

Running Head: ATTACHMENT, SOCIAL FUNCTIONING AND EMPOWERMENT IN SMI-PATIENTS

The association between attachment anxiety and avoidance, social functioning and personal empowerment in patients with severe mental illnesses

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Abstract

Background: Social functioning and personal empowerment are particularly important for recovery from psychopathology, especially for individuals with severe mental illnesses (SMI). SMI-patients, however, frequently show problems in social functioning and have an insecure attachment, experiencing either high attachment anxiety and/or avoidance. Attachment anxiety and avoidance negatively affect SMI-patients' social functioning, psychopathology and recovery, and perhaps subsequently, personal empowerment. Therefore, SMI-patients are hypothesized to experience high attachment anxiety and/or avoidance and decreased personal empowerment. Still, the direct association between attachment anxiety and avoidance and personal empowerment, plus the role of social functioning, remain unclear. **Aim:** To investigate the association between attachment anxiety and avoidance and personal empowerment, and whether this association is mediated by (difficulties in) social functioning. **Methods:** A sample of SMI-patients ($N = 154$, $M = 39.89$, $SD = 11.07$) completed self-report questionnaires and interviews. The hypothesized mediation model was analyzed with PROCESS Macro 4. **Results:** Attachment anxiety and avoidance were significantly negatively related to personal empowerment. Only the relation between attachment anxiety (not attachment avoidance) and personal empowerment was partially mediated by self-rated difficulties in social functioning. **Conclusion:** Showing high attachment anxiety and avoidance may decrease SMI-patients' personal empowerment. Furthermore, having high attachment anxiety may increase SMI-patients' perceived difficulties in social functioning, which subsequently may decrease their personal empowerment. Hence, attention should be given to attachment as a transdiagnostic factor in treatment.

Keywords: Severe mental illnesses, Personal empowerment, Attachment anxiety and avoidance.

1. Introduction

Individuals with severe mental illnesses (SMI), e.g. schizophrenia and psychosis, comprise 1.3% of the Dutch population (Delespaul & De Consensusgroep E.P.A., 2013). Individuals have an SMI when a psychiatric disorder is diagnosed, for which socially integrated treatment is necessary, and is accompanied by perpetual social and/or societal dysfunctioning, which is both cause and consequence of the disorder (Delespaul & De Consensusgroep E.P.A., 2013).

Traditionally, recovery primarily entailed symptom remission (Soundy et al., 2015). Therefore, SMI were regarded chronic (Drake & Whitley, 2014). SMI are accompanied by social dysfunctioning and the perception of having less supportive relationships, possibly enhancing the perceived chronicity (Grealish et al., 2017; Yanos, Rosenfield, & Horwitz, 2001). However, a renewed view of recovery has emerged, recognizing recovery as a unique growth process, involving acceptance of one's condition (Anthony, 1993; Slade et al., 2014; Tjaden et al., 2019). Empowerment is key for recovery from psychopathology (Grealish et al., 2017), together with social functioning (Bernardon, Babb, Hakim-Larson, & Gragg, 2011), as involving social networks in SMI-treatment contributes to greater recovery (Eklund & Hansson, 2007; Hendryx, Green, & Perrin, 2009).

Empowerment is defined "as a strengthening process by which individuals, organizations and societal groups get a grip of their own situation and environment by gaining control, sharpening their critical awareness and stimulating participation" (Van Regenmortel, 2002, p. 76). It is a 'multi-level construct' connecting the individual's wellbeing, power and support systems with the socio-political environment (Van Regenmortel, 2009). Zimmerman and Rappaport (1988) constructed three interdependent dimensions. The psychological level (personal empowerment) refers to individuals' capacities to influence their life and environment

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(Boumans, 2012; Zimmerman & Warschausky, 1998). Secondly, the organizational level focuses on increasing individual control in achieving organizations' efficacy (Cyril, Smith, & Renzaho, 2015; Zimmerman & Warschausky, 1998). Thirdly, the community level aims for active citizenship and (social) reintegration (Van Regenmortel, 2009). The organizational and community level form a collective empowerment, focusing on individual power in social relationships or communities (Tew et al., 2012).

Notwithstanding the importance of all levels, this study targets personal empowerment. Personal empowerment, by addressing individuals' inner strengths and qualities, influences self-efficacy and self-esteem (Van Regenmortel, 2009). Additionally, supportive social environments are important for personal empowerment (Grealish et al., 2017; Van Regenmortel, 2009). Mental disorders can be disempowering by impacting psychosocial functioning through problems in employment and social relations (Grealish et al., 2017; Masterson & Owen, 2006). SMI-patients commonly experience problems in establishing and maintaining supportive relationships (Burns & Patrick, 2007; MacDonald, Sauer, Howie, & Albiston, 2005). Consequently, they may experience decreased quality of life and social isolation, which possibly affects their personal empowerment (Cyril et al., 2015; Grealish, Tai, Hunter, & Morrison, 2013; Yanos et al., 2001).

Thus, supportive relationships and personal empowerment are pivotal for recovery (Eklund & Hansson, 2007; Tew et al., 2012). However, SMI-patients may perceive relationships as less supportive (Yanos et al., 2001). Their attachment styles may add to this, as insecurely attached individuals often perceive social relations similarly (Vogel & Wei, 2005). Therefore, the role of attachment should be assessed as it may affect the perception of social support (Vogel & Wei, 2005), and subsequently social functioning (Bohlin, Hagekull, & Rydell, 2000), recovery (Tait, Birchwood & Trower, 2004), and potentially personal empowerment. Studying the

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influence of attachment on personal empowerment may provide understanding of underlying mechanisms affecting treatment and recovery.

Attachment refers to an affectional bond formed by an infant with a caregiver, which provides a secure basis for socio-emotional development (Berry, Barrowclough, & Wearden, 2007; Bowlby, 1979). Early infant-caregiver interactions influence the development of mental representations of self and others, impacting later interpersonal functioning (Bowlby, 1988; Main, Kaplan, & Cassidy, 1985). Securely attached individuals have positive models of self and others, as their caregivers were available and responsive to their needs; insecurely attached individuals have negative models of self and/or others, as their caregivers were inconsistently available (Bartholomew, 1990; Bowlby, 1973; Carr, Hardy, & Fornells-Ambrojo, 2018). These initial attachment bonds influence adult interpersonal relationships (Collins & Read, 1994; Ponizovsky, Nechamkin, & Rosca, 2007).

Attachment can be conceptualized differently: dimensionally (Brennan, Clark, & Shaver, 1998), as applied in this study, or categorically, describing different attachment styles derivative of these dimensions (e.g. Bartholomew and Horowitz, 1991). The dimensions of attachment are attachment anxiety and attachment avoidance (Brennan et al. 1998; Collins, Ford, Guichard, & Allard, 2006). Attachment anxiety is associated with the negative model of self, fear of rejection and a demanding interpersonal style. Alternatively, attachment avoidance corresponds with a negative model of other, and discomfort with dependence and intimacy (Collins et al., 2006; Shaver & Mikulincer, 2002).

Attachment is known to affect psychopathology, social functioning, and potentially personal empowerment. Firstly, insecure attachment is a risk factor for psychopathology (Egeland & Carlson, 2004; Ringer, Buchanan, Olesek, & Lysaker, 2014), especially for

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schizophrenia and psychosis (Carr et al., 2018; Gumley, Taylor, Schwannauer, & MacBeth, 2014; Ponizovsky et al., 2007), by affecting symptom severity and treatment response (Berry, Barrowclough, & Wearden, 2008; Quijada, Kwapil, Tizón, Sheinbaum, & Barrantes-Vidal, 2015; Tait et al., 2004).

Secondly, insecure attachment affects social functioning (Bohlin et al., 2000; Mallinckrodt & Wei, 2005), especially in schizophrenia and psychosis (Gumley et al., 2014; Ponizovsky, Vitenberg, Baumgarten-Katz, & Grinshpoon, 2013). Insecurely attached adults experience less social support and social self-efficacy, prompting loneliness (Bernardon et al., 2011; Ognibene & Collins, 1998; Vogel & Wei, 2005).

Thirdly, secure attachment is pivotal for resilience and recovery from psychopathology (Harder, 2014; Rutten et al., 2013). Self-esteem, which is involved in personal empowerment (Van Regenmortel, 2009), is a recovery indicator in schizophrenia (Ringer et al., 2014). Contrary to secure attachment, high attachment anxiety and avoidance are associated with lower and unstable self-esteem and self-worth (Collins & Read, 1990; Foster, Kernis, & Goldman, 2007; Huntsinger & Luecken, 2004; Park, Crocker, & Mickelson, 2004; Wu, 2009).

In conclusion, associations between attachment anxiety and avoidance and social functioning, plus social functioning and personal empowerment in SMI-patients, are indicated. A tentative association between attachment anxiety and avoidance and personal empowerment is deduced. It is, however, unknown whether they are directly or indirectly related via social functioning. The little research on the potential influence of attachment on personal empowerment is remarkable, considering the focus on recovery and personal empowerment in SMI-treatment (Drake & Whitley, 2014; Kruidhof, Bruins, & Castelein, 2017). This leads to new clinical implications; attachment may influence the perception of social support affecting

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personal empowerment, thereby potentially leading to the reconsideration of attachment as a transdiagnostic treatment factor (Grealish et al., 2017; Vogel & Wei, 2005).

The hypothesized associations lead to the following research question: does the reported level of (difficulties in) social functioning of SMI-patients partially mediate the potential effect of attachment anxiety and avoidance on personal empowerment (see Figure 1)? In other words, does social functioning explain the hypothesized association between attachment anxiety and avoidance and personal empowerment? A mediation is an indirect relationship between two variables through a third ‘mediator’ variable, for which one or both indirect paths need to be significant (Hayes, 2017).

Regarding the respective postulated associations, it is hypothesized that:

1. Attachment anxiety and avoidance are significantly and negatively related to personal empowerment, i.e. the higher the attachment anxiety and avoidance, the lower the experienced personal empowerment.
2. Difficulties in social functioning partially mediate the association between attachment anxiety and avoidance and personal empowerment.
 - 2.1. The degrees of attachment anxiety and avoidance are positively related to difficulties in social functioning, i.e. the higher the attachment anxiety and avoidance, the higher the reported difficulties in social functioning.
 - 2.2. Difficulties in social functioning are negatively related to personal empowerment, i.e. the higher the reported difficulties in social functioning, the lower the experienced personal empowerment.

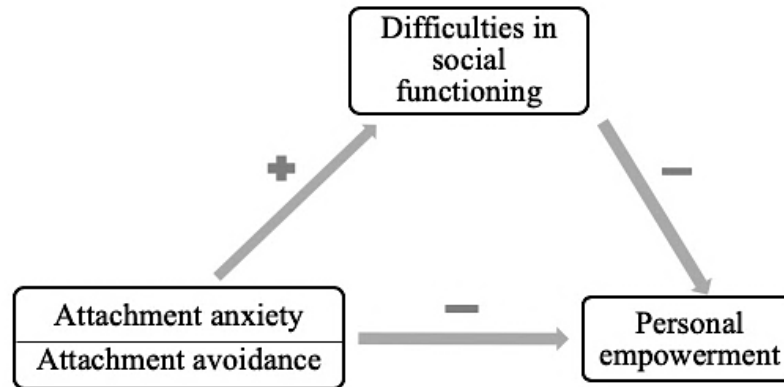


Figure 1. The hypothesized mediation model: the relationship between attachment anxiety and avoidance and personal empowerment is mediated by difficulties in social functioning.

2. Methods

The current study uses data from a larger study, therefore only relevant information is addressed.

2.1 Participants

The study was conducted in a heterogeneous SMI-patients sample treated by Flexible Assertive Community Training-teams (FACT). FACT is a common SMI-treatment (Kruidhof et al., 2017), providing multidisciplinary, recovery-oriented individual case-management (Van Veldhuizen, 2007). Patients were recruited from FACT-teams of nine mental healthcare institutions in the Netherlands. Eligibility for participation required patients to (1) be 18 to 65 years old, (2) have received FACT-care for a maximum of 12 months, and (3) suffer from SMI as defined by Delespaul and de Consensusgroep E.P.A. (2013). Patients were excluded if they were unable to understand Dutch adequately for comprehending (1) the questionnaire, and/or (2) informed consent (Tjaden et al., 2019). Sample details are provided in the results section.

Response rate estimates are yet unavailable. It is unknown whether participants were psychotic

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during assessment, whilst remaining possible, it is unlikely they or their FACT-team deemed them fit for participation.

2.2 Procedure

Eligibility was checked by members of patients' FACT-teams. Hereafter, eligible patients received verbal and written procedural information, including confidentiality. They were asked to participate by their FACT-team and given one week to decide. After receiving signed informed consent, the patient's eligibility was revisited by the head-researchers. If eligible, independent and trained interviewers contacted participants to schedule the face-to-face assessment. The assessment took place at the participant's home or FACT-team location. Questionnaires were filled out online using Jambo, an online research software licensed to the Trimbos Institute, or by paper-and-pencil, their answers were subsequently registered into Jambo. The assessment took approximately two hours and consisted of self-report questionnaires and (semi-structured) interviews. The current study included self-report measures and an interviewer-administered, although self-rated, questionnaire. Upon completion, participants were given a fifteen-euro gift card. To establish confidentiality, an independent statistician assigned unique codes to participants. Only these codes were displayed in the dataset. The codes and personal data were stored separately. The linking document is only accessible to the head-researchers. Ethical approval was given by the Medical Ethical Committee of the VU Medical Center.

2.3 Measures

2.3.1 Social functioning. The 5-item ‘Getting Along’ subscale of the *World Health Organization Disability Schedule–36 Items* (WHODAS 2.0–36; Üstun, Kostansjek, Chatterji, & Rehm, 2010; WHO Collaborating Centre for the Family of International Classifications & RIVM, 2018) was used as interviewer-administered, but self-rated, subjective social functioning questionnaire. It assesses difficulties in interpersonal interactions due to health conditions in the past 30 days (Üstun et al., 2010). It includes items such as “In the past 30 days, how much difficulty did you have in maintaining a friendship?”. Items were answered on a 5-point Likert-scale ranging from 1 (*none*) to 5 (*extreme/cannot do*). The WHODAS 2.0 has good internal consistency, construct and concurrent validity (Garin et al., 2010; Pösl, Cieza, & Stucki, 2007; Üstun et al., 2010). Content or criterion validity information is unavailable.

Additionally, the interviewer-rated *Social and Occupational Functioning Scale* (SOFAS; American Psychiatric Association, 2000), based on DSM-IV Axis V, was included as a secondary (objective) social functioning measure. It assesses social and occupational functioning on a scale of 0 to 100, on 10 levels. For example, the scores 41 to 50 entail “Serious impairment in social, occupational, or school functioning (e.g., no friends, unable to keep a job)”. The SOFAS has good concurrent validity (Hendryx, Dyck, McBride, & Whitbeck, 2001), and can be reliably scored (Burns & Patrick, 2007; Hilsenroth et al., 2000). Due to having one interviewer-rating per subject, the interrater-reliability cannot be determined. Therefore, the interviewers’ mean SOFAS-scores were compared for significant differences. Hereafter, the SOFAS was deemed reliable for use. See Appendix A for the procedure and results.

2.3.2 Attachment. The *Revised Adult Attachment Scale* (RAAS; Collins, 1996; Van Aken, Van Bussel, & Wierdsma, 2017) is an 18-item self-report questionnaire measuring

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difficulties in adult attachment regarding close relationships. The respondents answer items, such as “I am comfortable depending on others”, on a 5-point Likert-scale ranging from 1 (*not at all characteristic of me*) to 5 (*very characteristic of me*). It consists of three subscales each containing six items: ‘close’, measuring discomfort with closeness and intimacy, ‘depend’, measuring discomfort with dependence, and ‘anxiety’, measuring relational anxiety (Collins, 1996). For this study, the initial subscales ‘close’ and ‘depend’ were combined to construct the ‘attachment avoidance’ index, whereas the latter subscale ‘anxiety’ formed the ‘attachment anxiety’ index (Collins et al., 2006; Collins, 2008). Several items were reverse-scored (1, 5, 6, 12, 14). The RAAS showed satisfactory to good reliability and validity (Collins, 1996; Collins & Feeney, 2004; Eng, Heimberg, Hart, Schneier, & Liebowitz, 2001; Tait et al., 2004).

2.3.3 Empowerment. The *Netherlands Empowerment List* (NEL; Boevink, Kroon, Delespaul, & Van Os, 2017), is a 40-item self-report questionnaire, measuring (personal and collective) empowerment. The NEL contains six subscales: ‘social support’ (7 items), ‘professional help’ (4 items), ‘connectedness’ (6 items), ‘confidence and purpose’ (12 items), ‘self-management’ (5 items) and ‘caring community’ (6 items). According to Boevink et al. (2017), the ‘confidence and purpose’, ‘self-management’ and ‘connectedness’ subscales aim to measure personal empowerment. An item of the ‘confidence and purpose’ subscale is: “I decide how I control my life”. Respondents rate their agreement on a 5-point Likert-scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The remaining subscales measure facets related to collective empowerment (e.g. supportive resources in achieving personal empowerment). In this study, a factor analysis was run on the subscales to investigate the factor structure. Empowerment is considered both a personal and collective process (Van Regenmortel, 2002).

Yet, it is desirable to exclude the collective subscales due to possible conceptual overlap with the social functioning measures, thereby influencing the effect of social functioning on personal empowerment. Thus, only personal empowerment-related subscales are used. The NEL displayed good internal consistency, moderate convergent and good discriminant validity (Boevink et al., 2017).

2.4 Data-analysis

The data was obtained through Jambo and analyzed in IBM SPSS 25. Missing data was avoided with forced entry in assessment. Prior to testing the hypotheses, several analyses were conducted. Firstly, negative-coherent items were reverse-scored and total scores were calculated. Secondly, descriptive data was obtained to depict sample characteristics. Thirdly, the data was checked for outliers with boxplots and normality with kurtosis and skewness *z*-scores. Fourthly, independent-samples *t*-tests were run on the main variables to explore gender differences, as inconsistent gender differences in attachment are reported (Scharfe, 2017). Fifthly, after checking for multicollinearity, a factor analysis, using principle axis factoring and varimax rotation, was conducted on the NEL subscales to study the factor structure (Field, 2013). Hereafter, personal empowerment-related subscales comprised a new variable, which based on Boevink et al. (2017), was expected to include the ‘confidence and purpose’, ‘self-management’ and ‘connectedness’ subscales. Lastly, explorative correlations between attachment anxiety and avoidance, (difficulties in) social functioning, personal empowerment and age were determined.

To test the hypotheses, mediation analyses were run using PROCESS macro 4, as recommended for smaller sample sizes (Hayes, 2017). The model estimates, with 5000 bootstrapped samples, the direct effect and bootstrapped corrected confidence intervals (95%) for

the indirect effect. Due to bootstrapping, the normality assumption is not violated. A significant effect is indicated when the lower limit and upper limit confidence intervals (LLCI and ULCI) do not contain the 'zero' value. In PROCESS, no significant direct effect is necessary to test for indirect effects (Hayes, 2017).

To examine the first hypothesis, the confidence intervals of the direct effect of attachment anxiety and avoidance on personal empowerment were checked and correlations were examined. To test the second hypothesis, the indirect effect between attachment anxiety and avoidance and personal empowerment was examined. The mediation analysis was run twice with either attachment anxiety or attachment avoidance as independent variables. Both social functioning measures were independent parallel mediators in the mediation models.

Due to inconsistent findings regarding gender differences in attachment (Scharfe, 2017), the participants' gender was included as covariate in the mediation models only if significant gender differences were found on the main variables in independent-samples *t*-tests. The mediation analyses were run with and without the covariate. If results were similar, results without the covariate were reported. If results differed, both were described.

3. Results

3.1 Sample Characteristics

After deleting 4 cases who consented but did not start, the sample consisted of 154 participants, containing 91 males (59.1%) and 63 females (40.9%) aged 20 to 66 ($M = 39.89$, $SD = 11.07$). The majority were born in the Netherlands (78.6%) and single (66.2%). The educational level varied with participants finishing either no (4.5%) or special education (2.0%), primary school (9.1%), pre-vocational secondary education (27.3%), secondary vocational

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education (29.2%), senior general secondary/pre-university education (10.4%), or higher professional/university education (17.5%). Work status differed; participants were either incapacitated (30.5%), unemployed (28.6%), self-employed (16.3%), volunteer-workers (15.6%) or other (9.0%). See Table 1 for descriptive data regarding measures.

3.2 Data Assumptions

After calculating the summed total scores, the data were checked for outliers by boxplots; none were found. Moreover, the data were explored for normality. Due to the larger sample size, it was chosen to evaluate normality with skewness and kurtosis z -scores, instead of Shapiro-Wilk or Kolmogorov-Smirnov tests (Ghasemi & Zahediasl, 2012). Cut-off points of -1.96 to 1.96 were used (Field, 2013). The measures of attachment anxiety, attachment avoidance and SOFAS-scores appeared normally distributed. The personal empowerment measure was negatively skewed ($z_{\text{skewness}} = -2.56$). Age showed kurtosis problems ($z_{\text{kurtosis}} = -1.98$), and the WHODAS ‘Getting Along’ subscale demonstrated positive skewness and kurtosis problems ($z_{\text{skewness}} = 2.30$, $z_{\text{kurtosis}} = -2.53$). These normality violations were considered further by using Spearman’s correlations and bootstrapping. Therefore, no transformations were conducted.

3.3 Gender Differences

To explore gender differences and investigate whether to include gender as covariate in the mediation analyses, independent-samples t -tests were performed (see Table 1). The assumption of equality of variances was met; all Levene’s F -tests showed non-significant results ($p > .05$). The independent-samples t -test is robust against normality violations (Field, 2013), yet a bootstrap was conducted for normality of the sampling distribution mean.

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Due to significant gender differences in attachment anxiety, females scored significantly higher than males, gender was added as covariate in the mediation analyses.

Table 1. Mean Scores, Standard Deviations and the Results of the Independent-samples *T*-tests on Gender for all Variables.

Scale	α	Total Sample (N = 154)		Females (N = 63)		Males (N = 91)		<i>t</i>	<i>df</i>	<i>p</i>		
		M	SD	M	SD	M	SD					
Attachment Anxiety	.835	18.68	5.88	20.37	5.82	.73	17.52	5.66	.59	-3.04	152	.003
Attachment Avoidance	.782	34.56	7.78	35.75	8.17	1.03	33.75	7.44	.78	-1.57	152	.117
Difficulties in Social Functioning (WHODAS 'Getting Along')	.742	11.46	4.74	11.81	4.61	.58	11.22	4.83	.51	-7.59	152	.449
Social Functioning (SOFAS)	-	52.91	9.97	52.78	9.14	1.15	53.00	10.56	1.11	.136	152	.892
Personal Empowerment	.906	56.71	11.45	55.06	12.24	1.54	57.85	10.80	1.13	1.49	152	.139
Age	-	39.89	11.07	41.94	11.28	1.42	38.47	10.75	1.13	-1.93	152	.056

Note. WHODAS 'Getting Along' = the self-rated measure of the participants' difficulties in social functioning, SOFAS = the interviewer-rated measure of the participants' social functioning, *df* = degrees of freedom.

3.4 Factor Analysis NEL

The NEL subscales were checked for monotonicity by scatter plots and multicollinearity below .3 or above .8 with Spearman's correlations (Field, 2013). No correlations above .8 were found. The 'professional help' subscale showed correlations below .3. This was expected considering the individual items and the subjective nature of the cut-off, therefore the subscale remained in the analysis (Field, 2013).

A principal axis factor analysis was conducted on the NEL subscales with varimax rotation (Field, 2013). The Kaiser-Meyer-Olkin measure verified the sampling adequacy, $KMO = .77$, with individual-item KMO -values $> .70$. Bartlett's Test of Sphericity was significant ($p < .000$), indicating the correlation is no identity matrix (Field, 2013). Eigenvalues were obtained for each factor. Two factors had eigenvalues over Kaiser's criterion of 1. Factor 1 had an eigenvalue of 3.10 and explained 51.68% of the variance, whilst factor 2 had an eigenvalue of 1.03 and explained 17.10% of the variance. Together they explained 68.78% of the variance. The scree plot was convergent only on the first factor; however, it was chosen to retain the second factor considering Kaiser's criterion and the rotated factor loadings (see Table 2). Evaluating the content, the items clustering on the first factor suggested it was a measure of personal empowerment and the second of collective empowerment. The 'connectedness' subscale loaded high on both factors. After consideration of its individual items, the subscale was judged better suited in the second factor, corresponding with the higher loading. Partially following Boevink et al.'s (2017) expectations, the 'confidence and purpose' and 'self-management' subscales, but not the 'connectedness' subscale, were combined to form the personal empowerment measure.

Table 2. Summary of Factor Analysis Results for the NEL

Scale	Rotated Factor Loadings	
	Factor 1	Factor 2
Confidence and Purpose	.924	.240
Self-management	.818	.243
Social Support	.285	.697
Connectedness	.502	.569
Caring Community	.288	.503
Professional Help	.044	.407

3.5 Main Variable Inter-correlations

Explorative correlations were conducted between main variables (see Table 3). As hypothesized, both attachment anxiety and avoidance were moderately, significantly and positively correlated with each other (showing moderate construct differences), and difficulties in social functioning, and negatively with personal empowerment. Moreover, difficulties in social functioning was moderately, significantly and negatively correlated with personal empowerment, whilst social functioning was moderately, significantly and positively correlated with personal empowerment.

Table 3. Intercorrelations between Main Variables

Measure	1	2	3	4	5	6
1 Attachment Anxiety	1	.511**	.226**	-.151	-.343**	-.141
2 Attachment Avoidance	.511**	1	.380**	-.168*	-.333**	.064
3 Difficulties in Social Functioning (WHODAS 'Getting Along')	.226**	.380**	1	-.473**	-.350**	-.035
4 Social Functioning (SOFAS)	-.151	-.168*	-.473**	1	.307**	.004
5 Personal Empowerment	-.343**	-.333**	-.350**	.307**	1	.121
6 Age	-.141	.064	-.035	.004	.121	1

Note. WHODAS 'Getting Along' = the self-rated measure of the participants' difficulties in social functioning, SOFAS = the interviewer-rated measure of the participants' social functioning, * = $p \leq .05$ (2-tailed), ** = $p \leq .01$ (2-tailed).

3.6 Mediation Analyses

The participants' gender was added as covariate and shown to have no significant influence on the mediation analyses. Therefore, the results of the analyses without the covariate are discussed.

3.6.1. Attachment anxiety. First, the mediation analyses with attachment anxiety were performed (see Figure 2 and 3). The direct effect of attachment anxiety on personal empowerment was significant, $b = -0.527$, $t = -3.64$, $p < .000$, [LLCI-UCLI: -0.813, -0.241], showing a significant negative association. The indirect effect of attachment anxiety on personal empowerment was partially mediated by self-rated difficulties in social functioning: $b = -0.092$, [LLCI-UCLI: -0.217, -0.010], but not by interviewer-rated social functioning: $b = -0.492$, [LLCI-

UCLI: -0.143, 0.007]. This shows only self-rated difficulties in social functioning explained a significant part of the association between attachment anxiety and personal empowerment.

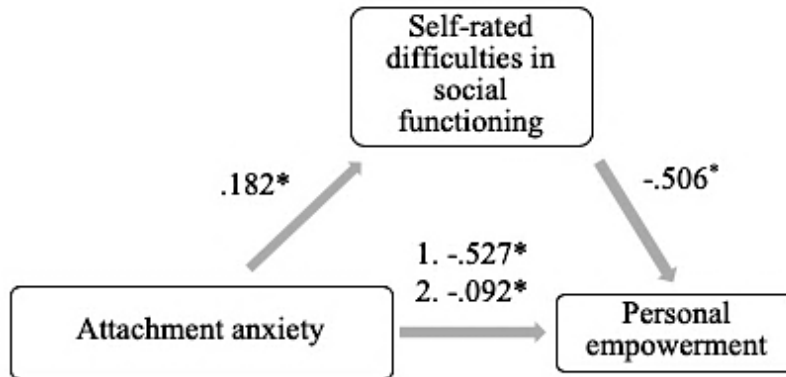


Figure 2. The mediation model for attachment anxiety with self-rated difficulties in social functioning as mediator, 1 = direct effect; 2 = indirect effect (* = $p \leq .05$).

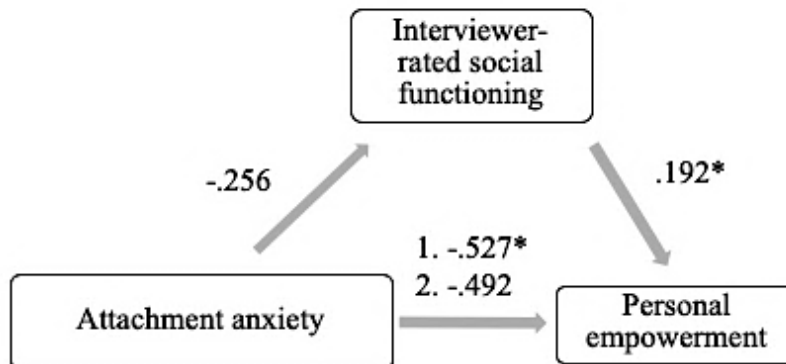


Figure 3. The mediation model for attachment anxiety with interviewer-rated social functioning as mediator, 1 = direct effect; 2 = indirect effect (* = $p \leq .05$).

3.6.2. Attachment avoidance. Secondly, the mediation analyses with attachment avoidance were run (see Figure 4 and 5). The direct effect of attachment avoidance on personal empowerment was significant, $b = -0.348$, $t = -2.98$, $p = .003$, [LLCI-UCLI: -0.578, -0.117], showing a significant negative association. The indirect effect of attachment avoidance on personal empowerment was not partially mediated by either self-rated difficulties in social functioning: $b = -0.096$, [LLCI-UCLI: -0.233, 0.010], or interviewer-rated social functioning: $b =$

-0.046, [LLCI-UCLI: -0.121, 0.006]. This shows neither self-rated difficulties in social functioning or interviewer-rated social functioning significantly explain the association between attachment avoidance and personal empowerment.

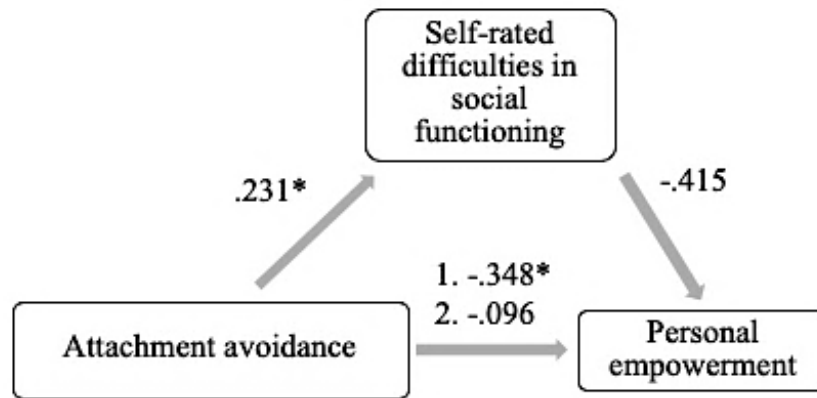


Figure 4. The mediation model for attachment avoidance with self-rated difficulties in social functioning as mediator, 1 = direct effect; 2 = indirect effect (* = $p \leq .05$).

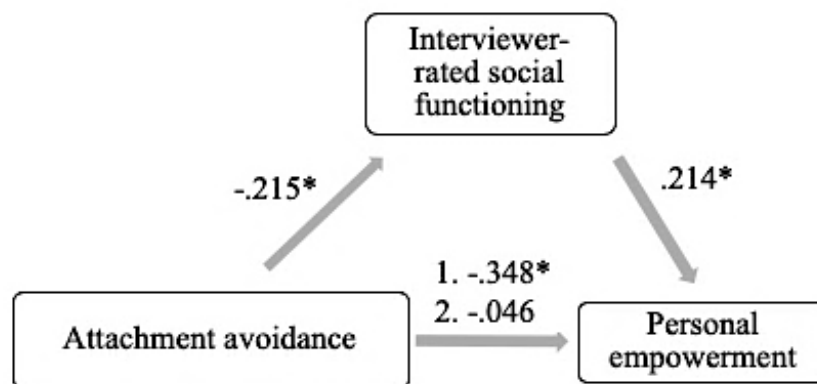


Figure 5. The mediation model for attachment avoidance with interviewer-rated social functioning as mediator, 1 = direct effect; 2 = indirect effect (* = $p \leq .05$).

4. Discussion and Conclusion

The current study investigated whether a relationship exists between attachment anxiety and avoidance and personal empowerment in SMI-patients, and whether difficulties in social functioning mediate this relationship. Supporting the first hypothesis, attachment anxiety and

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avoidance were significantly negatively related to personal empowerment, indicating the higher the degree of attachment anxiety and avoidance, the lower the experienced personal empowerment. The second hypothesis was partially supported, following hypothesized directions; the association between attachment anxiety and personal empowerment was partially mediated only by self-rated difficulties in social functioning, meaning the higher the degree of attachment anxiety, the higher the self-rated difficulties in social functioning, and consequently the lower the experienced personal empowerment. No partial mediation was found for the association between attachment avoidance and personal empowerment, meaning (difficulties in) social functioning did not significantly explain this association.

These findings provide further evidence for the association between attachment anxiety and avoidance and personal empowerment, which corresponds and contributes to existing literature. High attachment anxiety and/or avoidance were found related to having lower self-esteem and self-efficacy (e.g. Huntsinger & Luecken, 2004), thereby potentially affecting personal empowerment.

Although evidence was found for associations between both attachment anxiety and avoidance and personal empowerment, some studies merely state attachment anxiety as related to lower self-esteem and (social) self-efficacy (Ringer et al, 2014; Wei, Russell, & Zakalik, 2005). Therefore, it is noteworthy that as hypothesized, a significant association between attachment avoidance and personal empowerment was found. Following from individuals' needs for independence, attachment avoidance may lead to increased self-awareness, subsequently causing doubts about self-competence, and possibly affecting self-esteem and personal empowerment (Hepper & Carnelley, 2010; Otway & Carnelley, 2013).

Regarding the second hypothesis, a partial mediation only by self-rated difficulties in

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social functioning (not interviewer-rated social functioning) was found for the association between attachment anxiety and personal empowerment. This is consistent with existing literature, as a mediation effect was expected based on associations between attachment insecurity and social functioning (e.g. Gumley et al., 2014), and social functioning and personal empowerment (e.g. Grealish et al., 2017).

Contrarily, no significant mediation effect was found for (difficulties in) social functioning in the association between attachment avoidance and personal empowerment. Internalized working models of self and others may explain why the mediational model is significant for attachment anxiety, and not for avoidance (e.g. Collins et al., 2006; Shaver & Mikulincer, 2002). Additionally, personality characteristics such as ‘sociotropy’ vs. ‘autonomy’, involving excessive concerns about interpersonal relationships vs. autonomous achievement may be involved (Beck, 1983; Robins et al., 1994). Due to the negative model of self, and perhaps high sociotropy, individuals with high attachment anxiety may be more perturbed about and sensitive to experiencing difficulties in social functioning, especially as they are dependent on others’ validation and fear rejection. Therefore, they may report more interpersonal problems and anxiety, directly affecting their self-esteem and personal empowerment (Park et al., 2004). Individuals with high attachment avoidance have a negative model of others, and do not derive self-esteem from social validation, but from self-competence (e.g. academic skills), focusing on autonomy and self-reliance (Park et al., 2004). Therefore, they may be less concerned with or affected by interpersonal problems, possibly explaining why (difficulties in) social functioning did not mediate the relationship between attachment avoidance and personal empowerment.

This explanation is in line with the sociometer hypothesis (Leary, Tambor, Terdal, & Downs, 1995), which adds to the elucidation of why a partial mediation was found only for self-

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rated difficulties in social functioning, and not for interviewer-rated social functioning, on the association between attachment anxiety and personal empowerment. The sociometer hypothesis highlights the adaptiveness of social closeness and inclusion, and states that negative evaluations by others affect individual's self-esteem (Leary et al., 1995). Thereby resulting in feelings of failure to maintain social closeness, particularly as self-esteem may provide information about individual's belongingness (Srivastava & Beer, 2005). Individuals with high attachment anxiety derive self-esteem from interpersonal sources and social validation (Shaver, Schachner, & Mikulincer, 2005; Srivastava & Beer, 2005). Consequently, they are more susceptible to perceiving relational conflict (Campbell, Simpson, Boldry, & Kashy, 2005; Li & Chan, 2012). Individuals with high attachment anxiety may therefore perceive more social functioning difficulties (contributing to less experienced personal empowerment), whilst interviewers who objectively rate social functioning may not.

Another more pragmatic explanation for the respective inconsistent findings is that both social functioning measures may measure different constructs. The interviewer-rated social functioning measure scores the rather 'general' current level of social and occupational functioning (Morosini, Magliano, Brambilla, Ugolini, & Pioli, 2000); thereby, perhaps producing sample variability. Alternatively, the self-rated difficulties in social functioning measure, rates interpersonal functioning in consequence of health conditions, which is more nuanced.

The findings point to several directions for clinical practice and future research. It is recommended to focus on SMI-patients' social functioning and personal empowerment in SMI-treatment, as this may aid recovery (Eklund & Hansson, 2007; Grealish et al., 2017; Tew et al., 2012). Accordingly, Dutch mental health care is momentarily attempting to improve FACT-treatment by highlighting SMI-patients' inner strengths and social networks (Kruidhof et al.,

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2017; Tjaden et al., 2019). Patients' relatives, friends or acquaintances are involved in Resource Groups, which assist in shared decision-making and strengthening social networks, whilst emphasizing patients' powers by allowing them to shape treatment through setting their own goals (Kruidhof et al., 2017; Nordén, Malm, & Norlander, 2012).

Additionally, attention should be paid to SMI-patients' attachment in treatment, as the results tend towards potentially different treatment approaches for SMI-patients with either high attachment anxiety or avoidance. Respective of the current findings, treatment of SMI-patients with high attachment anxiety should focus on improving social functioning (and subsequently personal empowerment) by decreasing dependence on social validation. Alternatively, self-esteem and personal empowerment of SMI-patients with high attachment avoidance may benefit more from a focus on self-competence and self-efficacy. Particularly, in consideration of the lacking influence of social functioning on the association between attachment avoidance and personal empowerment. These tentative treatment recommendations remain subject to future research. Nonetheless, to facilitate SMI-patients' personal empowerment, treatment should focus on personal growth and social networks, in which therapeutic alliances are key (Van Regenmortel, 2009). The therapeutic alliance is a treatment outcome determinant, influenced by patient's attachment and view of the therapist as an attachment figure (Berry et al., 2007; Goodwin, Holmes, Cochrane, & Mason, 2003; Mallinckrodt, 2010). Insecurely attached individuals show poorer treatment adherence and therapeutic alliance (Diener & Monroe, 2011; Gumley et al., 2014; Tait et al., 2004). Thus, attachment may become an important transdiagnostic factor in SMI-treatment. Understanding patient's attachment may be beneficial for therapists in developing good alliances and therapeutic distance (Daly & Mallinckrodt, 2009; Mallinckrodt, 2010). Additionally, it is recommended to provide patients with understanding of

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their attachment style and its consequences on their interpersonal relations (Ringer et al., 2014).

This supports the development of self-reflectivity and -awareness, possibly producing sustainable changes and personal growth; thereby facilitating personal empowerment and recovery (Lysaker, Glynn, Wilkness, & Silverstein, 2010; Lysaker et al., 2011).

This study's strength resides in its relevance and contribution to the field of clinical psychology. It provides new ideas for clinical practice and research considering the renewed view of recovery by emphasizing patients' personal growth. Nonetheless, several limitations ought to be considered. Firstly, as cross-sectional data was used, between-group or longitudinal comparisons are not possible. Conducting a longitudinal study with psychiatric and non-psychiatric samples would enable testing whether the mediation model holds longitudinally in different populations, and whether attachment and personal empowerment change over time, perhaps in response to targeted treatments. Additionally, as attachment and empowerment influence resilience to psychopathology, a longitudinal study could provide directions for prevention measures highlighting personal empowerment to those vulnerable to SMI (Grealish et al., 2017; Karreman & Vingerhoets, 2012). Furthermore, no interrater-reliability calculations were possible for the SOFAS-scores, obstructing clarification of the measure's reliability. Lastly, as data from a larger study was used, the measures may have been suboptimally defined; more well-defined and objective social functioning measures could have been used to specify the role of social functioning (e.g. Social Functioning Questionnaire; Tyrer et al., 2005).

In conclusion, due to the renewed view of recovery in SMI-patients, a focus has emerged on personal empowerment and social functioning. Building on existing literature, this study assessed the association between attachment anxiety and avoidance and personal empowerment in SMI-patients. Attachment anxiety and avoidance were negatively related to personal

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empowerment; the higher the degree of attachment anxiety and avoidance, the lower the experience of personal empowerment. For attachment anxiety, this relationship was partially mediated by difficulties in social functioning. A higher degree of attachment anxiety related to more reported difficulties in social functioning, and consequently lesser experienced personal empowerment. These findings direct attention towards attachment as a transdiagnostic factor in SMI-treatment. Future research may clarify the need for different treatment approaches for high attachment anxiety or avoidance.

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6. Appendix A

Procedures and Results of Analysis of SOFAS-scores.

Procedure

To determine whether the SOFAS-scores could be reliably used as a measure of the participant's (degree of difficulties in) social functioning, a statistical analysis was conducted. Whilst seven interviewers rated SOFAS-scores, there was only one interviewer-rating per subject. The interrater-reliability of the SOFAS-scores could therefore not be determined. Hence, the interviewers' mean SOFAS-scores were determined and compared to check for significant differences with a one-way ANOVA. Prior to the ANOVA, the assumptions of normality of the residuals and homogeneity of variances were investigated. In case of significant differences, a

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follow-up ANCOVA were to be conducted, controlling for participant's gender and age. Prior to the ANCOVA, the assumptions of normality of residuals, homogeneity of variances, homoscedasticity, homogeneity of regression slopes and linearity were to be tested (Field, 2013). Due to similar training, no significant inter-rater differences were expected. In case of significant differences in the ANCOVA, the SOFAS was not to be used.

Results

Prior to the ANOVA, the assumption of normality of the residuals was evaluated. The assumption was satisfied as both standardized and unstandardized residuals were normally distributed based on their skewness and kurtosis z -scores. Furthermore, the assumption of homogeneity of variances was tested and satisfied based on Levene's F -test, $F(5, 147) = 1.86, p = .105$.

The one-way independent between-groups ANOVA yielded no significant effect, $F(6, 147) = 1.06, p = .390$. No significant differences between the interviewers were found. Therefore, no follow-up assessments were deemed necessary. Hence, the SOFAS was used as a measure of the participant's (degree of difficulties in) social functioning.