

Self-Directed Passive Aggressive Behaviour as an Essential Component of Depression: Findings from two observational studies

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Abstract

Background Self-directed passive aggressive behaviour is defined as self-harm by inactivity or omission. Based on the self-control model of depression suggesting depressive symptoms to derive from distorted self-monitoring, self-evaluation and reduced self-reward as well as increased self-punishment and reduced self-reward, a relationship between self-directed passive aggressive behaviour and depression had been assumed. First evidence for this notion derives from a recent study, demonstrating a correlation between self-directed passive aggressive behaviour and depressive symptoms. However, it remains unclear if patients with depressive disorders report more self-directed passive aggressive behaviour than patients without depressive disorders and if self-directed passive aggression mediates the associations between distorted self-monitoring and self-evaluation with depressive symptoms.

Methods Study 1 compared self-directed passive aggressive behaviour levels between 220 psychotherapy outpatients with ($n = 140$; 67.9% female; $M_{age} = 40.0$) and without ($n = 80$; 65.0% female; $M_{age} = 36.2$) depressive disorders. Diagnoses were made based on the Structured Clinical Interview for DSM IV. Study 2 examined self-directed passive aggressive behaviour as mediator of the relationship between distorted self-monitoring and self-evaluation and depressive symptoms in 200 Psychology students.

Results Compared to outpatients without depressive disorders, outpatients with depressive disorder reported significantly more self-directed passive aggression ($d = 0.51$). Furthermore, Study 2 verified self-directed passive aggressive behaviour as partial mediator of the relationship between dysfunctional attitudes ($ab_{CS} = .22$, 95%-CI = .14 - .31), attributional style ($ab_{CS} = .20$, 95%-CI = .13 - .27), ruminative response style ($ab_{CS} = .15$, 95%-CI = .09 - .21) and depressive symptoms.

Conclusion Self-directed passive aggressive behaviour partially mediates the association between distorted self-monitoring and self-evaluation with depressive symptoms and might represent a core component of depressive disorders.

Trial registration: Both studies were preregistered at the German Clinical Trials Register (DRKS000140051 and DRKS000190201).

Introduction

Depressive disorders are severe mental illnesses associated with high societal (Lépine & Briley, 2011) and individual burden (Hirschfeld et al., 2000; Judd et al., 2000). Main symptoms of depressive episodes are sad mood, diminished interest in activities, and fatigue or low levels of energy, lasting for at least two weeks (American Psychiatric Association, 2013). Cognitive behavioural theories explain the aetiology of depression by diatheses-stress models with dysfunctional attitudes (Abela & D'Alessandro, 2002; Beck, 1963; Fuhr, Reitenbach, Kraemer, Hautzinger, & Meyer, 2017; Köhler et al., 2015), rumination (Nolen-Hoeksema, 1991, 2004) (Olatunji, Naragon-Gainey, & Wolitzky-Taylor, 2013; Raeiszadeh & Mohammadi,

2018; Ruscio et al., 2015) and attributional style (Abramson, Metalsky, & Alloy, 1989; Alloy, Abramson, Metalsky, & Hartlage, 1988; Liu, Kleiman, Nestor, & Cheek, 2015) as major psychological factors. In the general population, lifetime prevalence of depressive disorders is high, ranging from 6.6% in Japan to 21.0% in France (Bromet et al., 2011). Ten to seventeen percent of individuals with depressive disorders develop a chronic course (Steinert, Hofmann, Kruse, & Leichsenring, 2014), spending approximately 20.8 percent of their lifetime in depression (Vos et al., 2004). Although cognitive behavioural psychotherapy is effective in the treatment of depression in the short-term, 54% of initial responders relapse in a 2-year period after treatment (Vittengl, Clark, Dunn, & Jarrett, 2007). Furthermore, depressive disorders are associated with heightened risk for self-directed aggression compared with the general population.

Self-directed aggressive behaviour describes any behaviour intended to harm oneself in active or passive ways (VandenBos, 2007). Self-directed *active* aggressive behaviour is defined as an active engagement in self-harm (e.g., cutting oneself, self-punishment; Buss, 1961), whereas self-directed *passive* aggressive behaviour is defined as harmful inactivity (e.g., omission of one's own needs or reduced self-reward; Turp, 2007). The link between self-directed aggression and depression may be explained by the self-control model of depression (Rehm, 1977), which is based on Kanfer's (1971) behavioural self-control model. According to the self-control model of depression, depressive symptoms are a result of a maladaptive feedback loop of dysfunctional *self-monitoring* and distorted *self-evaluation*, which leads to reduced self-reward (self-directed passive aggressive behaviour) and increased self-punishment (self-directed active aggressive behaviour).

The above mentioned cognitive factors are assumed to contribute to this feedback loop: Rumination represents a form of dysfunctional self-monitoring (Donaldson, Lam, & Mathews, 2007; Mor & Winquist, 2002) while dysfunctional attitudes (Otani, Suzuki, Matsumoto, & Shirata, 2017) and negative attributional style (Rozensky, Kravitz, & Unger, 1981) contribute to a distorted self-evaluation. Correlations between self-directed active aggression with depressive symptoms, rumination (Nicolai, Wielgus, & Mezulis, 2016; Rogers & Joiner, 2017), dysfunctional attitudes (Chioqueta & Stiles, 2007; Ranieri et al., 1987), and negative attributional style (Abramson et al., 2002; Fox et al., 2015; Ribeiro, Huang, Fox, & Franklin, 2018) have been demonstrated multiple times. On the other hand, research about self-directed passive aggressive behaviour is scarce (Turp, 2007). However, a recent study found a moderate association between self-directed passive aggressive behaviour and depressive symptoms in an inpatient sample (Schanz et al., 2021). Thus, intensified research efforts about the role of self-directed passive aggressive behaviour in depression seem a promising avenue of identifying new prevention and treatment options for depressive disorders that are much needed considering the enormous burden of depression (Bromet et al., 2011; Steinert et al., 2014; Vittengl et al., 2007; Vos et al., 2004)

Study aims

Study 1 (preregistered at German Clinical Trials Register: DRKS000140051) aims to determine whether the correlation between self-directed passive aggressive behaviour and depressive symptoms found in inpatients (Schanz et al., 2021) holds-up in patients seeking outpatient psychotherapy. Furthermore,

Study 1 investigates the hypothesis that depressed patients report higher levels of self-directed passive aggressive behaviour than patients with other mental disorders.

Based on the self-control model of depression, Study 2 (preregistered at German Clinical Trials Register: DRKS000190201) aims to test the assumptions that self-directed passive aggressive behaviour is associated with dysfunctional self-monitoring (rumination) and self-evaluation (dysfunctional attitudes and negative attributional style) processes and that it mediates their association with depressive symptoms. Additionally, Study 2 examines whether self-directed passive aggressive behaviour accounts for a unique amount of variance in depressive symptoms when controlling for the described cognitive factors.

Methods Of Study 1

Participants and procedure

To examine the association between self-directed passive aggressive behaviour and depression in a sample of patients seeking outpatient treatment, Study 1 recruited patients from the Centre for Cognitive-Behaviour Therapy at the Saarland University and the Institute for Postgraduate Studies in Psychotherapy Saarbruecken. Adult patients (age ≥ 18 years) were asked for participation in the study after their first consultation. The study design and all methods were approved by the Ethic Committee of Saarland University and was performed in accordance with the guidelines of the Declaration of Helsinki (General Assembly of the World Medical Association, 2014). All participants gave written informed consent. The study was approved by the local ethics committee. Diagnoses were based on the structured clinical interview for mental disorders for DSM-IV axis I (SCID-I; First, 1997). Additionally, patients completed the Beck-Depression Inventory-II (BDI-II; Beck, Steer, & Brown, 1996), the Brief Symptom Inventory (BSI; Derogatis & Spencer, 1993), and the Test of Passive Aggression (TPA; Schanz, Equit, Schäfer, Käfer, Mattheus, & Michael, 2021). After 12 sessions of outpatient treatment, a follow-up assessment will take place to analyze the interaction between symptom change and self-directed passive aggressive behaviour during psychotherapy. To date, the follow-up is not completed, and its results will be reported elsewhere. Initially, 251 patients agreed to participate. For 31 patients the SCID-I interview did not reveal an axis I disorder. Therefore, these patients were excluded from all subsequent analyses. For sample characteristics of the remaining 220 patients, see Table 1.

Table 1
Descriptive sample characteristics for Study 1.

	Depression group	Depression only group	Control group
<i>n</i>	140	50	80
% female	67.9	64.0	65.0
Age <i>M</i> (years)	40.01	41.50	36.16
Age <i>M</i> (years)	18–65	22–65	18–76
BDI-II <i>M</i> (SD)	26.97 (10.35)	27.12 (9.96)	18.36 (8.90)
BSI <i>M</i> (SD)	1.42 (0.64)	1.33 (0.58)	1.02 (0.58)
TPA-SD <i>M</i> (SD)	2.93 (0.84)	2.95 (0.82)	2.53 (0.72)
TPA-OD <i>M</i> (SD)	2.80 (0.77)	2.83 (0.84)	2.68 (0.75)
One comorbidity (%)	37.9	-	21.3
Two comorbidities (%)	21.4	-	5.0
Three comorbidities (%)	2.9	-	1.3
Four comorbidities (%)	1.4	-	0
Five comorbidities (%)	0.7	-	0
Anxiety disorders (%)	42.9	-	53.8
Obsessive compulsive disorder (%)	7.1	-	13.8
PTSD (%)	6.4	-	5.0
Somatoform disorder (%)	12.9	-	6.3
Adjustment disorder (%)	0.7	-	25.0
Others (%)	10.7	-	10.0

Note. *M* = mean; *SD* = standard deviation. Beck Depression Inventory II; BSI = Brief Symptom Inventory; TPA-SD = Test of Passive Aggression – self-directed; TPA-OD = Test of Passive aggression – other-directed; PTSD = posttraumatic stress disorder. The depression only group is a subgroup of the depression group.

Measures

SCID is a structured clinical interview based on diagnostic criteria of DSM (American Psychiatric Association, 2013; First, 1997). SCID has shown to be the gold standard for diagnosis of mental disorders (Lobbestael, Leurgans, & Arntz, 2011; Sanchez-Villegas et al., 2008; Whelan-Goodinson, Ponsford, & Schönberger, 2009). Given that the German version of the SCID-5-CV (First, Williams, Karg, & Spitzer,

2015) was not available at the start of the present study, diagnoses were obtained using the German version of the SCID-I for DSM IV (Wittchen, Zaudig, & Fydrich, 1997). SCID-I interviews were conducted by the first author (clinical psychologist, master level) as well as by trained and supervised students of clinical psychology (bachelor level).

The BDI-II is a self-reporting questionnaire (Beck et al., 1996) comprising 21 items to assess depressive symptoms based on DSM-IV criteria (American Psychiatric Association, 2000). Higher item scores indicate stronger depressive symptoms. The BDI-II is a reliable and valid instrument measuring depressive symptom severity (Dozois, Dobson, & Ahnberg, 1998; C Kühner, Bürger, Keller, & Hautzinger, 2007; Wang & Gorenstein, 2013). In Study 1, the BDI-II exhibited an excellent internal consistency ($\alpha = .90$, $n = 213$).

The TPA is a self-reporting instrument to assess self-directed (TPA-SD) and other-directed passive aggression (TPA-OD; Schanz et al., 2021). The validity of the TPA-SD has been proven through associations with measures for self-directed aggression (Heubrock & Petermann, 2008), impulsivity (Meule, Vögele, & Kübler, 2011), and personality traits (e.g., neuroticism; Borkenau and Ostendorf, 1994; Costa and McCrae, 1989). TPA-SD demonstrated good internal consistency in the current sample ($\alpha = .86$; $n = 220$).

The BSI is a short version of the Symptom Checklist 90 Revised (Derogatis & Spencer, 1993; Franke, 2000). The 53-item self-reporting questionnaire assesses nine symptom scales (e.g., somatization, anxiety, and obsessive-compulsion), which can be summed up to a global severity index (GSI) reflecting general symptom burden (Boulet and Boss, 1991; Sahin, Durak, & Uğurtaş, 2002). In the presented study the GSI demonstrated excellent internal consistency ($\alpha = .95$, $n = 215$).

Statistical Analyses

All analyses were performed using IBM SPSS Statistics version 25 (IBM Corp, 2017). Bivariate relationships between self-directed passive aggression (TPA-SD), depressive symptoms (BDI-II), and global symptom severity (BSI) were analysed using Pearson correlation coefficients (r). To control for the association between self-directed passive aggression with depression and general psychopathology, a multiple regression analyses including GSI score as predictor variable was conducted. An ANOVA with depression group versus control group as between-subject factor was performed to examine the hypothesis that patients with depressive disorders report more self-directed passive aggression than controls. Inclusion criteria for the depression group were unipolar affective disorders (including recurrent depression and dysthymia). To control for effects of comorbidity on self-directed passive aggression, the same analysis was rerun excluding all patients of the depression group with comorbid disorders (hereinafter referred to as 'depression only' group). Both analyses were repeated with age and gender being controlled for.

Results Of Study 1

Association between self-directed passive aggressive behaviour and depressive symptoms

In line with our expectations, self-directed passive aggressive behaviour and depressive symptoms were significantly correlated, $r = .56$, $p < .001$. This correlation remained stable after controlling for global symptom severity (see Table 2).

Table 2.

Multiple regression model for passive self-directed AB (TPA-SD) in Study 1.

	β	T	p	<i>Zero-Order correlation</i>
BSI	.17	1.76	.079	.51
BDI-II	.42	4.30	< .001	.56

Note. AB = aggressive behaviour; BDI-II = Beck Depression Inventory II; BSI = Brief Symptom Inventory; TPA-SD = Test of Passive Aggression – self-directed. For all zero-order correlations $p < .001$. $F_{\text{Modell}}(2, 209) = 50.30$; $R^2 = .33$; $p < .001$.

Group differences in self-directed passive aggressive behaviour

An ANOVA with group (depression group vs. control group) as between-subject factor and self-directed passive aggression as dependent variable revealed a significant difference between the two groups [$F(1, 218) = 13.23$; $p < .001$; $d = 0.51$] with depressed patients reporting more self-directed passive aggression than controls. Moreover, a significant difference in self-directed passive aggression was also evident between the depression only group and the control group [$F(1, 128) = 9.74$; $p = .002$; $d = 0.57$]. Both effects remained significant after controlling for age and gender.

Methods Of Study 2

Participants and procedure

Participants of Study 2 were adult (age ≥ 18 years) undergraduate psychology students at Saarland University. Participants received course credits for their participation. Data were collected using the online platform *SoSci Survey* (Leiner, 2014). Like Study 1, Study 2 was approved by the Ethic Committee of Saarland University and was performed in accordance to the guidelines of the Declaration of Helsinki (General Assembly of the World Medical Association, 2014). After giving written informed consent, participants completed German versions of the BDI-II (Beck et al., 1996), the Brief Symptom Checklist (BSCL; Franke, 2017), the TPA (Schanz et al., 2021), a short version of the Cognitive Style Questionnaire (CSQ) (Haefel et al., 2008; Meins et al., 2012), a short version of the Dysfunctional Attitude Scale (DAS) (Rojas, Geissner, & Hautzinger, 2014; Weissman & Beck, 1978), and the Rumination Response Scale (RSS) (Christine Kühner, Huffziger, & Nolen-Hoeksema, 2007; Nolen-Hoeksema, 2004). Additionally, trait-anger (Rohrman, 2013; Spielberger, 1999), trait-anxiety (Laux, Hock, Bergner-Köther, Hodapp, & Renner, 2013),

trait-shame (Andrews, Qian, & Valentine, 2002) and sense of coherence (Antonovsky, 1993; Bachem & Maercker, 2016) were assessed. Findings on these constructs will be reported elsewhere. In total, 200 students completed the online survey (for descriptive statistics see Table 3).

Table 3.

Descriptive sample characteristics in Study 2.

<i>n</i>	200
% Female	77.0
Age Mean (years)	21.76
Age Range (years)	18–46
BDI-II Mean (SD)	8.60 (7.73)
BSCL Mean (SD)	0.65 (0.51)
TPA-SD Mean (SD)	2.44 (0.64)
TPA-OD Mean (SD)	2.59 (0.69)
DAS-SF Mean (SD)	58.09 (15.88)
CSQ-SF Mean (SD)	202.44 (20.84)
RSS Mean (SD)	44.87 (11.30)
<p><i>Note.</i> Beck Depression Inventory II; BSCL = Brief Symptom Checklist; TPA-SD = Test inventory of passive aggression – self-directed; TPA-OD = Test inventory of passive aggression – other-directed; DAS-SF = Dysfunctional Attitude Scale – Short Form A; CSQ-SF = Cognitive Style Questionnaire – Short Form; RSS = Ruminative Response Scale.</p>	

Measures

The CSQ is a self-reporting questionnaire assessing different attributional styles based on the hopelessness theory (Abramson et al., 1989; Haeffel et al., 2008; Meins et al., 2012). The German short form of the CSQ (CSQ-SF) used in this study comprises 72 items and consists of three scales (internality, globality, and stability of attribution), which can be summarized to a global score (Huys et al., 2016). In the current sample, internal consistency of the global score was good ($\alpha = .83$).

The RSS is a subscale of the Response Style Questionnaire (RSQ) and assesses rumination according to the response-style theory (Kühner et al., 2007; Nolen-Hoeksema, 1991). The RSS consists of 22 items with higher scores indicating a stronger ruminative response style. In Study 2, the RSS demonstrated excellent internal consistency ($\alpha = .91$).

Based on Beck's cognitive theory the DAS assesses dysfunctional attitudes using 40 items (Beck, 1963; Weissman & Beck, 1978). The German short form of the DAS (DAS-SF) exists in two parallel versions (Form A and B; Rojas et al., 2014; Rojas, Geissner and Hautzinger, 2015). Each version consists of 18 items of the original DAS. In this study, short form A was used, which showed good internal consistency ($\alpha = .88$).

The BSCL is a revised version of the BSI used in Study 1 (Derogatis & Spencer, 1993; Franke, 2000, 2017). Both questionnaires differ with respect to their item order, only. In the current sample, the GSI showed excellent internal consistency ($\alpha = .96$).

As in Study 1, depressive symptoms were assessed using the BDI-II and self-directed passive aggression using the TPA-SD, with good internal consistencies for the BDI-II ($\alpha = .90$) and acceptable internal consistency for the TPA-SD ($\alpha = .78$).

Statistical Analyses

All analyses were performed using IBM SPSS Statistics 25 (IBM Corp, 2017). Associations between self-directed passive aggression (TPA-SD), depressive symptoms (BDI-II), global symptom severity (BSCL) as well as cognitive factors of depression [ruminative response style (RSS), dysfunctional attitudes (DAS-SF), and dysfunctional attributional style (CSQ-SF)] were analyzed using Pearson correlation coefficients (r) and multiple regression analyses. Moreover, mediation hypotheses were tested using the SPSS macro Process (Hayes, 2017). In accordance to Preacher and Kelley (2011) indirect effects were completely standardized (ab_{cs}).

Results Of Study 2

Association between passive self-directed aggressive behaviour and depressive symptoms

Self-directed passive aggressive behaviour was strongly associated with depressive symptoms, $r = .54$, $p < .001$. This association remained significant after controlling for global symptom severity (see Table 4).

Table 4.

Multiple regression models for passive self-directed AB (TPA-SD) in Study 2.

	β	T	p	<i>Zero-Order correlation</i>
BSCL	.22	2.18	.030	.51
BDI-II	.37	3.73	< .001	.54

Note. BDI-II = Beck Depression Inventory II; BSCL = Brief Symptom Checklist; TPA-SD = Test inventory of passive aggression – self-directed. For all zero-order correlations $p < .001$. $F(2, 197) = 44.01$; $R^2 = .31$; $p < .001$.

Association between self-directed passive aggressive behaviour and cognitive factors

Self-directed passive aggression was positively associated with all cognitive factors of depression (see Table 5). In a joint multiple regression model, all cognitive factors accounted for a unique amount of variance in self-directed passive aggression (see Table 5).

Table 5.

Multiple regression model for self-directed passive aggression in Study 2.

	β	T	p	<i>Zero-Order correlation</i>
RSS	.24	3.53	.001	.45
CSQ-SF	.18	3.47	.024	.48
DAS-SF	.36	5.00	< .001	.54

Note. DAS-SF = Dysfunctional Attitude Scale – Short Form A; CSQ-SF = Cognitive Style Questionnaire – Short Form; RSS = Ruminative Response Scale. For all zero-order correlations $p < .001$. $F(3, 196) = 38.40$; $R^2 = .37$; $p < .001$.

Unique association of self-directed passive aggressive behaviour with depressive symptoms

Depressive symptoms were significantly associated with all cognitive factors (see Table 6). When accounted for the influence of cognitive factors in a multiple regression model, self-directed passive aggression still explained an incremental proportion of variance in depressive symptoms ($F(1, 195) = 15.12$; $\Delta R^2 = .04$; $p < .001$; see Table 6).

Table 6.

Multiple regression model for the prediction of depressive symptoms in Study 2

		β	T	p	<i>Zero-Order correlation</i>
Model 1	RSS	.48	7.68	< .001	.62
	CSQ-SF	.12	1.79	.075	.47
	DAS-SF	.20	3.07	.002	.47
Model 2	RSS	.42	6.86	< .001	.62
	CSQ-SF	.08	1.12	.251	.46
	DAS-SF	.12	1.7	.089	.47
	TPA-SD	.25	3.89	< .001	.54

Note. BDI-II = Beck Depression Inventory II; TPA-SD = Test of Passive Aggression – self-directed; DAS-SF = Dysfunctional Attitude Scale – Short Form A; CSQ-SF = Cognitive Style Questionnaire – Short Form; RSS = Ruminative Response Scale. For all zero-order correlations $p < .001$. $F_{Model\ 1}(3, 196) = 53.36$; $R^2 = .45$; $p < .001$; $F_{Model\ 2}(4, 195) = 46.68$; $R^2 = .49$; $p < .001$.

Self-directed passive aggressive behaviour as a mediator

As expected, self-directed passive aggression mediated the relationship of dysfunctional attitudes ($ab_{cs} = .22$, $95\%-CI = .14 - .31$), attributional style ($ab_{cs} = .20$, $95\%-CI = .13 - .27$), and ruminative response style ($ab_{cs} = .15$, $95\%-CI = .09 - .21$) with depressive symptoms. However, all cognitive factors showed significant direct effects ($p < .001$).

Discussion

Both studies confirmed a strong correlation between self-directed passive aggressive behaviour and depressive symptoms. In multiple analyses, this association remained robust when gender, age, general psychopathology, and cognitive factors of depression were controlled for. Furthermore, a mediation analysis showed that passive self-directed AB serves as a partial mediator for the relationship between cognitive factors and depression.

Bivariate association between depression and self-directed passive aggression

According to the self-control model of depression, insufficient self-reward (a component of self-directed passive aggression) is a major cause of the development of depressive disorders (Rehm, 1977). The results of Studies 1 and 2 validated the hypothesis of a specific association between self-directed passive aggression and depressive symptoms. Furthermore, patients with depressive disorder had significantly higher scores on an inventory of self-directed passive aggression than patients with other mental disorders. In sum, Studies 1 and 2 extended the body of evidence demonstrating that not only

self-directed active-AB (Bentley et al., 2015; Harford et al., 2018) but also self-directed passive aggression is robustly related to depressive symptoms.

Self-directed passive aggressive behaviour and cognitive factors of depression

Based on the self-control model of depression (Rehm, 1977) and previous studies demonstrating associations between self-directed active-aggressive behaviour and attributional style (Fox et al., 2015; Ribeiro et al., 2018), dysfunctional attitudes (Chioqueta & Stiles, 2007; Ranieri et al., 1987), as well as ruminative response style (Nicolai et al., 2016; Rogers & Joiner, 2017), we hypothesized that these factors are correlated with self-directed passive aggression. Findings of Study 2 found these associations, thereby supporting the notion that dysfunctional self-monitoring (rumination) as well as distorted self-evaluation (dysfunctional attitudes and attributional style) contribute to self-directed passive aggression. If results of future longitudinal studies establish them to be risk factors for self-directed passive aggression, they should become the focus of interventions of self-directed passive aggression.

Self-directed passive aggression as mediator between cognitive factors and depressive symptoms

Study 2 identified self-directed passive aggression as a mediator of the relationship between cognitive factors and depressive symptoms. Furthermore, the potential relevance of self-directed passive aggression for the development, onset and course of depression was supported by a unique amount of variance explained by self-directed passive aggression in depressive symptoms (even after controlling for cognitive factors of depression). Furthermore, these results also raise the question if self-directed passive aggression should be a potential target of psychotherapeutic interventions. Future studies should thus examine if treatment concepts that include specific interventions aimed at lessening self-directed passive aggression in addition to cognitive therapy increase treatment efficacy and reduce recurrence of depression.

Limitations And Future Directions

Several limitations need to be taken into account when interpreting the findings of Studies 1 and 2.

Study 2 supports the hypothesis of self-directed passive aggression being a (partial) mediator of the relationship between cognitive correlates of depression and depressive symptom severity. However, the sample consisted of undergraduate psychology students, with low levels of psychopathological symptoms [mean BDI-II < 14 (cut-off for minimal depression), mean BSCL < 0.68 (clinical cut-off for a mixed-gender student sample)]. Thus, the restriction of variance caused by the overall low symptom levels could have reduced external validity and generalizability of our results (Taylor & Asmundson, 2008). Therefore, a replication of this study in a clinical sample seems necessary.

Additionally, due to the cross-sectional study design the present studies cannot clarify if self-directed passive aggressive behaviour is a symptom of depressive disorders or a risk factor for its development. With respect to self-directive active-aggression, previous studies found evidence for both directions [aggression leads to depression (Chu et al., 2018; Wilkinson, Qiu, Neufeld, Jones, & Goodyer, 2018) vs. depression leads to aggression (Garisch & Wilson, 2015; Hankin & Abela, 2011; Mars et al., 2014)], with

small empirical evidence in favour of the depression leads to aggression assumption. To examine whether self-directed passive aggression should be included in prevention and treatment strategies of depression, longitudinal studies in high-risk samples are needed.

Conclusion

In two studies self-directed passive aggression was found to be significantly associated with depressive disorders. Additionally, Study 2 demonstrated self-directed passive aggression to be a partial mediator of the relationship between cognitive factors of depression and depressive symptoms. Future studies need to extend the results of Study 2 to clinical samples and to examine the longitudinal (and potentially causal) relationship between self-directed passive aggression and depressive symptoms.

List Of Abbreviations

BDI-II	Beck-Depression Inventory-II
BSI	Brief Symptom Inventory
BSCL	Brief Symptom Checklist
CSQ	Cognitive Style Questionnaire
CSQ-SF	Cognitive Style Questionnaire – Short Form
DAS	Dysfunctional Attitude Scale
DAS-SF	Dysfunctional Attitude Scale – Short Form
DSM	Diagnostic and Statistical Manual of Mental Disorders
PTSD	Post-Traumatic Stress Disorder
RSS	Rumination Response Scale
SCID	Structured Clinical Interview for DSM
TPA	Test of Passive Aggression
TPA-SD	Test of Passive Aggression – self-directed
TPA-OD	Test of Passive Aggression – other-directed

Declarations

Authors Contribution Statement

CGS developed the study design, prepared the materials, recruited the participants, analysed the data, and wrote the manuscript. EM, SKS and TM participated in the development of the study design, reviewed the materials, and reviewed the manuscript.

Ethics approval and consent to participate: Both studies were approved by the Ethic Committee of Saarland University and all participants gave written informed consent according to the Declaration of Helsinki and its latest revisions.

Consent for publication: Not applicable.

Availability of data and materials: The datasets generated during the current study are not publicly available due to the ongoing follow up of Study 1. The datasets supporting the conclusion of this article are available from the corresponding author on reasonable request.

Competing interests: The authors declare that they have no competing interests.

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Authors' contributions: CGS developed the study design, prepared the materials, recruited the participants, analysed the data, and prepared the first draft of the manuscript. EM, SKS, and TM participated in the development of the study design, reviewed the materials, and reviewed the manuscript.

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