging from 22 to 67 years old and an exact 50% distribution of male and females (N=17 for both).

Measurements

In the study by Baljé et al. (2016), multiple measurements were used [1]. This study used primarily the LSAS-CA, CTQ-SF and the EPF as measurements:

The Liebowitz Social Anxiety Scale (LSAS**,** Heimberg et al., 1999) was used as a self-rated measurement which assesses the severity of Social Anxiety Disorder. Its psychometric properties are very good (internal consistency and the test-retest reliability, Heimberg et al., 1999). It consists of 24 items, on a four-point Likertscale (0= none/never, 3= severe/usually) and distinguishes between non-anxious (<30), mild social anxiety (31-47), severe social anxiety (48-73) and very severe social anxiety, >74 (Rytwinsky et al., 2009). This study used

[1] Further measurements included the The Mini-International Neuropsychiatric Interview (MINI; Sheehan et al., 1998), the Structured Clinical Interview for DSM Axis II disorders (SCID-II; Lobbestael, Leurgans, & Arntz, 2011), the Avoidant Personality Disorder Severity Index (AVPDSI), the Liebowitz Social Anxiety Scale (LSAS; Heimberg et al., 1999), the Rosenberg Self-Esteem Scale (Rosenberg- SES; Rosenberg, 1965), the Acceptance and Action questionnaire (AAQ; Hayes et al., 2004), the Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004), the Schema Mode Inventory II (SMI-2; Bamelis, Renner, Heidkamp, & Arntz, 2011), the World Health Organization Quality Of Life-Bref (WHOQOL-Bref; Trompenaars, Masthoff, Van-Heck, Hodiamont, & De-Vries, 2005), and the Childhood Trauma Questionnaire-Short Form (CTQ-SF; Bernstein et al., 1994). One of three possible depression questionnaires: the Beck Depression Inventory Second Edition (BDI-II; Beck, Steer, & Brown, 1996), the BDI-I (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) or the Inventory of Depressive Symptomatology-Self Report (IDS-SR; Rush, Gullion, Basco, Jarrett, & Trevedi, 1996).

the non-categorized LSAS score as a measurement for Social Anxiety Disorder, resulting in a ratio variable with a total range from 0 (no SAD) to 144 (highest severity of SAD).

Furthermore, Treatment effect was measured as the difference in LSAS scores at T0 and T2 (computed by subtracting the T0 values from the T2 values). A positive score shows an increase in SAD, a negative score shows a decrease in SAD.

The Childhood Trauma Questionnaire-Short Form (CTQ-SF; Bernstein et al., 1994) assessed Childhood Maltreatment and is divided in different subscales covering all five forms of Childhood Maltreatment: Physical abuse and neglect, emotional abuse and neglect and sexual abuse, each subscale consisting of 5 items. Response options range from 0 (never true) to 5 (very often true), resulting in a total score of 25 for each subscale (Arntz & Wessel, 1996; Bernstein et al., 2003). The cutoff scores, whether a certain type of maltreatment should be classified as "present", were for physical abuse ≥ 8, physical neglect ≥ 8, sexual abuse ≥ 8, emotional neglect ≥ 15 and emotional abuse ≥ 10 (Bruce et al., 2012). In this short version (the original contains 70 items, Bernstein et al., 2003) Physical Abuse (PA) is defined as 'Hit hard enough to see doctor' and Physical Neglect (PN) is defined as 'Parents were high or drunk'. Emotional Abuse (EA) is defined as 'Felt hated by family' and Emotional Neglect (EN) is defined as 'Felt loved' (with reversed items). Sexual Abuse (SA) is defined as 'sexual contact or conduct between a child younger than 18 years of age and an adult/older person' (Thombs, Bernstein, Lobbestael, and Arntz, 2009). The psychometric properties of the CTQ-SF are good (Bernstein et al., 2003; Thombs et al., 2009).

In this study, total CM scores were composed by using the sum of each of the 5 subscales (resulting in a ratio variable with a range from 0 (no maltreatment) to 125 (highest amount of maltreatment). CM was further divided in three main maltreatment groups: Physical, Emotional and Sexual maltreatment (PM, EM and SM). Physical maltreatment was scored by an addition of PA and PN scores, emotional maltreatment was scored by an addition of EA and EM scores and sexual maltreatment was scored by SA scores. To determine the presence of either Physical, Emotional or Sexual maltreatment, the used cut-off scores were the sum of the cut-off scores for their according subscales (Physical ≥ 16, Emotional ≥ 25 and Sexual ≥ 8).

Perceived Social Support was a subjective measure, taken from the patients' health care files. Before T0, patients had a first intake in which questions about social support are asked. The variable consisted of the answers from patients on those questions about their social system.

However, those questions were not standardized and it had to depend on the therapist if he/she would ask about their social support. The most frequently asked questions about a social system were "do you have good friends/relations/family", "do you experience support by a certain individual" and "do people know that you are here". Based on the research of Zimet et al. (1988) this study looked for information on the three main sources of social support: Friends, Family and Significant Other. When a patient reported information about feeling supported by one of these groups the particular group was scored a 1 (present). If the file had no references to one of the three groups, these groups were scored a 0 (not present). This study assumed that, when a patient makes no remarks about a certain group, support from this group was not present. Patients who had no recordings of questions about social support at all were deleted (see "data reduction"). The final variable of Perceived Social Support was the sum of the 3 main sources of social support, resulting in a ratio variable with a range from 0-3 (A score of 0 meaning the lowest form of PSS, 3 the strongest form of PSS). Since each form accounts for different positive effects (Taylor, 2011; Zimet et al., 1988), more groups should account for accumulating positive benefits, therefore people experiencing 3 forms of PSS should experience stronger effects of PSS than the people with 1 form of PSS.

Statistical analysis

For the statistical analysis SPSS 22 was used, with all signification levels at 5%. Descriptive statistic were generated covering among others the full DSM diagnosis, medication use, experienced trauma, substance (ab)use, years of complaints and prior treatment. To further investigate the rates and distribution of CM and PSS amongst the participants, crosstabs of PSS and CM in SAD will be used, to see which forms of CM and PSS were mostly present, what the different distributions were and what combinations were present in the current research sample.

To answer the research questions, mostly ANOVA's were used. First the assumptions for ANOVA (normality, homogeneity) in SAD, CM, PSS and treatment effect was tested. For question 1, if there is an influence of CM and PSS on SAD, two ANOVA's were conducted, with SAD as dependent variable. First PSS was the independent variable, second CM was the independent variable. To answer question 2, whether PSS and CM influence treatment effect, also two ANOVA's were used, with treatment effect as the dependent variable. Again, first PSS was the independent variable, then CM. Together with the ANOVA a Levene's test was used, to check for homogeneity. For the third research question, if PSS moderate the influence

of CM on SAD in SAD patients, a two-way ANOVA was conducted with SAD as dependent variable and CM and PSS as fixed factors. This study used the interaction effect between CM and PSS to determine whether PSS moderates the influence of CM on SAD.

Results

First, the different characteristics of the research sample, based on the EPF research, are described. Then the distribution of CM and PSS in SAD is reviewed and lastly the results of the research questions are presented.

Data distribution

According to the DSM-IV diagnosis as noted in the EPF, the most common diagnosis on Axis I is SAD (N= 29, 85.3%), depression (N = 16, 47%), and GAD (N=7, 20.6%). In depression, N=5 participants (31.25%) have a single episode, N=6 (37.5) have repeated episodes and N=5 (31.25%) have dysthymia. There are other anxiety disorders present (Panic N=2, 5.8%, OCD N=1, 2.9%, and PTSS N=2, 5.8%). Personality disorders (axis II) are less frequently present than Axis I disorders, with N=20 (58.8%) for deferred diagnosis. Furthermore, N=9 participants (26.5%) have an Avoidant Personality Disorder, and N=3 (8.8%) have no diagnosis on Personality disorders. One participant (2.9%) has Obsessive Compulsive Personality Disorder and two (5.8%) have a personality disorder not otherwise specified. With regards to axis III, There are two (5.8%) participants with bodily complaints. Examining the Axis IV problems, 27 (79.4 %) participants report psychosocial environmental problems (conform axis IV). From these 27 participants, 20 (74.1%) participants have problems in their social environment, 13 (48.1%) in their primary support group and 15 (55.5%) participants experience problems at work. Seven (20.6 %) participants report no problems on axis IV. GAF scores (axis V) range from 36 to 60, with a mean of 55 and a standard deviation of 5.6.

With regard to medication, 15 (44.1%) participants use medication. Most of the participants have long lasting complaints, with N=19 (55.9%) for participants with complaints

lasting more than 5 years, and 6 (17.6%) participants with lifetime complaints. Besides that, 25 participants (73.5%) have had prior treatment for psychological problems. With regards to substance (ab)use, 13 participants (38.2%) report substance usage. There are thirteen participants (38.2%) who do not use substances and 8 participants (23.5%) have no information about substance use in their EPF. From the participants who report substance (ab)use, 8 use alcohol (61.5%), 3 (23.0%) use nicotine and 2 (15.4%) have combined substance use (alcohol and nicotine). Interesting is the fact that 3 (23.0%) alcohol users and 4 (30.7%) nicotine users (including one of the combined substance users) report daily usage of alcohol/nicotine. This should qualify for a substance dependency/addiction as stated in the DSM-IV, but these are not noted in the DSM-IV diagnosis in the EPF.

Distributions of Perceived Social Support and Childhood Maltreatment in SAD

The distribution of the main variables (SAD, CM, PSS and treatment effect) is further discussed here. Prior to the analysis, they were checked on normality and homogeneity. All of the variables are normally distributed, without outliers or missing values. With regards to SAD, base levels of social anxiety are high, with a mean of 77.5 (SD = 23.9), indicating very severe SAD. The severity of SAD is based on LSAS measurements. This sample had 4 (11.7%) participants who have mild SAD, 11 (32.4%) have severe SAD and 19 (55.8%) participants have very severe SAD. The mean scores of SAD dropped over time, indicating a treatment effect. Patient scores drop significantly with 18.8 (SD = 28.9) points in social fear between T0 and T2. Further investigation shows no significant differences in LSAS-scores when comparing patients with a history of Childhood Maltreatment to patients with no Childhood Maltreatment. Also no significant differences in LSAS scores are found between patients with Perceived Social Support and patients without Perceived Social Support.

With regards to Childhood Maltreatment and Perceived Social Support, N=13 (38.2%) patients report no CM, and 21 (61.8%) participants have experienced some form of trauma (see also table 1). Maltreated patients report a mean of 49.8 (SD =9.0), indicating a moderate severity of trauma. With regards to Perceived Social Support, 27 (79.4%) participants report Perceived Social Support, and 7 (20.6%) who do not (see also table 2). The participants who did report PSS scored a mean value of 1.4 (SD = 0.63), which indicates bad/moderate Perceived Social Support. Tables 1 and 2 show the frequencies of CM and PSS of the sample. The following tables 3, 4 and 5 show the different rates of CM and PSS in mild SAD, severe SAD and very severe SAD.

Table 1

Frequencies of CM type

Type of maltreatment	N	Percent
No Maltreatment	13	38.2
Physical Maltreatment	1	2.9
Emotional Maltreatment	7	20.6
Sexual Maltreatment	2	5.9
Physical Maltreatment – Emotional Maltreatment	7	20.6
Emotional Maltreatment – Sexual Maltreatment	1	2.9
Physical Maltreatment- Emotional Maltreatment – Sexual Maltreatment	3	8.8
Total	34	100.0

Table 2

Frequencies of Support Type

Social support	N	Percent
No Support	7	20.6
Friends	6	17.6
Significant other	8	23.5
Family	5	14.7
Friends-Significant Other	1	2.9
Friends-Family	4	11.8
Significant other-Family	1	2.9
Friends, Family and Significant other	2	5.9
Total	34	100.0

Table 3

Frequencies of CM and PSS in mild SAD

		PSSType (N)								
		No support	Friends	Significant Other	Family	Friends-Significant Other	Friends-Family	Significant Other - Family	Friends-Family-Significant Other	Total
Maltreatment Type (N)	No maltreatment	1	1	1	0	0	0	0	0	3
	Physical Maltreatment	0	0	0	0	0	0	0	0	0
	Emotional Maltreatment	0	0	0	0	0	0	0	0	0
	Sexual Maltreatment	0	0	0	0	0	0	0	0	0
	Physical-Emotional Maltreatment	0	0	0	0	0	0	0	1	1
	Emotional-Sexual Maltreatment	0	0	0	0	0	0	0	0	0
	Physical – Emotional – Sexual Maltreatment	0	0	0	0	0	0	0	0	0
Total		1	1	1	0	0	0	0	1	4

Table 4

Frequencies of CM and PSS in Severe SAD

		PSSType (N)								
		No support	Friends	Significant Other	Family	Friends-Significant Other	Friends-Family	Significant Other - Family	Friends-Family-Significant Other	Total
Maltreatment Type (N)	No maltreatment	1	0	2	0	0	0	0	0	3
	Physical Maltreatment	0	0	0	0	0	0	0	0	0
	Emotional Maltreatment	0	2	0	0	0	0	0	0	2
	Sexual Maltreatment	0	0	0	0	0	1	0	0	1
	Physical-Emotional Maltreatment	0	0	2	1	0	0	0	0	3
	Emotional-Sexual Maltreatment	0	0	0	0	1	0	0	0	1
	Physical – Emotional – Sexual Maltreatment	0	0	1	0	0	0	0	0	1
Total		1	2	5	1	1	1	0	0	11

Table 5

Frequencies of CM and PSS in very severe SAD

		PSSType (N)								
		No support	Friends	Significant Other	Family	Friends-Significant Other	Friends-Family	Significant Other - Family	Friends-Family-Significant Other	Total
Maltreatment Type (N)	No maltreatment	1	0	2	2	0	1	1	0	7
	Physical Maltreatment	0	0	0	1	0	0	0	0	1
	Emotional Maltreatment	3	1	0	0	0	0	0	1	5
	Sexual Maltreatment	1	0	0	0	0	0	0	0	1
	Physical-Emotional Maltreatment	0	1	1	0	0	1	0	0	3
	Emotional-Sexual Maltreatment	0	0	0	0	0	0	0	0	0
	Physical – Emotional – Sexual Maltreatment	0	1	0	0	0	1	0	0	2
Total		5	3	3	3	0	3	1	1	19

Tables 3, 4 and 5 show interesting rates of PSS and CM in the different severity's of SAD: In mild SAD, one patient (25%) has experienced maltreatment, in severe SAD N=8 patients (72.7%) experienced some form of childhood maltreatment, and in very severe SAD 63.2 % (12 patients) report CM. The different types of maltreatment are widely spread, but throughout the whole sample, EM tends to be the most frequent form of maltreatment (a total of 18 patients, 52.9% of the whole sample) report EM (see table 8). Of the people who report maltreatment (21 patients, 61.7 %), EM scores an even higher percentage of 85.7%.

For PSS, the tables show that in mild SAD, N= 3 (75%) patients report PSS, in severe SAD N=10 (90.9%) and in very severe SAD N=14 (73.7%). The percentage show that very severe SAD holds the lowest percentage of PSS.

Furthermore, the tables show that 5 (71.4%) of the 7 patients who experience no support have severe SAD, suggesting that low PSS accounts for more severe SAD. From the participants who report PSS only experiencing one form of PSS is by far the most common with N=19 (70.4%). When a patient experiences only one form of PSS, a significant other is the most frequent form (N=8, 29.6%). However, when a patient experiences multiple forms of PSS, the combination friends-family is the most frequent with N=4 out of 6 participants (66.6%, see also table 2). This could suggest that a significant other is less compatible with the other two forms of PSS and vice versa. However, no significant differences in SAD values between the PSS groups is found. Finally, since we had an even distribution of male and female, different PSS, CM and SAD scores were investigated. However, no significant differences were found.

Data Analysis

To answer question one, whether there is an influence of CM and PSS on SAD, 2 ANOVA's have been conducted. Results show no significant effect of PSS on SAD at $p < .05$ with $F(3,30) = .187$, $p = .905$. It cannot be concluded that PSS is an influence in SAD. However, there is a significant effect of CM on SAD at $p < .05$ with $F(24,9) = 2.987$, $p = .046$ so it is concluded that CM influences SAD. Combining these outcomes, there is no relation between PSS and SAD, but CM has a significant influence in the severity of SAD.

To answer question two, whether PSS and CM influence treatment effect, two ANOVA's have been conducted. There is no significant effect of PSS on treatment effect at $p < .05$ with $F(3,30) = .106$, $p = .956$. Another nonsignificant effect is found of CM on treatment

effect with p<.05 with F (24,9) = 1.085, p =.476. Based on the results of these ANOVA's, it can be concluded that PSS and CM have no effect on the treatment effect of SAD.

The 2-way ANOVA for question three, whether PSS influences the relation of CM on SAD, shows no significant moderation effect of PSS. The main effect of PSS is not significant at p<.05, F (3,34) =1,151, p =.431. The main effect of CM is not significant at p<.05 with F (24,33) =3,056, p =.143. The interaction effect of PSS * CM is not significant at p <.05 with F (2,33) =.572, p =.605. Therefore, it cannot be concluded that there is an effect of PSS on the relation between CM and SAD in this research sample.

Discussion

The aim of this study was to observe and investigate the effects of Perceived Social Support and Childhood Maltreatment on Social Anxiety Disorder and its treatment. Based on earlier research it was expected that Perceived Social Support would be a positive effect and Childhood Maltreatment a negative effect on Social Anxiety Disorder and treatment effect. Furthermore, Perceived Social Support was expected to moderate the negative effects of Childhood Maltreatment on Social Anxiety Disorder. Only Childhood Maltreatment showed a significant negative effect on Social Anxiety Disorder, while Perceived Social Support showed no significant effects in any of the hypothesized relations. Thus, the results are only partially consistent with the idea that PSS and CM are significant influences on SAD.

Sample distribution

By the researchers knowledge, this was the first study to investigate both PSS and CM in a sample with SAD patients only. Childhood Maltreatment has been thoroughly tested in samples with only SAD-patients (Simon et al., 2009, Shahar et al., 2014, Rachman, 2013) but research regarding Perceived Social Support mostly used broad samples containing patients with any form of anxiety disorders present (Taylor, 2011). it is possible that the results based on such a diverse samples are not generalizable to SAD specifically, making it more difficult to find significant effects.

This research sample seems to be an adequate representation of a SAD patient in mental health care. Since it was gathered from two health care facilities of PsyQ, it tends to be generalizable to other facilities of PsyQ, since they detect, diagnose and interview the same way as our sample was interviewed and diagnosed. There was a significant treatment effect, so our sample is susceptible to treatment or symptom change. The sample mostly consisted of patients with severe or very severe SAD, resulting in very ill patients (based on the LSAS scores). When compared to the GAF scores of the DSM-IV, the LSAS scores are much worse than the GAF scores, suggesting that the chosen GAF scores by the intakers are not a good representation of the severity of SAD. The overall high LSAS scores might be due to the high amount of CM in our sample (61.8%), which is described further on. Also interesting is the fact that only 29 participants (85.3%) are diagnosed with SAD, according to the EPF files. However, as the inclusion criterea stated, if a patient could benefit from treatment with regards to social fobia, they could participate in the prior pilot study (Baljé et al., 2016).

The distributions of both CM and SAD show interesting rates. There was no different effect on SAD between the different forms of PSS, but the presented frequencies of different forms of PSS showed interesting scores. When only experiencing one type of support, a significant other scores highest, but when a patient experiences multiple forms of support, combinations with significant other scores lowest (friends-family is the mostly observed combination). A fairly easy explanation would be that significant other is enough support in itself, but a significant other might also influence the relations between family and friends, resulting in lower feelings of support from these groups. Furthermore, Rapee et al. (2015) showed that a romantic relationship is a good sustainable form of support, but it increases avoidance behaviors due to romantic avoidance. For example, it is not uncommon that a patient does not go outside without his or her partner, resulting in both support and avoidance (the patient does not confront his or her fears alone).

The distribution of CM in SAD also seems interesting. Emotional maltreatment was overall the most frequent form of CM, and CM has higher percentages in severe and very severe SAD. Throughout the whole sample, there was only one participant (2.9 %) with only physical maltreatment. One could argue that physical maltreatment is not a main influence in the development of SAD, making it less important to detect or treat.

A limitation of this sample was its small size, which accounts for statistical problems. A small sample size makes it more difficult to detect significant effects and explore overall

distribution, which is more elaborate described in the following discussion of the research questions.

Influences of PSS and CM on SAD

Regarding our first research question, whether CM and PSS are influences in SAD, multiple interesting results have been found. The relationship of PSS on SAD will first be discussed.

A significant effect of PSS on SAD was not found, which is somewhat contrary to the current state of research. Linear research in GAD and depression showed the clinical effects of PSS on anxiety and depressive symptoms (Lin et al., 1999, Taylor, 2011, Berlin, Miller, 1994, Taylor, 2011), where PSS was a significant effect. There are a number of explanations for not finding similar effects. First, as stated above, the sample sizes of former studies might not be generalizable to SAD specific samples. Other anxiety disorders like Panic Disorder or Obsessive Compulsive Disorder might be more susceptible to PSS influences than SAD, creating significant effects for anxiety disorders as a whole, but not for SAD.

Also the small research sample tends to be a main influence. Although our sample might have been an adequate representation of the health care patients, the provided research sample had to be cropped by deleting missing values in order to conduct a favorable analysis, resulting in a small research sample. A large sample size is preferred, since it has an ability to better detect significant differences. With a small sample, these differences are not detected, resulting in non-significant results (Button et al., 2013).

Furthermore, our chosen PSS variable is a non-standardized variable, accumulated from different electronic patient files after their initial intakes. It was not possible to contact the patients again for another questionnaire, so backtracking standardized information about their Perceived Social Support was impossible. The result is a variable based on a certain amount of fit to the known literature (Zimet et al. et al., 1988), with low statistical properties.

Furthermore, experiencing the additional benefits of PSS might be more complex than is yet known. The matching hypothesis (Taylor, 2011) states that someone might perceive support, but it is only effective when the type of support is congruent with the requested form of support by the receiver. Our set PSS variable does not reflect the actual type of support given (emotional, functional, informational or other form) and neither there was information about what types of support the patients would want to receive. It is possible that even though

participants perceive support or have support system, the support given by the support system does not match with the support requested from the patient which results in not experiencing the effects of social support. This mismatch in given and received support might also explain the nonsignificant results of our study.

Finally, many EPF-files showed that certain patients do not feel the need for social contact. The effects from this statement on the outcome of this study is difficult to investigate, but the interpersonal variance is sure to be an interesting factor for further research. One could argue that it is true that certain people do not feel the need for social contact, but in patients with SAD it might be an ultimate form of avoidance behavior. For a social patient, convincing him/herself that you actually do not even feel the need for social contact might be an easy way of coping with the disorder. The question raised by these results is how SAD patients actually perceive social support, and how this behavioral treat influences the beneficial factors of PSS.

The second question, regarding relationship of CM on SAD, will now be discussed. A significant effect of Childhood Maltreatment on SAD has been found, which is congruent with current studies (Bruce et al., 2013, Simon et al., 2009, Hovens et al., 2009, Spence and Rapee, 2016). Knowing that CM is a large influence in symptom severity (Bruce et al., 2013, Simon et al., 2009), CM was expected to be related to more severe SAD. Furthermore, many participants in the research sample reported a long duration of complaints (over 5 years, and some participants even reported lifetime complaints), which also suggests the influence of Childhood Maltreatment, given the fact that CM is linked to earlier onset and greater severity in SAD (Spence and Rapee, 2016, King, 2016). However, the found significant effect is not very large, nor is it very reliable since there is no main significant effect of CM in the moderation analysis. This can also be explained by the small research sample. A small sample size makes it very difficult to determine how distributions differ, which leads to problems in identifying observations as outliers. It also tends to overestimate the amount of significance in the sample (Button et al., 2013) Without the additional information of more participants, our sample distributions are misleading and this can influence the relation between CM and SAD. It is possible that a significant effect of CM was created by change, since in a small sample, very few participants are needed to create a significant effect.

Childhood Maltreatment and Perceived Social Support on Treatment Effect

PSS was expected to be a positive effect on treatment effect and CM was expected to be a negative effect on treatment effect, but these expected effects of both PSS and CM on treatment effect were not found. The findings are not congruent with today's research (Dour et al., 2013, DiMatteo, 2004, Hansen et al, 2017, Hovens et al., 2009, Kashdan et al., 2011, Panayiotou and Karekla, 2012). Explanations on why this study did not find the effects of PSS might come from the short interval of measuring treatment effect. The 30 day period of actual treatment was chosen as interval, assuming that that would be the most intensive period for a patient, therefore relying more on their social support system than after treatment. This time period might have been to short for an individual to experience benefit from PSS. In hindsight, PSS might be more important in sustaining treatment effects (Panayiotou and karekla, 2012). Social support can carry on what a therapist started, which makes PSS a larger influence after treatment than during.

Although no significant results have been found, the negative direction of CM is present: no maltreatment has a higher treatment effect mean than maltreatment patients. Combinations of EM have the lowest treatment effect mean, which is congruent with current studies (Hovens et al., 2009, Bruce et al., 2013). Rather strange is the fact that the three patients with all three forms of CM have the highest treatment effect mean, even above the patients without maltreatment. This might be due to the treatment condition: two out of those three received schema therapy. This might imply that schema therapy works better in patients with histories of Childhood Maltreatment, since the therapy focusses on changing the maladaptive schemas as a result of CM.

Moderation of PSS in SAD

Our third research question showed a nonsignificant moderation effect of Perceived Social Support. Following the current state of effects, the positive effects of PSS would also have been expected in social anxiety disorder. Since no studies who already investigated this direct effect were found, the expectations were solemnly based on studies of Perceived Social Support in other research samples, for example, Perceived Social Support in depression (Lin et al., 1999). These studies did find significant effects of PSS on both treatment effect and severity of for instance depression, so the nonsignificant results of this study are by no means an indication that the expected relations are not present.

Not finding the hypothesized moderation can again be explained by the small research sample, which makes it difficult to detect significant differences in our sample. Another explanation for not finding the moderated effect might be due to the close relationship between CM and SAD. Prior research showed us the tremendous influence of CM on SAD, showing that without appropriate counter mechanisms, CM almost guarantees onset of SAD in adolescents. It might be possible that the principle of moderation to counteract the effects of CM in SAD is not strong enough, which can lead to nonsignificant effects. Instead, to counteract the effects of CM in SAD, direct treatment for Childhood treatment might be required.

Strengths and limitations

The main strength of this study is investigating the effects of both CM and PSS in SAD patients, which by knowledge of the researchers is the first study to observe all three variables in a clinical pilot. The growing research in PSS as treatment moderator shows promising positive effects in anxiety disorders, but our study shows that the working components of PSS in Social Anxiety Disorder are not yet clear enough to fully integrate PSS in treatment. Our broad research questions allowed for a large overview of ongoing relations and can be used to investigate the direction of further research in the field of CM and PSS in SAD (see "recommendations"). Furthermore, the elaborate exploration of the Electronic Patient Files provided some interesting insights in the patient group, but also provided a small insight in the problems that arise with the use of an EPF as a source for research in mental health care. There were missing demographic values in intake files, inconsistent DSM diagnosis and overall incomplete patient data in electronic files. In files which should provide clear and standardized overview of a patient, this seems non feasible.

Another strength of this study is its sample, which is an adequate representation of actual health care patients in PsyQ facilities. Since the intake and treatment progression is standardized along those facilities, a lot of resemblance is seen in the patients. The missing EPF data regarding CM and PSS might indicate a low awareness of the effects of both PSS and CM in general mental health care. Therefore, this study suggest more attention for both Childhood Maltreatment and Perceived Social Support in SAD, which can be accomplished by standardized questions at the intake of a patient.

But, our sample is also the largest limitation of this study, due to its small size. As earlier described, this has large statistical effects, making it more difficult to find significant differences in the sample. So, although our sample holds valuable descriptive information, for actually acquiring enough statistical power to perform our hypothesized analysis, a larger sample is required.

Besides our small research sample and unreliable PSS variable (as earlier described), another limitation is the difference in the definition of Perceived Social Support. For example, Lin, Ye and Ensel (1999) differ in their definition of social support from the mostly used definition of Zimet et al. (1988). Their study described PSS based on two types: functional and structural support, which are based on demographic variables (for example community ties account for functional support, being instrumental or expressive accounts for structural support) rather than interpersonal variables (as described in Zimet et al., 1988). Also the matching hypothesis of Taylor (2011) describes different forms of PSS. This would also have been an option for this research. With work and community variables present in the EPF file, those factors could have been integrated in the PSS variable. This would increase the range of PSS, which could provide more possible effects of PSS on SAD.

Recommendations and Further research

Even though the hypothesized results could not be provided, continuous research into the possible implementation of PSS in treatment of SAD is recommended. At this point, it is assumed that PSS works the same in SAD patients as in healthy individuals, therefore an RCT comparing PSS in SAD and PSS in healthy individuals could be a valuable next step. The Multidimensional Scale of Perceived Social Support (MSPSS, Zimet et al., 1988, Osman, Lamis, Freedenthal, Gutierrez, & Mcnaughton-Cassill, 2013) is suggested for standardized measurements of PSS. An expansion of the MSPSS covering the need and desire for PSS should provide more information about the actual desire for Perceived Social Support in SAD patients. By our knowledge, there is not yet an questionnaire for standardizing the desire for PSS. As earlier described, the “I have no need for that”- argument is widely heard in SAD patients (as seen from the EPF data), which is an interesting topic for further research. Have SAD patients really eliminated the innate need to bond and experience social interactions with their fellow humans? Or is it the final stage of ongoing avoidance behavior?

Further research could also focus on specific treatment for CM in general. This study could not find any treatment for childhood maltreatment when the child has surpassed childhood age (age 18-20). However, the negative effects are still present and there seems to be no adequate treatment specifically for these effects. This study suggest investigating specific treatment for CM in adults, which to the researchers knowledge is not yet developed, but it might be covered by current Schema Therapy. Based on the ongoing research by Baljé et al., (2016), this study suggest investigating schema therapy for SAD patients with histories of Childhood Maltreatment. Now, schema therapy is used when SAD is accompanied by Avoidant Personality Disorder, but based on the developing EMSs as described by Calvete (2014) schema therapy might be more effective than CBT in SAD patients with a history of maltreatment, since schema therapy is focused on these maladaptive schemas. Afterwards, Schema Therapy might also be researched as an treatment for Childhood Maltreatment in general.

Finally, researchers point out the accurate description of PSS and possible CM in intakes or during treatment in PsyQ facilities. This study aims for raising awareness in the mental health care facilities regarding both Perceived Social Support and Childhood Maltreatment as impactful factors regarding treatment and symptom severity for SAD. As proven by multiple other studies (Delsignore et al., 2016, Calvete, 2014), small forms of PSS are a good and valuable addition to treatment. Most health care professional are supportive and caring regarding their patients by nature, so they might oversee the positive effects. Recognizing the effects of PSS and activating the patient in developing social ties might lead to even more practical implementations. With regards to CM, there are no required or standardized questions about childhood maltreatment in the current standardized intakes, which makes detecting CM in patients difficult while it might be the most important effect in a patient. Especially when a disorder shows a high correlation with CM (SAD, depression or GAD), indication whether maltreatment is a factor in the patient is important for treatment.

Conclusion

It can be concluded that Childhood Maltreatment has a negative effect on symptom severity of SAD, but does not influence treatment effect. Emotional Maltreatment is the most frequent and might be the largest influence in SAD. The relations between Perceived Social Support and Social Anxiety Disorder still remain unclear. The hypothesized buffer hypothesis of Perceived Social Support was not found, so further research in testing this buffer is

encouraged. Since Childhood Maltreatment is mostly overlooked when not associated with apparent trauma, it is strongly advised for mental health care facilities to integrate standardized questions in their intake to identify underlying influences in SAD. Concluding, the possible positive effects and growing substantial belief in Perceived Social Support as a leading factor in improving quality of life is too good to be left untouched by treatment in general, and specially for Social Anxiety Disorder.

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