Aus dem Zentralinstitut für Seelische Gesundheit
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Auswirkungen von medialer Berichterstattung auf Selbststigmatisierung, Selbstwert und Affektivität bei Personen mit Depression

Effects of Media Coverage on Self-Stigmatization, Self-Esteem, and Affectivity in Persons with Depression

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Viele kleine Leute

an vielen kleinen Orten,

die viele kleine Schritte tun,

können das Gesicht der Welt verändern.

Afrikanisches Sprichwort

Many small people

who do a lot of little things

at many small places

can change the face of the world.

African saying

CONTENTS

ABBREVIATIONS

ANOVA …… analysis of variance
CFI ……..… comparative fit index
CG …… control group
CI ..…… confidence interval
CIMH ..…….. Central Institute of Mental Health in Mannheim
df ..……. degrees of freedom
DWLS ...…… diagonally weighted least squares
e.g. ……. example gratia, for example
EG ……. experimental group
et al. …….. et alii, and others
i.e. ..…….. id est, that is
ICD 10 …… International Classification of Diseases 10
IQR …… interquartile ranges
LLCI …… lower level of confidence interval
MAP-Test ……... minimum-average-partial-test
min …… minutes
MSE …….. mean squared error
OLS …….. ordinary least squares
OSPI …….. optimizing suicide prevention programs and their implementation
PANAS …… Positive Affect and Negative Affect Schedule
PHQ …….. Patient Health Questionnaire
RMSEA …… root mean square error of approximation
s …… seconds
SMC …….. potentially stigmatizing media coverage
SRMR …… standardized root mean square residual
SSDS ……. Self-Stigma of Depression Scale
SSDS-D …… Self-Stigma of Depression Scale for People with Depression
SSMIS …….. Self-Stigma of Mental Illness Scale
$t_0 – t_3$ ……..…….. times of measurement
TLI ……. Tucker Lewis index
ULCI …….. upper level of confidence interval
z. B. ……... zum Beispiel, for example

1 GENERAL BACKGROUND

The world health organization declares depression to be the ”leading cause of ill health and disability“ (World Health Organization, 2021). More than 300 million people worldwide and four million people in Germany are living with depressive symptoms (World Health Organization, 2017). As long as patients take up professional support, depression can be treated effectively (World Health Organization, 2020). However, even if sufficient resources and trained health-care-providers for effective treatments are given, not all affected people take advantage of this opportunity. One main barrier in this concern appears to be stigmatization (Schnyder, Panczak, Groth, & Schultze-Lutter, 2017).

In spite of a variety of awareness campaigns stigmatization of people with depression is still increasing (Angermeyer, Matschinger, & Schomerus, 2013). Media coverage represents an essential factor in this concern (Stout, Villegas, & Jennings, 2004): Depression is often mentioned in connection with negative appraisals or criminal events (Aragonès, López-Muntaner, Ceruelo, & Basora, 2014; Corrigan & Kleinlein, 2005). People with depression are described as weak, unpredictable, dangerous or to be to blame for their situation (Angermeyer et al., 2013; Conrad von Heydendorff, Meyer-Lindenberg, & Dressing, 2016). In cases of uncertainty, whether a negative event was caused by human or technical failure, associations are quickly drawn to potential involvement of mental illness in media coverage. News with potentially stigmatizing contents about depression had been published, especially regarding the Germanwings plane crash in France in March 2015 (Conrad von Heydendorff et al., 2016).

Many reader letters (e.g., Bavendamm, 2015) and expert opinions (e.g., Gurris, 2015) criticized such potentially stigmatizing media coverage (SMC) in the case of the plane crash: They postulate higher levels of public stigmatization as a consequence. Journalists find themselves in a dilemma of immediate delivery of correct information, reduction of complexity, and adequate presentation of reality.

Up to date, there is little empirical evidence on effects of SMC on which discussions about events related to depression could be sufficiently based on. In the early 1990ies, when two popular German politicians had been attacked by perpetrators with psychoses, public stigmatization increased in German population significantly (Angermeyer & Matschinger, 1996). By contrast, the overall increase in community’s

stigma attitudes towards persons with depression between 2014 and 2015 after the Germanwings plane crash was smaller than postulated (Knesebeck, Mnich, Angermeyer, Kofahl, & Makowski, 2015): Only few significant changes were indicated in perceived separation from persons afflicted, in stereotypes (more unpredictable, less in need of help), and in emotional reactions (anger, fear).

More important and crucial for recovery of affected persons, even less is known about effects of SMC on people with the stigmatized attribute, i.e., persons with diagnosed depression. Researchers added this perspective of the individual with the stigmatized attribute of mental illness to Goffman's concept of stigma (Corrigan & Watson, 2002; Link, 1987). While public stigma refers to the community agreeing to stereotypes and reacting with discrimination against people with mental illness, self-stigma of stigma carriers is often referred to internalizing stereotypes. Corrigan's progressive model of self-stigma integrates both concepts by considering self-stigmatization of mental illness as a process of several stages rather than a static phenomenon (Corrigan, Rafacz, & Rüsch, 2011).

To date, no theoretically based model of self-stigma has been specifically tested in samples of people with depression. If the progressive model of self-stigma can be applied to persons with diagnosed depression, the impact of SMC can be investigated differentially on separate stages of self-stigmatization in affected people.

Based on one pre-study and two main studies, this dissertation aimed at shedding light on the process nature of self-stigmatization in persons with depressive disorders and the impact SMC might have on several stages of self-stigmatization. The pre-study was required to adapt and test a self-stigma scale for people with depressive symptoms (Göpfert et al., 2019). In Study 1, Corrigan et al.`s (2011) progressive model of self-stigma was tested in a cross-sectional survey specifically for people with depression using mediation analyses in two independent clinical samples (Göpfert, Conrad von Heydendorff, Dreßing, & Bailer, 2019a). In Study 2, direct effects of SMC on each of the stages were investigated in an experimental laboratory trial using a controlled design with parallel randomized groups, comparing three different conditions (Göpfert, Conrad von Heydendorff, Dreßing, & Bailer, 2019b). The pre-study can be found in chapter 9 of this dissertation. The main studies in chapter 4 and in chapter 5 are framed by chapters on relevant background and methodological information at the beginning and a concluding general discussion at the end.

1.1 The progressive model of self-stigma

Being the first, Goffman's definition of stigma was a milestone for stigma research. He defined stigma as an „attribute that is deeply discrediting" to the person bearing this attribute (Goffman, 1963, p. 3). Stigmatization refers to assigning a stigma to a person or group of people (Rüsch, Angermeyer, & Corrigan, 2005b). It is differentiated between public stigma and self-stigma: Public stigma refers to the general population agreeing with stereotypes. While perceived public stigma refers to one's perception of stereotypes of others (stereotype awareness), personal stigma refers to one's own attitudes (internalised stigma, personal agreement). Self-stigma refers to accepting society's stereotypes and applying them against oneself (self-concurrence). Most conceptualizations of self-stigma consider it as a static rather than a process phenomenon (Livingston & Boyd, 2010; Michaels, López, Rüsch, & Corrigan, 2012).

Corrigan and colleagues postulated an integrative process model of self-stigmatization of mental illness (2011). The model differentiates between four succeeding stages, namely the awareness of stereotypes (perception of public stigma), followed by personal agreement (believing stigma to be true), next self-concurrence (internalizing stereotypes and applying them to oneself), resulting in harm-to-self (such as lower levels of self-esteem and self-efficacy).

The authors postulated successive stages to be the most highly related, while endorsement was presumed to decrease stage by stage beginning with stereotype awareness. The model has already been tested in a sample of persons with diverse diagnoses (Corrigan et al., 2011). Most but not all elements of the model have been supported (for details, please refer to Study 1). Up to date, no conclusions could be drawn for the progressive model of self-stigma considering depressive diagnoses specifically. Against this background, the following research question was stated.

Research Question 1: Can the progressive model of self-stigma be applied to persons with diagnosed depression?

1.2 Role of media

The stigmatization of people with mental illness is still a significant problem although there are major efforts by regional and national educational programmes fighting it (Angermeyer et al., 2013). Following, Jones and colleagues' definition of stigma as a mark (attribute) that links a person to undesirable characteristics (stereotypes) (Jones et al., 1984), media is a crucial factor for public messaging that may have an impact on stigma per definition (Jorm & Reavley, 2014; Stout et al., 2004; Stuart, 2006). Mental illness is often represented in both fictional and nonfictional media, especially with reference to depression and suicidality (Scherr, 2016a, 2016b). Apart from factual information, mental illness is frequently contextualized to exciting incidents, to danger, to crime, and as a negative burden on society (Aragonès et al., 2014; Corrigan & Kleinlein, 2005). However, there is little research on effects of SMC on stigma measures. According to Knesebeck et al. (2015, p. 261) "[a] single devastating event and related media coverage seem to have a limited impact on public stigmatizing attitudes". Even less is empirically evidenced for SMC on self-stigma, which in turn is negatively related to well-being (Cruwys & Gunaseelan, 2016), quality of life, professional help-seeking, general performance, and self-esteem (Picco et al., 2016), and positively related to suicidal behaviour (Campo-Arias & Herazo, 2015). This led to the second research question.

Research Question 2: What effects does SMC have on self-stigma?

2 GENERAL AIMS AND HYPOTHESES

2.1 Process nature of the progressive model

One aim of this research was to examine the process nature of the progressive model of self-stigma by Corrigan et al. (2011) and its applicability to people with depression. Therefore, the following hypotheses were investigated in Study 1 regarding the progressive model of self-stigma:

I. Stigma attitudes are endorsed decreasingly with the highest endorsement for stereotype awareness, followed by lower endorsements for each stage.
II. Proximal stages are more strongly associated than more distant stages.
III. Direct associations of distant stages are mediated by proximal stages: While higher levels of stereotype awareness are associated with higher levels of stereotype agreement, higher levels of stereotype agreement in turn are associated with higher levels of self-concurrence, which in turn are associated with lower levels of self-esteem.

2.2 Effects of media on stigma carriers

The second aim of this dissertation project was to empirically investigate effects of existing SMC on specific stages of self-stigma, namely stereotype awareness, stereotype agreement, self-concurrence, and harm-to-self (i.e., self-esteem, positive affect, negative affect). The following hypotheses were stated in Study 2:

IV. Watching potentially stigmatizing media reports increases the levels of stereotype awareness, stereotype agreement, self-concurrence, and negative affect in persons with the stigmatized attribute, i.e., depression.
V. Watching potentially stigmatizing media reports decreases the level of self-esteem and positive affect.

3 GENERAL METHODS

Two datasets were collected via the online platform www.soscisurvey.de. The SoSci Survey GmbH has its headquarters and its computer center in Munich (Germany), which houses the survey servers. It collects data in a legally compliant manner and protects the privacy of respondents. Ethics were approved by the local ethic commission for both study samples (study: 2016-655N-MA).

3.1 Sample A

The purpose of investigating Sample A was to determine the factor structure of a depression specific instrument, the Self-Stigma of Depression Scale for people with depression, and to test the process nature of the progressive model of self-stigma (Corrigan et al., 2011).

Participants accessed a cross-sectional online survey from 03/2017 to 07/2018. The link to the questionnaire was spread via various sample specific German online platforms (www.psychologieforum.de, Webseite der Deutschen Depressionsliga, website of a psychiatric clinic, among others), as well as via representatives of the University of Mannheim and autonomous outpatient groups. At the beginning of the questionnaire, participants received written informed consent about aims, voluntary participation, and procedure. Confirmation was required to continue. The survey stopped automatically when the participant indicated no lifetime depressive episode (self-report). The questionnaire was viewed 849 times. 662 persons completed the questionnaire of which 557 indicated to have a diagnosed depression. After cleaning the data *n*=550 data sets fulfilled the eligibility criteria. For details, please refer to chapter 4.

3.2 Sample B

Online surveys have several limitations, such as the necessity of internet access, self-report of screening criteria, or missing contact persons for upcoming questions. Therefore, data of Sample B was used to validate results found in Sample A. Additionally, effects of media reporting on stigma carriers were tested in Sample B. The study was conducted as an experimental laboratory trial using a controlled design with parallel randomized groups, comparing three different conditions. Participants were recruited from the Central Institute of Mental Health in Mannheim (CIMH) in

Germany by treating doctors and psychotherapists from 03/2017 to 07/2018. Eligibility criteria for participants were at least one pre-diagnosed depressive episode or dysthymia, age of 18-70 years, sufficient cognitive abilities, and German language skills. Exclusion criteria were acute psychotic, manic or hypomanic episodes, addiction symptoms, or acute suicidal tendencies. Patients, of whom a lack of capacity to freely provide informed consent was assumed, were excluded from treatment staff in advance. Half of the participants were outpatients, the other half were inpatients treated at the CIMH. The study consisted of two parts, i.e., a screening interview and an experimental phase (for details, please refer to Study 2). Both interviews and an experimental phase took place face to face and individually. 202 persons went through the screening interviews. 186 patients could be recruited for study participation. Because of technical and logistical reasons, six incomplete data sets had to be excluded from analyses. Participants received 20€ expense allowance.

3.3 Instruments

3.3.1 Self-Stigma of Mental Illness Scale

The three phases of self-stigma, namely, stereotype awareness, personal agreement, and self-concurrence were assessed by the German version of the Self-Stigma of Mental Illness Scale (SSMIS; Corrigan, Watson, & Barr, 2006; German version by Rüsch and Brück, published in Schiel, 2005). Subscales consisted of ten items each. The fourth subscale of the SSMIS (self-esteem decrement), was not used because of its difficult wording (Watson, Corrigan, Larson, & Sells, 2007).

Stereotype awareness items were introduced by “I think *the public* believes most persons with mental illness are… (sample item: dangerous).” Personal agreement items were introduced by “*I* think most persons with mental illness are… (sample item: dangerous).” Items of the self-concurrence subscale imply a causal relation between one’s mental illness and stereotype characteristics: “Because I have a mental illness, I am… (sample item: dangerous).” Response scales ranged from 1 = “I strongly disagree” to 9 = “I strongly agree”. Summed scores were computed for each subscale, with higher scores indicating a higher level of stigma attitudes. Internal consistency was α=0.91 in Sample A and α=0.91 in Sample B (stereotype awareness), α=0.85 in Sample A and α=0.87 in Sample B (personal agreement), and α=0.84 in Sample A and α=0.81 in Sample B (self-concurrence).

3.3.2 Self-Stigma of Depression Scale

The Self-Stigma of Depression Scale (SSDS) was developed to measure anticipated self-stigma (Barney, Griffiths, Christensen, & Jorm, 2010). It was the first scale which measured anticipated self-stigma diagnose specific hypothetically in case of depression. To generate a common understanding of depression for all respondents, a short vignette of a person with diagnosed depression is presented at the beginning. Respondents are asked how they would think or feel, if they were diagnosed a depressive disorder. The instrument consists of 16 items on four subscales (four items each): shame (e.g., „I would feel ashamed“), self-blame (e.g., „I would think I only had to blame myself“), help-seeking inhibition (e.g., „I would feel embarrassed about seeking professional help for depression“), social inadequacy (e.g., „I would feel inadequate around other people“). All items are formulated in conjunctive. Response options ranged from 1 = “strongly agree” to 5 = “strongly disagree”. Summed scores were computed for each subscale, with higher scores indicating a higher level of self-stigma. The authors reported internal consistencies of α=0.83 for shame, α=0.78 for self-blame, α=0.79 for help-seeking inhibition, and α=0.79 for social inadequacy. Subscales were reported to be related to perceived social distance, probability of seeking help, depression, and self-esteem (Barney et al., 2010). Because of its hypothetical wording, the SSDS can be used in a variety of samples independently of an experienced depressive episode lifetime. The authors suggest adapting the items for stationary settings for directly measuring self-stigmatizing attitudes of affected persons (Barney et al., 2010).

In a validation study of a German translation of the SSDS the indirect wording has been kept, the response scale was adapted into a four point Likert scale with an additional residual category (Makowski, Mnich, & von dem Knesebeck, 2018). Results indicated a three factorial solution. Contrary to the English original scale, differences in responding were found between people with and without diagnosed depression: Persons with a diagnosed depression indicated lower levels of help-seeking inhibition and self-blame. Additionally, persons without a diagnosed depression more often used the residual category. Possible explanations for these differing results were the change of response scale and differences regarding sample characteristics (Makowski et al., 2018). For a better understanding of negative reactions against oneself, the authors recommend a change in formulation of the items, too (Makowski et al., 2018). The SSDS is useful for assessing anticipated self-stigma in community samples. Actual

experiences may impact responding to indirect items. However, the extent to which internalized attitudes are directed against oneself cannot be filtered (Crocker & Lutsky, 1986). In clinical samples measuring actual experienced instead of hypothetical self-stigma may be more appropriate.

For this reason a pre-study[1] aimed at the adaptation of the SSDS specifically for people with depression and the validation of this new adapted version (Göpfert et al., 2019). The abbreviation SSDS-D will be used in the following (D for depression) for this adapted version. All 16 items were translated into German and changed into indicative. Patients were asked to what extent they agree to self-stigmatising attitudes regarding their depressive disorder (sample item: “I feel ashamed about it.”). Response scale ranged from 1 = ”I do not agree at all” to 5 = ”I totally agree”. Mean scores were conducted for each subscale with higher values indicating higher levels of self-stigma. Factor structure was determined with explorative factor analyses in Sample A and tested and validated with confirmative factor analyses in Sample B. In Sample A, the original structure of four factors (representing shame, self-blame, help-seeking inhibition, and social inadequacy) could be replicated in exploratory factor analyses with the exception of one item. In Sample B, confirmatory factor analyses indicated a better fit for the empirically derived than for the alternatively tested original factor structure. The final version consists of 16 items on four subscales, namely shame (three items), self-blame (five items), social inadequacy (four items), and help seeking inhibition (four items). Internal consistencies of subscales were acceptable to very good ($0.76 \leq \alpha_A \leq 0.89$; $0.74 \leq \alpha_B \leq 0.86$). Even when controlled for current depressive symptoms, there were significant correlations to self-esteem and other self-stigma scales as expected, supporting the construct validity of SSDS-D. The SSDS-D appeared to be a valid and reliable scale covering experienced self-stigma of people with depression.

3.3.3 Self-esteem

A revised version of the German adaptation of the well-known Rosenberg’s self-esteem scale consisting of ten items was used in this study (Collani & Herzberg, 2003; Rosenberg, 1965). Items were introduced by “Please indicate the number that applies best to you”. Sample Item: “On the whole, I am satisfied with myself”. Response options

[1] The pre-study can be found in chapter 9.

ranged from 1 = “not at all” to 4 = “completely”. Summed scores were conducted, with higher scores indicating higher levels of self-esteem. The internal consistency of this scale was α=0.91 (Sample A) and α=0.87 (Sample B).

3.3.4 Depression severity

The current severity of depression symptoms has been shown to be highly correlated with the current level of self-stigma and self-esteem (Corrigan et al., 2006). It is therefore added to the battery of questionnaires to partialling it out of the analyses of predicting harm-to-self measures and thus, controlling for shared variance with self-concurrence. It was measured via the German version of the Patient Health Questionnaire (PHQ-9; Löwe, Spitzer, Zipfel, & Herzog, 2002). Gräfe, Zipfel, Herzog, and Löwe (2004, p. 171) appraise it as a “valid, effective, and well accepted diagnostic tool for use in research and clinical practice”. Items were introduced by “Over the last 2 weeks, how often have you been bothered by any of the following problems?” Response options ranged from 1 = ”not at all” to 4 = ”nearly every day”. Summed scores were conducted with higher values indicating higher levels of depression symptoms. Internal consistency of the nine item depression scale was α=0.86 (Sample A) and α=0.84 (Sample B).

3.3.5 Positive and negative affect

The Positive and Negative Affect Schedule consists of two subscales, namely positive affect and negative affect, of ten adjectives each (PANAS; Krohne, Egloff, Kohlmann, & Tausch, 1996). In Sample B, the PANAS was used to test changes in affect state after viewing videos. Patients were asked to indicate for each adjective how they were currently feeling (e.g., “active” for positive affect and “hostile” for negative affect). Response scales ranged from 1 = “not at all” to 5 = “extremely”. Summed scores were conducted with higher values indicating higher levels of positive or negative affect, respectively. Internal consistency was α=0.89 for positive and α=0.86 for negative affect.

3.3.6 Socio-demographics

Age and gender had been inconsistently correlated with self-stigma in previous research and are therefore assessed as additional control variables (Livingston & Boyd, 2010).

3.3.7 Manipulation check

For manipulation check of the films used in Sample B, videos were rated applying von Heydendorff's and Dressing's categorical system of critical coverage (2016). It measures aspects of media reports that imply a causal relationship between negative events and mental illness. Additionally, participants rated on a scale from 1 = "not at all" to 9 = "extremely" the level of familiarity and arousal as well as valence on a 9-point scale from 1 = "very negative" to 9 = "very positive".

For an overview of the research structure, please refer to Figure 3.1. Methods employed for data analyses are described in chapter 9 (pre-study), in chapter 4 (Study 1), and in chapter 5 (Study 2).

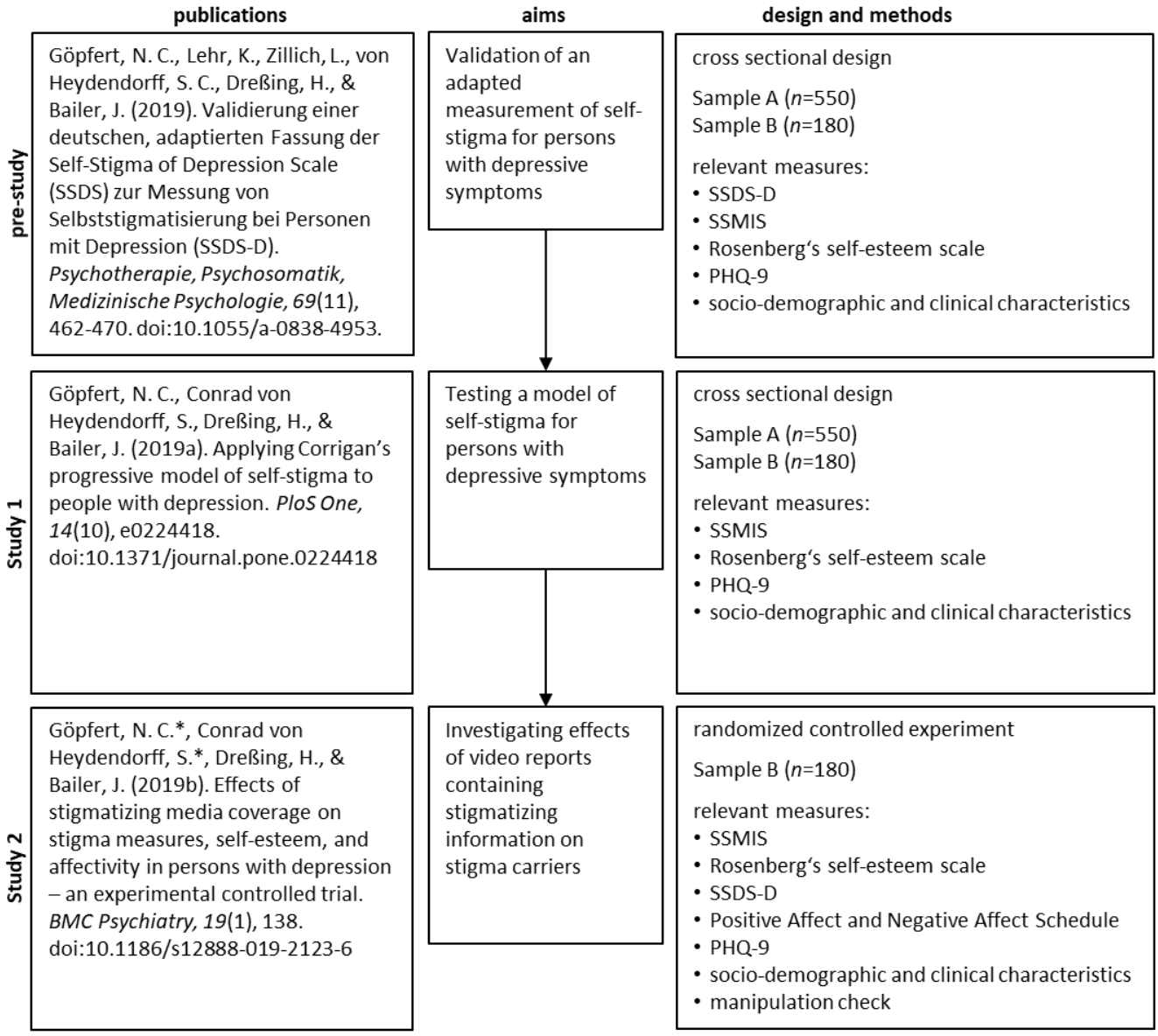

Figure 3.1 Research Structure and the relationship between the studies. SSDS-D = Self-Stigma of Depression Scale for persons with depressive symptoms; SSMIS = Self-Stigma of Mental Illness Scale; PHQ-9 = Patient Health Questionnaire; *joined First Authors.

4 STUDY 1: APPLYING CORRIGAN'S PROGRESSIVE MODEL OF SELF-STIGMA TO PEOPLE WITH DEPRESSION

An adapted version of this chapter has been published as 'Göpfert, N. C., Conrad von Heydendorff, S., Dreßing, H., & Bailer, J. (2019). Applying Corrigan's progressive model of self-stigma to people with depression. *PloS One, 14*(10), e0224418. doi:10.1371/journal.pone.0224418'.

4.1 Abstract

Background: The progressive model of self-stigma describes four stages of internalizing stereotypes of mental illness: Stereotype awareness, personal agreement, self-concurrence, and harm-to-self (i.e., self-esteem). Successive stages are postulated to be the most highly related. Endorsement is presumed to decrease by stage. The model has been supported in most but not all elements in various studies. The procedural character has not yet been investigated in one integrative model. The aim of this study was to test the progressive model of self-stigma in three respects: I) successive stages have the strongest associations, II) endorsements decrease with each stage, and III) the procedural character can be represented by one serial mediation model.

Methods: A cross-sectional computer-based survey was conducted in two samples of patients with depression; one online sample (n_A=550; only self-report) and one clinical face-to-face sample (n_B=180; screening by treatment staff). The inclusion criteria were at least one pre-diagnosed depressive episode or dysthymia, age of 18-70 years, sufficient cognitive abilities, and German language skills. IBM SPSS statistics 24 was used for Cronbach's alphas, descriptive statistics, Spearman correlations, and Mann-Whitney-U tests. The PROCESS procedure for SPSS Version 3.00 was used for mediation analyses.

Results: The results support the progressive model of self-stigma in people with depression in most respects: Endorsements for stereotype awareness were higher than for personal agreement and self-concurrence, and no relevant difference was found between personal agreement and self-concurrence. Successive stages had the strongest associations, with the exception of the association between stereotype awareness and self-esteem, which was higher than the association between stereotype awareness and personal agreement and self-concurrence. The association

between stereotype awareness and self-esteem was mediated via personal agreement and self-concurrence.

Conclusion: The progressive model of self-stigma offers a theoretical foundation for the process research of self-stigma. Longitudinal research may investigate predictive effects and whether different stages of self-stigma require specific consideration in their prediction, consequences, and potential interventions.

Keywords: self-stigma, progressive model, mediation analyses, depression

4.2 Introduction

Self-stigma appears to be a crucial risk factor in people with mental illness. A higher level of self-stigma in persons with mental illness is negatively related to self-esteem, self-efficacy, quality of life, general functioning, self-clarity, hope, recovery, and professional help-seeking (Clement et al., 2014; Corrigan, Druss, & Perlick, 2014; Corrigan et al., 2006; Hasson-Ohayon, Mashiach–Eizenberg, Lysaker, & Roe, 2016; Picco et al., 2016), and positively related to psychiatric symptoms and suicide ideation (Drapalski et al., 2013; Oexle et al., 2017; Oexle, Waldmann, Staiger, Xu, & Rüsch, 2018). Understanding the nature of self-stigma is essential for preventing and overcoming potential consequences.

Goffman was the first to define stigma as the relationship between an "attribute and a stereotype" (Goffman, 1963, p. 4). Recent literature adds the perspective of the individual carrying the stigmatized attribute (Corrigan & Watson, 2002; Link, 1987). Therefore, researchers often distinguish between public and self-stigma, both comprising elements of stereotypes, prejudice, and discrimination (Rüsch, Angermeyer, & Corrigan, 2005a). Public stigma refers to the general population agreeing with stereotypes and reacting with discrimination against people with mental illness. The literature differentiates two types of public stigma: (a) perceived public stigma (also called stereotype awareness) refers to one's perception of the attitudes and behaviours of others towards depression, and (b) personal stigma (also called internalised stigma or personal agreement) refers to one's own attitudes towards depression. Accepting society's stereotypes and applying them against oneself in relation to having depressive symptoms is described as self-stigma (or self-concurrence). Different conceptualizations of self-stigma have been used in a variety of studies (Livingston & Boyd, 2010; Michaels et al., 2012). Most of them consider stigma to be a static rather than a process phenomenon.

4.2.1 The progressive model of self-stigma

Corrigan and colleagues integrated several aspects of stigma into a progressive model of self-stigma (2011). As presented in Figure 4.1, the authors differentiate between three succeeding stages, namely, the awareness of stereotypes (perception of public stigma), followed by personal agreement (believing public stigma to be true), and self-concurrence (internalizing stereotypes and applying them to oneself). Harm-to-self (such as lower levels of self-esteem) is considered a fourth stage or consequence of self-concurrence. Two main assumptions are postulated by the model: (i) a "trickle down" in nature, i.e., the highest endorsement for stereotype awareness, followed by lower endorsements for each stage, and (ii) proximal stages (e.g., stereotype awareness and personal agreement) are expected to be more strongly associated than more distant stages (e.g., stereotype awareness and self-concurrence). To test this model, a sample of 85 persons with mixed diagnoses (schizophrenia, schizoaffective disorder, bipolar disorder, and unipolar major depressive disorder) completed self-report measures. The results indicated a trickle-down in nature for stereotype awareness, personal agreement, and self-concurrence. However, the sums between self-concurrence and harm-to-self did not differ significantly. Proximal stages were more highly correlated than more distant stages, with the exception of stereotype awareness and harm-to-self, which were more highly correlated than stereotype awareness with both personal agreement and self-concurrence. As such, the progressive model of self-stigma has been supported in most but not all postulated elements. Replication studies could help to shed light on previous inconsistent research findings.

One implicit but not explicitly investigated aspect of the progressive model of self-stigma is its procedural character of the stages. The conceptual model, as depicted in Figure 4.1, indicates that self-esteem is a consequence of each of the first three stages. While direct associations have been investigated for both distant and proximal stages of the model with self-esteem, it is also likely that there are indirect associations that explain the effect of distant stages. While higher levels of stereotype awareness are associated with higher levels of stereotype agreement, higher levels of stereotype agreement in turn are associated with higher levels of self-concurrence, which in turn are associated with lower levels of self-esteem. Kao et al. (2016) report evidence of the mediating role of self-concurrence between stereotype awareness and psychosocial outcomes (such as self-esteem, depressive symptoms, and subjective

quality of life). In addition to correlative associations and score comparisons, specific statistical analyses, such as serial mediation models, can capture this procedural character.

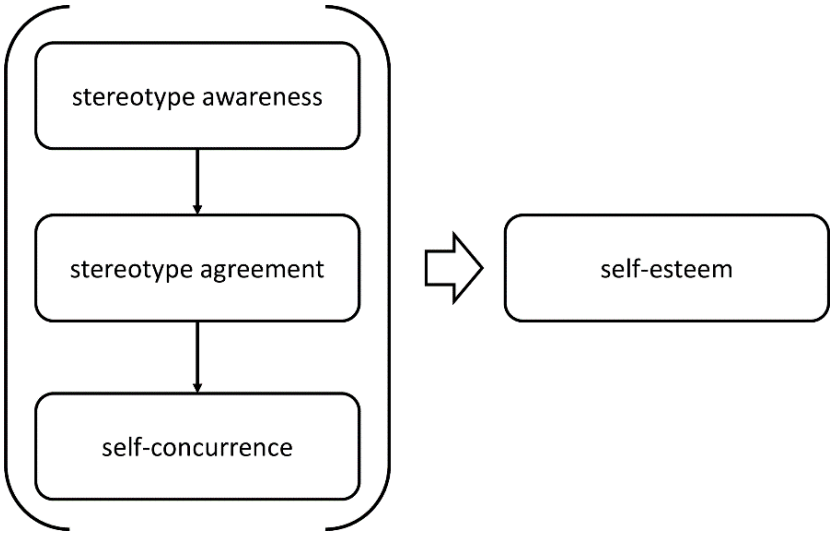

Figure 4.1 Process-oriented model of self-stigma with self-esteem as an outcome factor adapted from Watson et al. (2007). doi: https://doi.org/10.1371/journal.pone.0224418.g001

Furthermore, one difficulty in the model of Corrigan et al. was disentangling the effects of self-concurrence on harm-to-self from those of depressive symptoms. Regression analyses revealed no additional variance in harm-to-self that was explained by awareness, agreement, or self-concurrence after the current level of depression was partialled out (Corrigan et al., 2011). Self-concurrence and harm-to-self seem to be highly correlated and not significantly different in their scores (Corrigan et al., 2011). One reason may be that depression symptoms themselves are associated with lower levels of harm-to-self, i.e., self-esteem. Livingston and Boyd (2010) discuss conceptual and measurement issues regarding the relationship between stigma measures and psychosocial variables in their review. They note the need to critically investigate specific relations. It is still unclear whether stigma measures are empirically differentiable from symptoms of depression in explaining levels of self-esteem, especially in samples of people with depression.

4.2.2 Aims and hypotheses

Therefore, the aim of this study is to examine the progressive model of self-stigma by Corrigan et al. (2011), which represents the four stages of stereotype awareness, personal agreement, self-concurrence, and self-esteem specifically for people with depression using serial mediation analyses and controlling for current

levels of depression in two independent clinical samples. Age in years and gender had been inconsistently correlated with self-concurrence in previous research and are therefore assessed as additional control variables (Livingston & Boyd, 2010).

In line with the model of Corrigan and his colleagues on self-stigma in people with mental illness and the outlined empirical background the following hypotheses are stated for people suffering with depression:

I. Stigma attitudes are endorsed decreasingly with the highest endorsement for stereotype awareness, followed by lower endorsements for each stage.
II. Proximal stages are more strongly associated than more distant stages.
III. Direct associations of distant stages are mediated by proximal stages: While higher levels of stereotype awareness are associated with higher levels of stereotype agreement, higher levels of stereotype agreement in turn are associated with higher levels of self-concurrence, which in turn are associated with lower levels of self-esteem.

4.3 Materials and methods

4.3.1 Participants and procedure

The present study was designed as a cross-sectional computer-based survey. Data from two independent samples were collected.

Sample A accessed the survey online via www.soscisurvey.de from 8 March 2017 to 9 July 2018. The link was distributed via online platforms (website of Psychologieforum, website of Deutsche Depressionsliga, website of a psychiatric clinic, among others), as well as via representatives of the University of Mannheim and autonomous outpatient groups. Inclusion criteria were at least one pre-diagnosed depressive episode or dysthymia and age of 18–70 years. The following exclusion criteria were not captured in Sample A: insufficient cognitive abilities and German language skills, acute psychotic, manic or hypomanic episode, addiction symptoms, or acute suicidal tendencies. The questionnaire stopped automatically if no lifetime depressive episode was reported. At the beginning of the survey, participants received written informed consent about aims, voluntary participation, and procedure. Confirmation was required to continue. The questionnaire was viewed 849 times, 662 persons completed the questionnaire, and 561 reported lifetime depression. Five data sets were excluded from analyses because of abnormalities in response patterns due to comparably rapid responding behaviour (case 112) or no variance on at least four

subscales (cases 4, 43, 211, 470). Six additional data sets were excluded because of gender uncertainty (cases 69, 109, 289, 334, 385, 474). All other data sets did not have any missing data. After the data was cleaned, *n*=550 data sets fulfilled the eligibility criteria (age range from 18 to 73 years).

Since online surveys have several limitations, a second face-to-face sample was used to control for online study-specific biases due to the following: The ability of online surveys to reach only participants with internet access, the self-report of limited screening criteria, or the absence of research team members when questions arise. Sample B was therefore taken from the research project "Effects of Media Reports on Self-Stigmatization, Self-esteem, and Affectivity in Persons with Depression", which was conducted from 1 March 2017 to 18 August 2018 (Göpfert et al., 2019b). One advantage of the face-to-face sample was a more accurate screening, which was based on not only self-report but also clinical data: Potential participants were recruited by the treating psychiatrists and psychotherapists of inpatient and outpatient departments of a psychiatric clinic. The following eligibility criteria were demonstrated by the treating staff based on a screening questionnaire: At least one pre-diagnosed depressive episode or dysthymia, age of 18-70 years, sufficient cognitive abilities, and German language skills. The exclusion criteria were acute psychotic, manic or hypomanic episode, addiction symptoms, or acute suicidal tendencies. Both, the clinical staff and research team ensured that patients had the capacity to freely give informed consent. Informed consent was first given orally and second given in writing. All participants completed the computer-based battery of questionnaires. Out of the 202 persons who fulfilled the inclusion criteria, 186 Persons finally decided to participate in the study. Because of technical (cases 117 and 154: Interruption of internet; case 178: Interruption server connection) and logistical reasons (case 142: double participation; case 141: interruption because of medical appointment; case 177: allocated to wrong group), six incomplete data sets had to be excluded from analyses. All other data sets did not have any missing data. Participants received a 20€ expense allowance (for study details see Göpfert et al., 2019b).

Ethical approval was provided by the Ethical Committee of the Medical Faculty of Mannheim, Heidelberg University, Germany for both study samples (study: 2016-655N-MA).

4.3.2 Instruments

4.3.2.1 Self-stigma

The German version of the Self-Stigma of Mental Illness Scale (SSMIS; Corrigan et al., 2006) was used to assess the three phases of self-stigma, namely, stereotype awareness, personal agreement, and self-concurrence (German version by Rüsch and Brück, published in Schiel, 2005). Based on the experience of Watson et al. (2007), the fourth subscale of the SSMIS, namely, self-esteem decrement, was not included in this study because of its difficult wording.

Each subscale consisted of ten items. All items of the stereotype awareness subscale were structured in the same way: "I think *the public* believes most persons with mental illness are… (e.g., dangerous)." Cronbach's alpha was α=0.91 in Sample A and α=0.91 in Sample B. Items of the personal agreement subscale were introduced by "*I* think most persons with mental illness are… (e.g., dangerous)." Internal consistency was α=0.85 in Sample A and α=0.87 in Sample B. Self-concurrence implies a causal relation between one's mental illness and stereotype characteristics: "Because I have a mental illness, I am… (e.g., dangerous)." Cronbach's alpha was α=0.84 in Sample A and α=0.81 in Sample B. Response options ranged from 1="I strongly disagree" to 9="I strongly agree". Summed scores were computed for each subscale, with higher scores indicating a higher level of stigma attitudes.

4.3.2.2 Self-esteem

The fourth subscale of the SSMIS was exchanged via a revised version of the German adaptation of the Rosenberg's well-known self-esteem scale consisting of ten items (Collani & Herzberg, 2003; Rosenberg, 1965). The following is a sample item: "Please indicate the number that applies best to you: On the whole, I am satisfied with myself." The internal consistency of this scale was α=0.91 in Sample A and α=0.87 in Sample B. Response options ranged from 1="not at all" to 4="completely". The summed score was computed for analyses, with higher scores indicating higher levels of self-esteem.

4.3.2.3 Socio demographic and clinical characteristics

Age was measured in years. For gender, response options were "male", "female", or "others". The current severity of depression symptoms was measured via

the German version of the Patient Health Questionnaire (PHQ-9; Löwe et al., 2002). The scale consists of nine items introduced by "How often have they been bothered by the following over the past two weeks?" The following is a sample item: "Little interest or pleasure in doing things?" Internal consistencies were α=0.86 (Sample A) and α=0.84 (Sample B). The response scale ranged from 1 = "not at all" to 4 = "nearly every day". The summed score was computed for analyses, with higher scores indicating higher levels of current depression symptoms.

4.3.3 Statistical analyses

IBM SPSS statistics 24 was used to examine Cronbach's alphas, descriptive statistics, and non-parametric Spearman correlations between model variables. For interval variables, group differences regarding all variables were tested with Mann-Whitney-U tests because of non-normal distributions of variables in samples. For nominal variables, Pearson chi-square tests based on cross-tabulations were used.

To test the trickle-down hypothesis, Kruskal-Wallis 1-way ANOVAs were used to compare distributions of the three SSMIS subscales, followed by Dunn-Bonferroni post hoc tests to identify which of the subscales differed significantly. Pearson's correlation coefficient ($r = z / (\sqrt{n})$) was computed for effect sizes; r=0.10 indicated a weak effect, r=0.30 indicated a medium effect, and r=0.50 indicated a strong effect (Cohen, 1988).

A specific kind of structural equation model – a serial mediation model – was tested using the macro for model 6 of the PROCESS procedure for SPSS Version 3.00 by Andrew F. Hayes (2018b) to explore the process character of self-stigma, from the independent variable (stereotype awareness) to the outcome (self-esteem) via two potential mediators (personal agreement and self-concurrence) and controlling for age, gender, and current level of depression as covariates. This kind of model is especially well-suited for process-oriented research, since several direct and indirect paths can be tested in one single model based on ordinary least squares (OLS) regression analyses. Classic assumptions (linear multicollinearity, multivariate normality of residuals, homoscedasticity) of OLS regression were tested in preliminary analyses. Outliers were identified with stem-and-leaf-plots indicating interquartile ranges computed from Tukey's hinges.

The PROCESS procedure is described in detail by Hayes (2018a). The mediation model included one primary direct path (1: from stereotype awareness to

self-esteem), five other direct paths (2: from stereotype awareness to personal agreement; 3: from stereotype awareness to self-concurrence; 4: from personal agreement to self-concurrence; 5: from personal agreement to self-esteem; and 6: from self-concurrence to self-esteem), and three indirect paths (1: from stereotype awareness via personal agreement to self-esteem; 2: from stereotype awareness via self-concurrence to self-esteem; and 3: from stereotype awareness via personal agreement via self-concurrence to self-esteem). Asymmetric bootstrap confidence intervals were used to avoid power problems with asymmetric or other forms of non-normal distributions of variables or outliers: The main assumption of bootstrapping analyses is a representative sample of the population, since bootstrapping artificially recreates a population based on the initial sample. Testing the hypotheses in two independent samples challenges the representativeness of the samples and as such tests the robustness of results. To receive standardized coefficients for the six direct paths, variable scores were z-standardized prior to model fitting. For details of statistical analyses, please refer to "Syntax"[2].

4.4 Results

4.4.1 Sample characteristics

Table 4.1 depicts the socio-demographics, clinical characteristics, and stigma attitudes of both samples. In Sample A, participants were between thirty and forty years old on average, the majority were female, less than half were single, and two-thirds had a relatively high level of education. Most participants were currently in outpatient treatment, only a few were in inpatient treatment, and a quarter were neither in outpatient nor in inpatient treatment. In Sample B, the average age was between thirty and forty years, slightly more than half was female, half were single, and less than half had a higher level of education. Half of the participants were currently in outpatient and half in inpatient treatment.

Samples differed significantly regarding gender (with more females in Sample A), level of education (with higher levels of education in Sample A), and current type of mental health care (with more inpatient participants in Sample B). While higher levels

[2] The file containing "Syntax" is not included in this dissertation. This file contains the complete syntax of statistical analyses in .pdf format and would go beyond the scope. For details, please refer to: doi: https://doi.org/10.1371/journal.pone.0224418.s003

of stereotype awareness and current depression symptoms were reported by Sample A, a higher level of self-esteem was reported by Sample B. There was only one extreme outlier in Sample A regarding personal agreement. Although its value was more than three interquartile ranges (IQR) from the end of a box, the data set was retained for analyses since bootstrapping procedures are quite robust against these outliers, especially if outliers comprise less than 5% of the data (for data details, please refer to "Data total sample" and "Data trickle down"[3]).

Table 4.1 Sample characteristics

	Sample A	**Sample B**	**Group Differences**
Sample size	550	180	
age in years (mean, standard deviation)	37.3 (13.2)	38.8 (12.6)	z=-1.495, *p*=0.135
gender (female) (%)	83.8	58.9	χ^2=48.597; df=1; *p*<0.001
marital status (%)			χ^2=0.583; df=2; *p*=0.747
single	46.7	50.0	
in partnership	26.5	25.0	
others	26.7	25.0	
level of education(%)			χ^2=33.183; df=1; *p*<0.001
< 12 years of school education	33.1	57.2	
≥ 12 years of school education	66.9	42.8	
current type of mental health care (%)			χ^2=251.370; df=2; *p*<0.001
outpatient	71.5	50.0	
inpatient	3.5	50.0	
not applicable	25.1	0.0	
current severity of depression (PHQ-9) (%)	14.89 (6.11)	13.92 (5.73)	z=-2.108, *p*=0.035
awareness (mean, standard deviation)	52.51 (16.83)	46.81 (18.25)	z=-3.772, *p*<0.001
agreement (mean, standard deviation)	24.21 (11.48)	24.66 (12.71)	z=-0.133, *p*=0.894
self-concurrence (mean, standard deviation)	27.23 (14.26)	25.92 (12.90)	z=-0.706, *p*=0.480
self-esteem (mean, standard deviation)	13.12 (7.35)	14.19 (6.18)	z=-2.249, *p*=0.025

Group differences were tested with Mann-Whitney-U-Tests for ordinal and interval scaled variables, and with Pearson Chi² Tests based on Crosstables for nominal scaled variables. PHQ-9 = depression scale of the Patient Health Questionnaire; awareness = stereotype awareness; agreement = personal agreement. doi: https://doi.org/10.1371/journal.pone.0224418.t001

[3] Files containing "Data total sample" and "Data trickle down" are not included in this dissertation. These files contain the complete data set in .pdf format and would go beyond the scope. For details, please refer to doi: https://doi.org/10.1371/journal.pone.0224418.s001 and to doi: https://doi.org/10.1371/journal.pone.0224418.s002

4.4.2 Preliminary analyses

Kruskal-Wallis 1-way ANOVAs indicated significant differences between the SSMIS subscales in both samples (Sample A: $\chi^2(2)=653.991$, $p<0.001$; Sample B: $\chi^2(2)=152.101$, $p<0.001$). Dunn-Bonferroni post hoc tests revealed significantly higher levels of stereotype awareness than personal agreement (Sample A: z=23.307, $p<0.001$, $r=0.70$; Sample B: z=11.085, $p<0.001$, $r=0.58$) and self-concurrence (Sample A: z=20.768, $p<0.001$, $r=0.63$; Sample B: z=10.224, $p<0.001$, $r=0.54$). At the significance level of $p<0.05$, personal agreement was rated lower than self-concurrence in Sample A (z=-2.540, $p=0.033$, $r=0.08$) but not in Sample B (z=-0.861, $p=1.000$). Table 4.2 presents bivariate non-parametric Spearman correlations between all variables.

Table 4.2 Bivariate nonparametric Spearman correlations of model variables

	1	**2**	**3**	**4**	**5**	**6**	**7**
1 gender	--	0.105*	0.009	-0.090*	0.115**	0.120**	0.057
2 age	-0.015	--	-0.114**	-0.039	-0.089*	-0.197***	0.292***
3 depression	-0.052	-0.001	--	0.170***	0.196***	0.439***	-0.601***
4 awareness	0.026	-0.143	0.135	--	0.176***	0.149***	-0.184***
5 agreement	0.020	-0.038	0.111	0.228**	--	0.574***	-0.200***
6 self-concurrence	0.020	-0.010	0.470***	0.163*	0.401***	--	-0.469***
7 self-esteem	0.098	0.155*	-0.589***	-0.247**	-0.205**	-0.458***	--

Sample A above the diagonal, Sample B below the diagonal; depression = current level of depression; awareness = stereotype awareness; agreement = personal agreement; ***$p<0.001$; **$p<0.01$; *$p<0.05$.
doi: https://doi.org/10.1371/journal.pone.0224418.t002

Sample A and Sample B showed similar patterns: Stereotype awareness was positively correlated with both personal agreement and self-concurrence and negatively with self-esteem; personal agreement was positively correlated with self-concurrence and negatively correlated with self-esteem. Proximal phases were more highly correlated than distal phases, with the exception of one association. While personal agreement and self-concurrence were more highly correlated than were stereotype awareness and personal agreement, stereotype awareness was more highly correlated with self-esteem than with personal agreement and self-concurrence. Compared to stereotype awareness and personal agreement, self-concurrence was most strongly correlated with self-esteem. Please refer to Figure 4.2 for a summary of the results of hypotheses I and II.

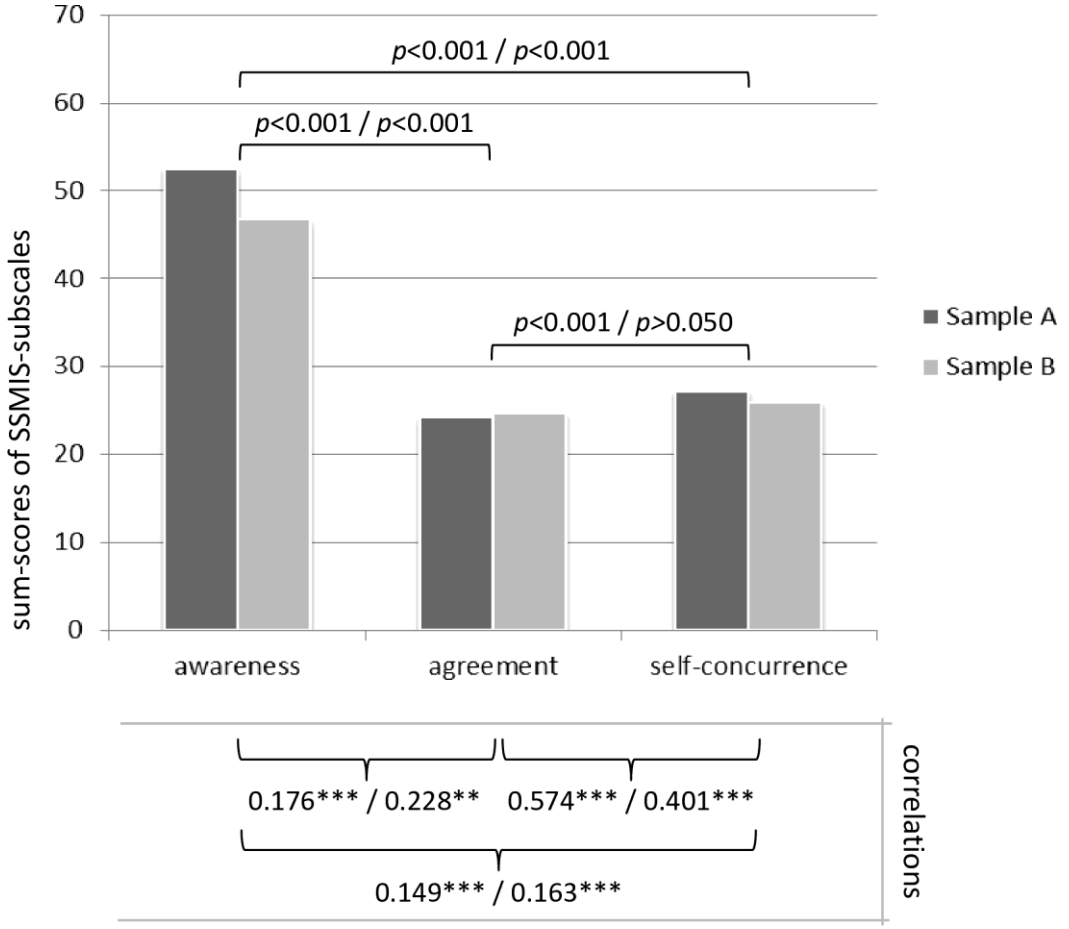

Figure 4.2 Summed scores and direct associations of stigma attitudes in Sample A and Sample B; the summed scores of SSMIS subscales ranged from 10 to 90; *p* = significance of Dunn-Bonferroni post hoc tests (Sample A / Sample B); below the graph are bivariate non-parametric Spearman correlations representing associations between the three subscales (Sample A / Sample B). ****p*<0.001; ***p*<0.01; **p*<0.05. doi: https://doi.org/10.1371/journal.pone.0224418.g002

4.4.3 Mediation analyses

All OLS assumptions were fulfilled for z-standardized variables in both samples. In Figure 4.3, the serial mediation model is presented for both samples indicating standardized coefficients of direct paths controlled for age, gender, and current level of depression.

In both samples, four direct pathways were significant: From stereotype awareness to self-esteem; from stereotype awareness to personal agreement; from personal agreement to self-concurrence; and from self-concurrence to self-esteem. Neither the direct effect of stereotype awareness on self-concurrence nor the direct effect of personal agreement on self-esteem was significant.

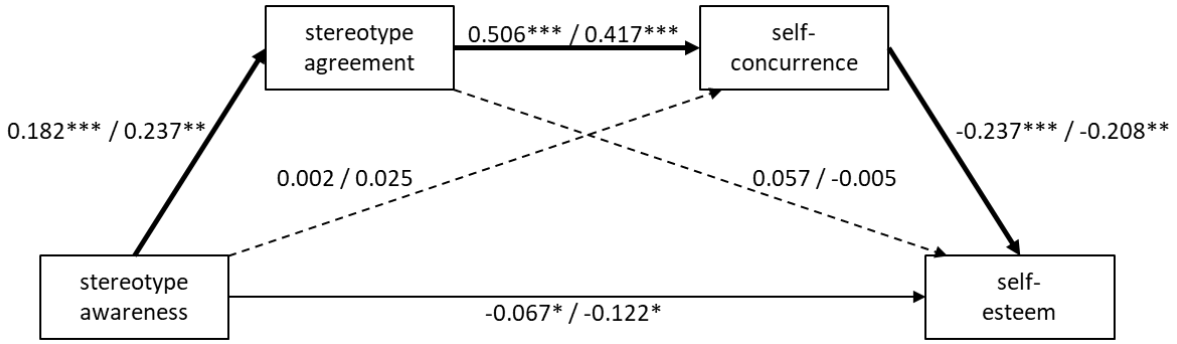

Figure 4.3 Serial mediation model; solid lines indicate significant direct paths; thick solid lines indicate significant indirect paths, dotted lines represent non-significant direct paths; standardized coefficients are presented (Sample A / Sample B). ***p<0.001; **p<0.01; *p<0.05.doi: https://doi.org/10.1371/journal.pone.0224418.g003

There was one significant indirect pathway (p<0.05, i.e., bootstrap bias-corrected confidence interval does not include zero) in both samples, starting from stereotype awareness via personal agreement and then self-concurrence to self-esteem (estimated indirect effects and 95% bootstrap confidence intervals -0.022 [-0.038, -0.010] for Sample A and -0.021 [-0.045, -0.005] for Sample B). This indirect effect implied that an increase of one standard deviation in stereotype awareness was associated with an increase of 0.182 (Sample B: 0.237) standard deviations in personal agreement and then with an increase in self-concurrence of 0.182 x 0.506 = 0.092 (Sample B: 0.237 x 0.417 = 0.099) standard deviations and resulted in an increase of 0.182 x 0.506 x 0.237 = -0.022 (Sample B: 0.237 x 0.417 x -0.208 = -0.021) standard deviations in self-esteem. All other indirect paths were non-significant (for details on mediation results, please refer to chapter 4.6).

4.5 Discussion

The aim of this study was to investigate the progressive model of self-stigma by Corrigan et al. (2011), which represented the four stages of stereotype awareness, personal agreement, self-concurrence, and self-esteem. Data were collected from two independent samples of people with depressive symptoms: One online sample (only self-report) and one face-to-face sample (inclusion criteria were screened by the treating staff). Two main assumptions of the model were examined: (I) a trickle-down in nature, i.e., stigma attitudes are endorsed decreasingly, with the highest endorsement for stereotype awareness, followed by lower endorsements for each stage; and (II) proximal stages are more strongly associated than more distant stages. Controlling for age, gender, and current depressive symptoms, the study's main

contribution was (III) serial mediation analyses, which should shed light on the procedural character of the model.

The results of the study indicate a trickle-down effect for the first stage; only endorsements for stereotype awareness were higher than for both personal agreement and self-concurrence in both samples. This result is supported by those of several other studies with students and general population samples (e.g., Dietrich, Mergl, & Rummel-Kluge, 2014; Pedersen & Paves, 2014). The respondents' beliefs about the stigmatizing attitudes of others' seem to be consistently higher than personal beliefs and attitudes towards mental illness. However, the results regarding stages of personal agreement and self-concurrence are less uniform: In the online sample of the present study, there was an unexpected statistically significant difference between endorsements of personal agreement and self-concurrence. Endorsements for personal agreement were lower than those for self-concurrence. The effect size indicated a weak effect and thus not clinically relevant, and in the face-to-face sample, there was no difference in endorsements for personal agreement and self-concurrence at all. At the same time, there were significant differences in endorsements of personal agreement or self-concurrence between the two samples. The Kruskal-Wallis test conducted depends on sample sizes. Statistical differences in results may therefore be due to sample size differences. The results by Corrigan and colleagues, on the other hand, indicate higher endorsements for personal agreement than for self-concurrence (2011). They collected data from a more heterogeneous sample of varying diagnoses, which might explain the differing results of this study as schizophrenia was found to be more strongly associated with self-stigma than with depression (Hasan & Musleh, 2017). Future research may explore diagnosis-specific associations.

In line with hypothesis II and earlier research (Corrigan et al., 2011), all proximal stages were more strongly associated than were more distant stages, with the exception of one association. Stereotype awareness was more strongly associated with self-esteem than with the more proximal stages of personal agreement and self-concurrence. As stereotype awareness refers to others' rather than one's own attitudes, associations might be weaker with personal agreement and self-concurrence, which represent one's opinion rather than perception only. Considering stereotype awareness a separate construct, is in line with other research that

differentiates between different kinds of public stigma (Calear, Griffiths, & Christensen, 2011; Griffiths, Christensen, Jorm, Evans, & Groves, 2004).

The main contribution of this study is the investigation of the procedural character of the stages. As indicated by serial mediation analyses, direct associations of distant stages were mediated by proximal stages. While higher levels of stereotype awareness were associated with higher levels of stereotype agreement, higher levels of stereotype agreement in turn were associated with higher levels of self-concurrence, which in turn were associated with lower levels of self-esteem. Significant correlative associations between stereotype awareness and self-concurrence and between personal agreement and self-esteem became insignificant when integrated into one serial mediation model. The significant primary direct path of stereotype awareness to self-esteem indicates partial but not full mediation. To test the robustness of the results, additional analyses were run for both samples as a whole (for details, please refer to chapter 4.7). The results do not differ from the results reported above. It can therefore be concluded that the model can be applied to individuals with depression in general.

These results are in line with other research on people with mental illness, supporting the assumption of self-stigma as a multilevel process (Kao et al., 2016). Stereotype awareness seems to have independent associations to general self-esteem beyond self-stigma attitudes. However, because correlations of personal agreement and self-concurrence were very high and summed scores differed only in one sample with a weak effect, the following question remains: In what ways do personal agreement and self-concurrence represent differing constructs? Some intervention studies imply differential effects on specific stigma attitudes. Göpfert et al. investigated direct effects that media reporting could have on people with depression (2019b). Their results indicate that even single short film presentations of potentially stigmatizing TV news have an impact on personal agreement but not on other stigma attitudes. Kohls et al. investigated the impact of the Optimizing Suicide Prevention Programs and Their Implementation in Europe (OSPI Europe) in four European regions (2017). They concluded that stigma awareness was more difficult to change than stigma agreement but did not look at self-concurrence. Therefore, compared to the other two stigma-measures, personal agreement appears to be a more readily modifiable factor.

Several other limitations of this study indicate the need for further research in the conceptualization and intervention regarding self-stigma in people with depression.

First, the cross-sectional design does not allow for any interpretations of causal effects. Although the results support a procedural character of the model, no predictive conclusions can be drawn from this study. Longitudinal studies could more thoroughly examine the process over time and would be necessary for predictive statements.

Second, the online sample brings along some challenges of any online survey, e.g., it is only based on self-reports. As a result, there is a lack of precise information about diagnoses and the monitoring of participation. The second sample with face-to-face contact and documented clinical data offers a more controlled design of the data collection.

As previously mentioned, Corrigan and colleagues (2011) postulated a fourth stage of self-stigma in their progressive model, namely harm-to-self (i.e., self-esteem decrement). The corresponding subscale in their original SSMIS directly refers to stigma contents (e.g., "I currently respect myself less because I am dangerous."). As we used a self-esteem scale other than the one from the SSMIS, the content is less related to stigma-attitudes. It can rather be considered as a consequence of the first three phases instead of a fourth phase. This is why a trickle-down could not be investigated for self-stigma in the study under investigation.

Another major limitation is the lack of measures for the external validity of the progressive model of self-stigma. Neither risk nor protective factors (for examples see Rüsch et al., 2005a; Wang, Weiss, Pachankis, & Link, 2016; Watson et al., 2007) nor consequences (such as seeking professional help or adherence to treatments) of stigma-measures were covered. It would be worthwhile to investigate the specificity of predictors and outcomes of different stages of self-stigma both for prevention and treatment programmes.

The results of this study support Corrigan's progressive model of self-stigma (Corrigan et al., 2011) in people with depression in most respects with few exceptions. It offers a theoretical foundation for process research of self-stigma. Different stages of self-stigma may require specific consideration in their prediction, consequences, and potential interventions: The latter the stage is the more grave the effect on harm-to-self.

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4.6 Supporting information: Results of serial mediation models

doi: https://doi.org/10.1371/journal.pone.0224418.s004

4.6.1 Sample A

PROCESS Procedure for SPSS Version 3.00 (Written by Andrew F. Hayes, Ph.D., 2018, www.afhayes.com); Documentation available in Hayes (Hayes, 2018a). www.guilford.com/p/hayes3

Model: 6
Y: self-esteem
X: stereotype awareness
M1: stereotype agreement
M2: self-concurrence
Covariates: age, gender depression
Sample Size: 550

4.6.1.1 Analysis notes:

Level of confidence for all confidence intervals in output: 95.0000
Number of bootstrap samples for percentile bootstrap confidence intervals: 10000

4.6.1.2 Direct effects

Table 4.3 Model summary of outcome variable stereotype agreement

R	R^2	MSE	F	df1	df2	*p*
0.2928	0.0858	0.9210	12.7799	4.0000	545.0000	0.0000

MSE = mean squared error; df = degrees of freedom.

Table 4.4 Model of outcome variable stereotype agreement

	coeff	se	t	*p*	LLCI	ULCI
constant	0.0000	0.0409	0.0000	1.0000	-0.0804	0.0804
stereotype awareness	0.1822	0.0418	4.3558	0.0000	0.1000	0.2644
age	-0.0783	0.0415	-1.8869	0.0597	-0.1597	0.0032
gender	0.1214	0.0413	2.9358	0.0035	0.0402	0.2026
depression	0.1523	0.0419	3.6381	0.0003	0.0701	0.2346

coeff=standardized coefficient; se=standard error; LLCI=lower level of confidence interval; ULCI=upper level of confidence interval.

Table 4.5 Model summary of outcome variable self-concurrence

R	R^2	MSE	F	df1	df2	*p*
0.6801	0.4626	0.5424	93.6471	5.0000	544.0000	0.0000

MSE = mean squared error; df = degrees of freedom.

Table 4.6 Model of outcome variable self-concurrence

	coeff	se	t	*p*	LLCI	ULCI
constant	0.0000	0.0314	0.0000	1.0000	-0.0617	0.0617
stereotype awareness	0.0021	0.0327	0.0637	0.9492	-0.0621	0.0662
stereotype agreement	0.5055	0.0329	15.3785	0.0000	0.4410	0.5701
age	-0.1424	0.0319	-4.4586	0.0000	-0.2051	-0.0797
gender	0.0765	0.0320	2.3910	0.0171	0.0136	0.1393
depression	0.3034	0.0325	9.3286	0.0000	0.2395	0.3672

coeff=standardized coefficient; se=standard error; LLCI=lower level of confidence interval; ULCI=upper level of confidence interval.

Table 4.7 Model summary of outcome variable self-esteem

R	R^2	MSE	F	df1	df2	*p*
0.6818	0.4648	0.5411	78.6050	6.0000	543.0000	0.0000

MSE=mean squared error.

Table 4.8 Model of outcome variable self-esteem

	coeff	se	t	*p*	LLCI	ULCI
constant	0.0000	0.0314	0.0000	1.0000	-0.0616	0.0616
stereotype awareness	-0.0671	0.0326	-2.0583	0.0400	-0.1312	-0.0031
stereotype agreement	0.0570	0.0393	1.4491	0.1479	-0.0203	0.1342
self-concurrence	-0.2370	0.0428	-5.5332	0.0000	-0.3211	-0.1528
age	0.1658	0.0325	5.1057	0.0000	0.1020	0.2296
gender	0.0441	0.0321	1.3734	0.1702	-0.0190	0.1072
depression	-0.4984	0.0350	-14.2472	0.0000	-0.5671	-0.4297

coeff=standardized coefficient; se=standard error; LLCI=lower level of confidence interval; ULCI=upper level of confidence interval.

4.6.1.3 Total effect

Table 4.9 Model summary of outcome variable self-esteem

R	R^2	MSE	F	df1	df2	*p*
0.6565	0.4310	0.5731	103.2259	4.0000	545.0000	0.0000

MSE = mean squared error; df = degrees of freedom.

Table 4.10 Model of outcome variable self-esteem

	coeff	se	t	*p*	LLCI	ULCI
constant	0.0000	0.0323	0.0000	1.0000	-0.0634	0.0634
stereotype awareness	-0.0791	0.0330	-2.3961	0.0169	-0.1439	-0.0142
age	0.2045	0.0327	6.2485	0.0000	0.1402	0.2687
gender	0.0184	0.0326	0.5628	0.5738	-0.0457	0.0824
depression	-0.5798	0.0330	-17.5552	0.0000	-0.6447	-0.5150

coeff=standardized coefficient; se=standard error; LLCI=lower level of confidence interval; ULCI=upper level of confidence interval.

4.6.1.4 Indirect effects

Table 4.11 Indirect effects

	Effect	BootSE	BootLLCI	BootULCI
total	-0.0119	0.0106	-0.0339	0.0079
stereotype awareness → stereotype agreement → self-esteem	0.0104	0.0080	-0.0031	0.0280
stereotype awareness → self-concurrence → elf-esteem	-0.0005	0.0079	-0.0165	0.0149
stereotype awareness → stereotype agreement → self-concurrence → self-esteem	-0.0218	0.0073	-0.0380	-0.0096

Effect=bootstrap estimate; BootSE=bootstrap standard error; BootLLCI=lower level of bootstrap confidence interval; BootULCI=upper level of bootstrap confidence interval

4.6.2 Sample B

PROCESS Procedure for SPSS Version 3.00 (Written by Andrew F. Hayes, Ph.D., 2018, www.afhayes.com); Documentation available in Hayes (2018a). www.guilford.com/p/hayes3

Model: 6
Y: self-esteem
X: stereotype awareness
M1: stereotype agreement
M2: self-concurrence
Covariates: age. gender depression
Sample Size: 180

4.6.2.1 Analysis notes:

Level of confidence for all confidence intervals in output: 95.0000
Number of bootstrap samples for percentile bootstrap confidence intervals: 10000

4.6.2.2 Direct effects

Table 4.12 Model summary of outcome variable stereotype agreement

R	**R^2**	**MSE**	**F**	**df1**	**df2**	***p***
0.2631	0.0692	0.9521	3.2530	4.0000	175.0000	0.0133

MSE = mean squared error; df = degrees of freedom.

Table 4.13 Model of outcome variable stereotype agreement

	coeff	**se**	**t**	***p***	**LLCI**	**ULCI**
constant	0.0000	0.0727	0.0000	1.0000	-0.1435	0.1435
stereotype awareness	0.2374	0.0745	3.1855	0.0017	0.0903	0.3844
age	0.0726	0.0738	0.9835	0.3267	-0.0731	0.2182
gender	0.0064	0.0731	0.0871	0.9307	-0.1379	0.1506
depression	0.0852	0.0738	1.1545	0.2499	-0.0604	0.2307

coeff=standardized coefficient; se=standard error; LLCI=lower level of confidence interval; ULCI=upper level of confidence interval.

Table 4.14 Model summary of outcome variable self-concurrence

R	R^2	MSE	F	df1	df2	p
0.6129	0.3756	0.6423	20.9349	5.0000	174.0000	0.0000

MSE = mean squared error; df = degrees of freedom.

Table 4.15 Model of outcome variable self-concurrence

	coeff	se	t	*p*	LLCI	ULCI
constant	0.0000	0.0597	0.0000	1.0000	-0.1179	0.1179
stereotype awareness	0.0248	0.0630	0.3947	0.6936	-0.0994	0.1491
stereotype agreement	0.4174	0.0621	6.7222	0.0000	0.2948	0.5399
age	0.0253	0.0608	0.4167	0.6774	-0.0946	0.1453
gender	0.0136	0.0600	0.2262	0.8213	-0.1049	0.1321
depression	0.3923	0.0608	6.4503	0.0000	0.2723	0.5123

coeff=standardized coefficient; se=standard error; LLCI=lower level of confidence interval; ULCI=upper level of confidence interval.

Table 4.16 Model summary of outcome variable self-esteem

R	R^2	MSE	F	df1	df2	*p*
0.6681	0.4463	0.5729	23.2442	6.0000	173.0000	0.0000

MSE = mean squared error; df = degrees of freedom.

Table 4.17 Model of outcome variable self-esteem

	coeff	se	t	*p*	LLCI	ULCI
constant	0.0000	0.0564	0.0000	1.0000	-0.1113	0.1113
stereotype awareness	-0.1216	0.0595	-2.0448	0.0424	-0.2390	-0.0042
stereotype agreement	-0.0048	0.0658	-0.0732	0.9417	-0.1347	0.1251
self-concurrence	-0.2078	0.0716	-2.9026	0.0042	-0.3491	-0.0665
age	0.1621	0.0574	2.8215	0.0053	0.0487	0.2754
gender	0.1072	0.0567	1.8905	0.0604	-0.0047	0.2191
depression	-0.4778	0.0639	-7.4734	0.0000	-0.6040	-0.3516

coeff=standardized coefficient; se=standard error; LLCI=lower level of confidence interval; ULCI=upper level of confidence interval.

4.6.2.3 Total effect

Table 4.18 Model summary of outcome variable self-esteem

R	R^2	MSE	F	df1	df2	*p*
0.6415	0.4116	0.6019	30.6007	4.0000	175.0000	0.0000

MSE = mean squared error; df = degrees of freedom.

Table 4.19 Model of outcome variable self-esteem

	coeff	se	t	*p*	LLCI	ULCI
constant	0.0000	0.0578	0.0000	1.0000	-0.1141	0.1141
stereotype awareness	-0.1485	0.0592	-2.5068	0.0131	-0.2654	-0.0316
age	0.1501	0.0587	2.5587	0.0114	0.0343	0.2660
gender	0.1038	0.0581	1.7861	0.0758	-0.0109	0.2185
depression	-0.5671	0.0586	-9.6699	0.0000	-0.6829	-0.4514

coeff=standardized coefficient; se=standard error; LLCI=lower level of confidence interval; ULCI=upper level of confidence interval.

4.6.2.4 Indirect effects

Table 4.20 Indirect effects

	Effect	BootSE	BootLLCI	BootULCI
total	-0.0269	0.0187	-0.0654	0.0081
stereotype awareness → stereotype agreement → self-esteem	-0.0011	0.0157	-0.0306	0.0336
stereotype awareness → self-concurrence → elf-esteem	-0.0052	0.0136	-0.0354	0.0196
stereotype awareness → stereotype agreement → self-concurrence → self-esteem	-0.0206	0.0104	-0.0455	-0.0049

Effect=bootstrap estimate; BootSE=bootstrap standard error; BootLLCI=lower level of bootstrap confidence interval; BootULCI=upper level of bootstrap confidence interval

4.7 Supporting information: Results of total sample

doi: https://doi.org/10.1371/journal.pone.0224418.s005

4.7.1 Sample characteristics of total sample

Table 4.21 Sample characteristics of total sample

Sample size	730
age in years (mean, standard deviation)	37.7 (13.1)
gender (female) (%)	77.7
marital status (%)	
single	47.5
in partnership	26.2
others	26.3
level of education(%)	
< 12 years of school education	39.0
≥ 12 years of school education	61.0
current type of mental health care (%)	
outpatient	66.2
inpatient	14.9
not applicable	18.9
current severity of depression (PHQ-9) (%)	14.7 (6.0)
awareness (mean, standard deviation)	51.1 (17.4)
agreement (mean, standard deviation)	24.3 (11.8)
self-concurrence (mean, standard deviation)	26.9 (13.9)
self-esteem (mean, standard deviation)	13.4 (7.1)

PHQ-9 = depression scale of the Patient Health Questionnaire; awareness = stereotype awareness; agreement = personal agreement.

4.7.2 Bivariate nonparametric Spearman correlations of model variables of total sample

Table 4.22 Bivariate nonparametric Spearman correlations of model variables of total sample

	1	2	3	4	5	6	7
1 gender	--						
2 age	0.081*	--					
3 depression	-0.031	-0.091*	--				
4 awareness	-0.089*	-0.071	0.166***	--			
5 agreement	0.078*	-0.078*	0.176***	0.186***	--		
6 self-concurrence	0.079*	-0.155***	0.447***	0.154***	0.532***	--	
7 self-esteem	0.087*	0.263***	-0.603***	-0.205***	-0.201***	-0.465***	--

Depression = current level of depression; awareness=stereotype awareness; agreement = personal agreement; ***p<0.001; **p<0.01; *p<0.05.

4.7.3 Summed scores and direct associations of stigma attitudes in total sample

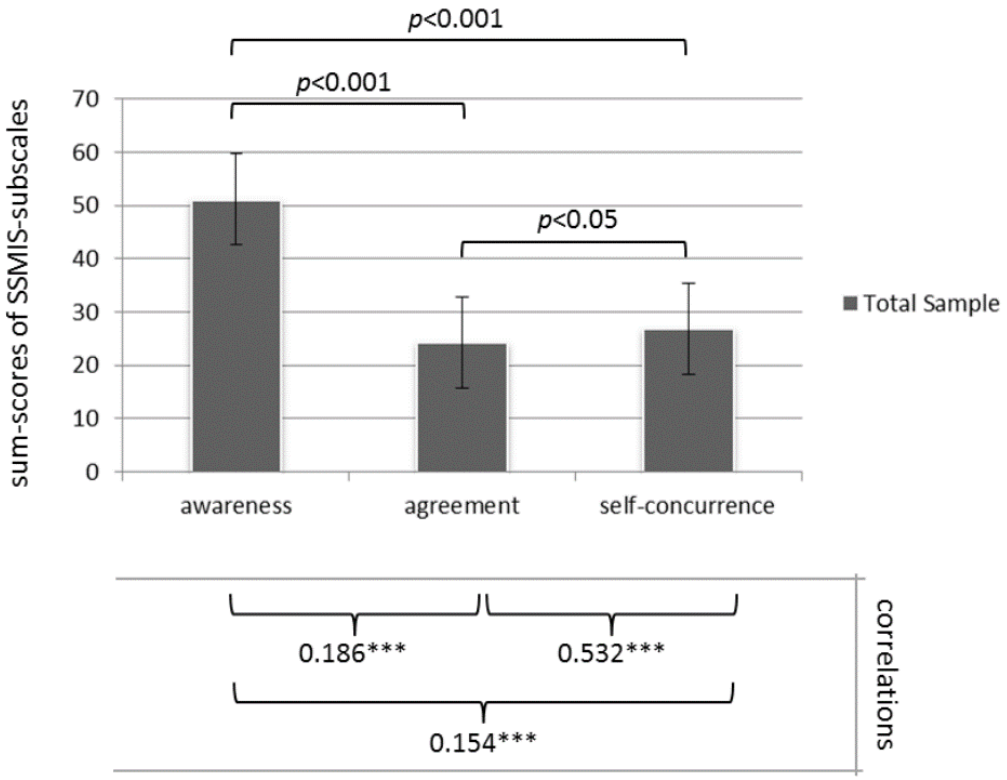

Figure 4.4 Summed scores and direct associations of stigma attitudes in total sample.

4.7.4 Serial mediation model of total sample

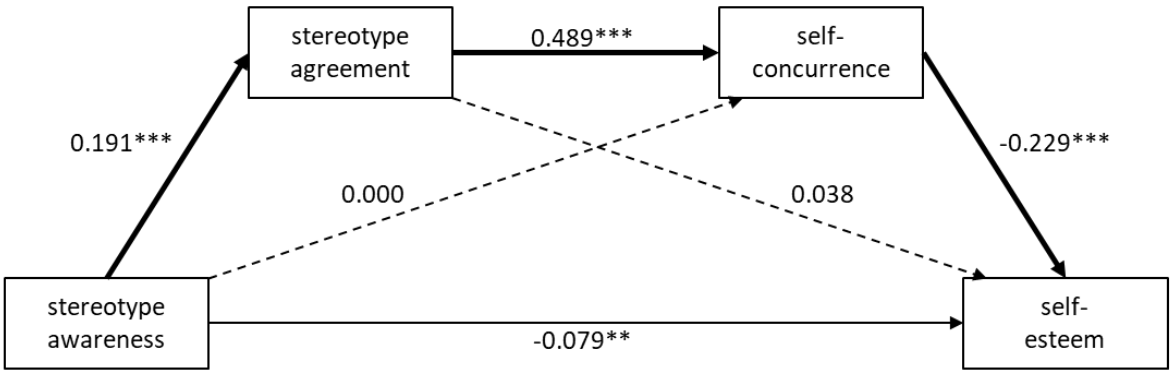

Figure 4.5 Serial mediation model of total sample; solid lines indicate significant direct paths; thick solid lines indicate significant indirect paths; dotted lines represent non-significant direct paths; standardized coefficients are presented (Sample A / Sample B). ***p<0.001; **p<0.01; *p<0.05.

4.7.5 Results of serial mediation model of total sample

PROCESS Procedure for SPSS Version 3.00 (Written by Andrew F. Hayes, Ph.D., 2018, www.afhayes.com); Documentation available in Hayes (Hayes, 2018a). www.guilford.com/p/hayes3

Model: 6
Y: self-esteem
X: stereotype awareness
M1: stereotype agreement
M2: self-concurrence
Covariates: age, gender depression
Sample Size: 730

4.7.5.1 Analysis notes:

Level of confidence for all confidence intervals in output: 95.0000
Number of bootstrap samples for percentile bootstrap confidence intervals: 10000

4.7.5.2 Direct effects

Table 4.23 Model summary of outcome variable stereotype agreement

R	R^2	MSE	F	df1	df2	*p*
0.2728	0.0744	0.9294	14.5786	4.0000	725.0000	0.0000

MSE = mean squared error; df = degrees of freedom.

Table 4.24 Model of outcome variable stereotype agreement

	coeff	se	t	*p*	LLCI	ULCI
constant	0.0000	0.0357	0.0000	1.0000	-0.0701	0.0701
stereotype awareness	0.1905	0.0364	5.2345	0.0000	0.1190	0.2619
age	-0.0413	0.0361	-1.1446	0.2527	-0.1120	0.0295
gender	0.0918	0.0359	2.5587	0.0107	0.0214	0.1623
depression	0.1408	0.0363	3.8753	0.0001	0.0695	0.2121

coeff=standardized coefficient; se=standard error; LLCI=lower level of confidence interval; ULCI=upper level of confidence interval.

Table 4.25 Model summary of outcome variable self-concurrence

R	R^2	MSE	F	df1	df2	*p*
0.6581	0.4331	0.5700	110.6199	5.0000	724.0000	0.0000

MSE = mean squared error; df = degrees of freedom.

Table 4.26 Model of outcome variable self-concurrence

	coeff	se	t	*p*	LLCI	ULCI
constant	0.0000	0.0279	0.0000	1.0000	-0.0549	0.0549
stereotype awareness	0.0002	0.0290	0.0074	0.9941	-0.0568	0.0572
stereotype agreement	0.4887	0.0291	16.8026	0.0000	0.4316	0.5458
age	-0.1001	0.0283	-3.5418	0.0004	-0.1556	-0.0446
gender	0.0579	0.0282	2.0507	0.0407	0.0025	0.1134
depression	0.3311	0.0287	11.5177	0.0000	0.2747	0.3878

coeff=standardized coefficient; se=standard error; LLCI=lower level of confidence interval; ULCI=upper level of confidence interval.

Table 4.27 Model summary of outcome variable self-esteem

R	R^2	MSE	F	df1	df2	*p*
0.6770	0.4583	0.5455	101.9410	6.0000	723.0000	0.0000

MSE = mean squared error; df = degrees of freedom.

Table 4.28 Model of outcome variable self-esteem

	coeff	se	t	*p*	LLCI	ULCI
constant	0.0000	0.0273	0.0000	1.0000	-0.0537	0.0537
stereotype awareness	-0.0792	0.0284	-2.7894	0.0054	-0.1350	-0.0235
stereotype agreement	0.0383	0.0335	1.1429	0.2535	-0.0275	0.1042
self-concurrence	-0.2285	0.0364	-6.2840	0.0000	-0.2998	-0.1571
age	0.1651	0.0279	5.9209	0.0000	0.1130	0.2198
gender	0.0589	0.0277	2.2169	0.0338	0.0045	0.1133
depression	-0.4928	0.0306	-16.1098	0.0000	-0.5529	-0.4328

coeff=standardized coefficient; se=standard error; LLCI=lower level of confidence interval; ULCI=upper level of confidence interval.

4.7.5.3 Total effect

Table 4.29 Model summary of outcome variable self-esteem

R	R^2	MSE	F	df1	df2	*p*
0.6509	0.4237	0.5787	133.2680	4.0000	725.0000	0.0000

MSE = mean squared error; df = degrees of freedom.

Table 4.30 Model of outcome variable self-esteem

	coeff	se	t	*p*	LLCI	ULCI
constant	0.0000	0.0282	0.0000	1.0000	-0.0553	0.0553
stereotype awareness	-0.0932	0.0287	-3.2470	0.0012	-0.1496	-0.0369
age	0.1910	0.0284	6.7315	0.0000	0.1351	0.2468
gender	0.0390	0.0283	1.3755	0.1694	-0.0166	0.0946
depression	-0.5788	0.0287	-20.1874	0.0000	-0.6351	-0.5225

coeff=standardized coefficient; se=standard error; LLCI=lower level of confidence interval; ULCI=upper level of confidence interval.

4.7.5.4 Indirect effects

Table 4.31 Indirect effects

	Effect	BootSE	BootLLCI	BootULCI
total	-0.0140	0.0090	-0.0322	0.0032
stereotype awareness → stereotype agreement → self-esteem	0.0073	0.0067	-0.0047	0.0218
stereotype awareness → self-concurrence → elf-esteem	0.0000	0.0067	-0.0135	0.0132
stereotype awareness → stereotype agreement → self-concurrence → self-esteem	-0.0213	0.0060	-0.0345	-0.0108

Effect=bootstrap estimate; BootSE=bootstrap standard error; BootLLCI=lower level of bootstrap confidence interval; BootULCI=upper level of bootstrap confidence interval

5 STUDY 2: EFFECTS OF STIGMATIZING MEDIA COVERAGE ON STIGMA MEASURES, SELF-ESTEEM, AND AFFECTIVITY IN PERSONS WITH DEPRESSION – AN EXPERIMENTAL CONTROLLED TRIAL

An adapted version of this chapter has been published as 'Göpfert, N. C.[4], Conrad von Heydendorff, S.[4], Dreßing, H., & Bailer, J. (2019). Effects of stigmatizing media coverage on stigma measures, self-esteem, and affectivity in persons with depression – an experimental controlled trial. *BMC Psychiatry, 19*(1), 138. doi:10.1186/s12888-019-2123-6'.

5.1 Abstract

Background: Stigmatization of people with mental illness is still a significant problem even in Western society. Media is an important vector for public messaging that may lead to stigma (and potentially counteract it). There is an ongoing debate about the impact of news with potentially stigmatizing content on people with depression. This experimental study aimed at investigating the direct effects media reporting could have on people with depression, namely, higher levels of stigma attitudes and negative affect, as well as lower levels of self-esteem and positive affect.

Methods: Experimental study; target sample size *n*=180 patients; eligibility criteria: Clinical diagnosis of depressive episode or dysthymia, aged 18–70 years, sufficient cognitive abilities and German language skills; exclusion criteria: Acute psychotic, manic or hypomanic episode, addiction symptoms, or suicidal ideation; parallel assignment to one of three arms (each *n*=60): Watching a short film about a negative event relating to depression (experimental group), about a negative event without relation to depression (control group 1), or about a neutral event relating to

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depression (control group 2); primary outcomes: Degrees of stigma attitudes (stereotype awareness, stereotype agreement, self-concurrence, and self-stigmatization); secondary outcomes: Degrees of self-esteem, positive and negative affect; statistical analyses: General linear models with repeated-measures; one-way ANOVAs of the change in scores, followed by Bonferroni-adjusted pairwise comparisons; IBM SPSS Statistics 24.0.

Results: Significant group × time interactions in stereotype agreement (medium effect: η=0.10) and negative affect (large effect: η=0.26); the level of stereotype agreement increased significantly more in the experimental group than in control groups 1 and 2. The level of negative affect increased significantly more in the experimental group and in control group 1 than in control group 2. All other interaction effects were non-significant.

Conclusion: The present study allows statements about the direct effects of potentially stigmatizing media reporting on carriers of the stigmatized attribute, i.e., depression: Even single film presentations of familiar events that contain potentially stigmatizing content have an impact on stereotype agreement and negative affect. The impact of long-term exposure and change in other stigma-measures require a deeper understanding of stigma processes. Potential explanations and implications for practice and future research are discussed.

Trial registration: Deutsche Register Klinischer Studien, Trial registration: DRKS00011855. Registered 23 June 2017, retrospectively registered; for details see chapter 5.7.

Keywords: Stigma, Self-stigma, Depression, Media

5.2 Background

Despite major efforts by regional and national educational programmes, the stigmatization of people with mental illness is still a significant problem even in Western society (Angermeyer et al., 2013). Based on Goffman, Jones and colleagues define stigma as a mark (attribute) that links a person to undesirable characteristics (stereotypes) (Goffman, 1963; Jones et al., 1984; Link & Phelan, 2001). Following this definition, media is an important vector for public messaging that may lead to stigma (and potentially counteract it) (Jorm & Reavley, 2014; Stout et al., 2004; Stuart, 2006). Several overviews of mental illness in both fictional and nonfictional media and its complex role in the context of depression and suicidality can be found in the literature

(Scherr, 2014, 2016a, 2016b). In addition to factual information, mental illness is frequently reported in the context of exciting incidents (Aragonès et al., 2014), linking mental illness to danger, crime, and a negative burden on society (Corrigan & Kleinlein, 2005). As a consequence, collective stigmatizing assumptions about persons with mental illness (public stigmatization) are reinforced.

5.2.1 Media and public stigmatization

Even in cases of uncertainty whether a negative event was caused by human or technical failure, associations are quickly drawn with potential involvement of mental illness in media coverage. The March 2015 Germanwings plane crash in France generated particularly extensive news coverage with potentially stigmatizing content about depression (Conrad von Heydendorff et al., 2016).

Many experts criticized such potentially stigmatizing media coverage (SMC) in the case of the plane crash, postulating higher levels of public stigmatization and self-stigmatization as a consequence (e.g., Bavendamm, 2015; Gurris, 2015). To date, there is little empirical evidence on which these public discussions regarding effects of SMC about events related to depression could be sufficiently based. Corrigan et al. found both positive and negative effects of news stories regarding mental illness (2013). Priming audiences about mental illness in general by just mentioning mental illness in the context of violent incidents makes them infer a causal link between them (Chan & Yanos, 2018). In the early 1990s, when Oskar Lafontaine and Wolfgang Schäuble, two popular German politicians, were attacked by perpetrators with psychoses, public stigmatization significantly increased in the German population (Angermeyer & Matschinger, 1996). The overall increase in the community's stigma attitudes towards persons with depression between 2014 and 2015 after the Germanwings plane crash was smaller than postulated (Knesebeck et al., 2015): Only a few significant changes were indicated in the perceived separation of persons afflicted and stereotypes on item level (more unpredictable, less in need of help), and marginally in emotional reactions (anger, fear).

5.2.2 Self-stigmatization

Direct effects that SMC could have on those suffering from specific stigmatized mental disorders have not yet been sufficiently studied. Corrigan and Watson added the stigmatized group's perspective to Goffman's model of stigma (2002). A process

model of four succeeding stages was postulated during which perceived public stigma results in self-stigmatization in persons who carry the stigmatized attribute (i.e., internalization of stigma experience) (Corrigan et al., 2011): stereotype awareness (perception of public stigma), followed by stereotype agreement (believing public stigma to be true), self-concurrence (internalizing stereotypes and applying them to oneself), and harm-to-self (e.g., lower levels of self-esteem). Therefore, even if there was no definite effect of SMC on the general public's stigma in the case of the plane crash, stereotype awareness and stereotype agreement may have been increased in persons with depression followed by self-stigmatization and harm-to-self. A higher level of self-stigmatization in turn is negatively related to well-being (Cruwys & Gunaseelan, 2016), quality of life, professional help-seeking when needed (Coppens et al., 2013), general performance, self-esteem (Picco et al., 2016), self-clarity, hope, recovery, and functioning (Hasson-Ohayon et al., 2016), and positively related to suicidal behaviour (Campo-Arias & Herazo, 2015).

5.2.3 Objective and hypotheses

The aim of this study was to shed light on direct effects of SMC on stereotype awareness, stereotype agreement, self-concurrence, and harm-to-self.

It could be expected that watching potentially stigmatizing media reports would increase the levels of stereotype awareness, stereotype agreement, self-concurrence, and negative affect in persons with the stigmatized attribute, i.e., depression. At the same time, watching stigmatizing media reports would decrease the level of self-esteem and positive affect.

To control for stigma-specific content effects and affectivity effects, three groups were compared in this study. The experimental group (EG) watched a film that was both about a *negative event* and *referring to depression*. Control group 1 (CG1) watched a film about a *negative event* but *without reference to depression*. While a more negative affect could be expected after the groups watched the films, an effect on stigma-measures was expected in EG only. Control group 2 (CG2) watched a film that was about a *neutral event* and *referring to depression*. The effect on affectivity was expected to be smaller than in EG and CG1; the effect on stigma-measures was expected to be the reverse of that with EG but not significantly different from CG1.

5.3 Methods

The study was conducted as an experimental laboratory trial using a controlled design with parallel randomized groups, comparing three different conditions. Ethical approval to conduct the study was received from the Ethical Committee of the Medical Faculty of Mannheim, Heidelberg University, Germany (study ID 2016-655 N-MA). The study is registered in German Clinical Trials Register (for details, see chapter 5.7).

Considering clinical relevance and therefore expecting a small to medium effect size, target sample size was estimated using G*power 3.1 indicating a target sample size of n=177 (power=0.95, α=0.05, effect size(f)=0.15, three groups, two measurements) for variance analyses with repeated measures (within-between interaction).

5.3.1 Participants

Participants were recruited from the Central Institute of Mental Health in Mannheim (CIMH) in Germany by their treating doctors and psychotherapists from 03/2017 to 07/2018. Eligibility criteria for participants were at least one pre-diagnosed depressive episode or dysthymia, age of 18-70 years, sufficient cognitive abilities and German language skills. Exclusion criteria were acute psychotic, manic or hypomanic episodes, addiction symptoms, or acute suicidal ideation. Patients who were assumed to lack capacity to freely provide informed consent were excluded by the treatment staff in advance. Half of the participants were outpatients and the other half were inpatients treated at the CIMH. The study consisted of two parts, i.e., a screening interview and an experimental phase (for details, please refer to chapter 5.3.2). 202 persons went through the screening interview. Of those, 186 patients could be recruited for study participation. For technical and logistical reasons, six incomplete data sets had to be excluded from analyses. The study progress is presented in Figure 5.1.

5.3.2 Procedure

During a standardized screening interview, eligibility and exclusion criteria were examined and oral informed consent was given. An individual code was generated. Personal information was documented separately from screening data to guarantee confidentiality after enrolment. The code was used only to merge anonymous data.

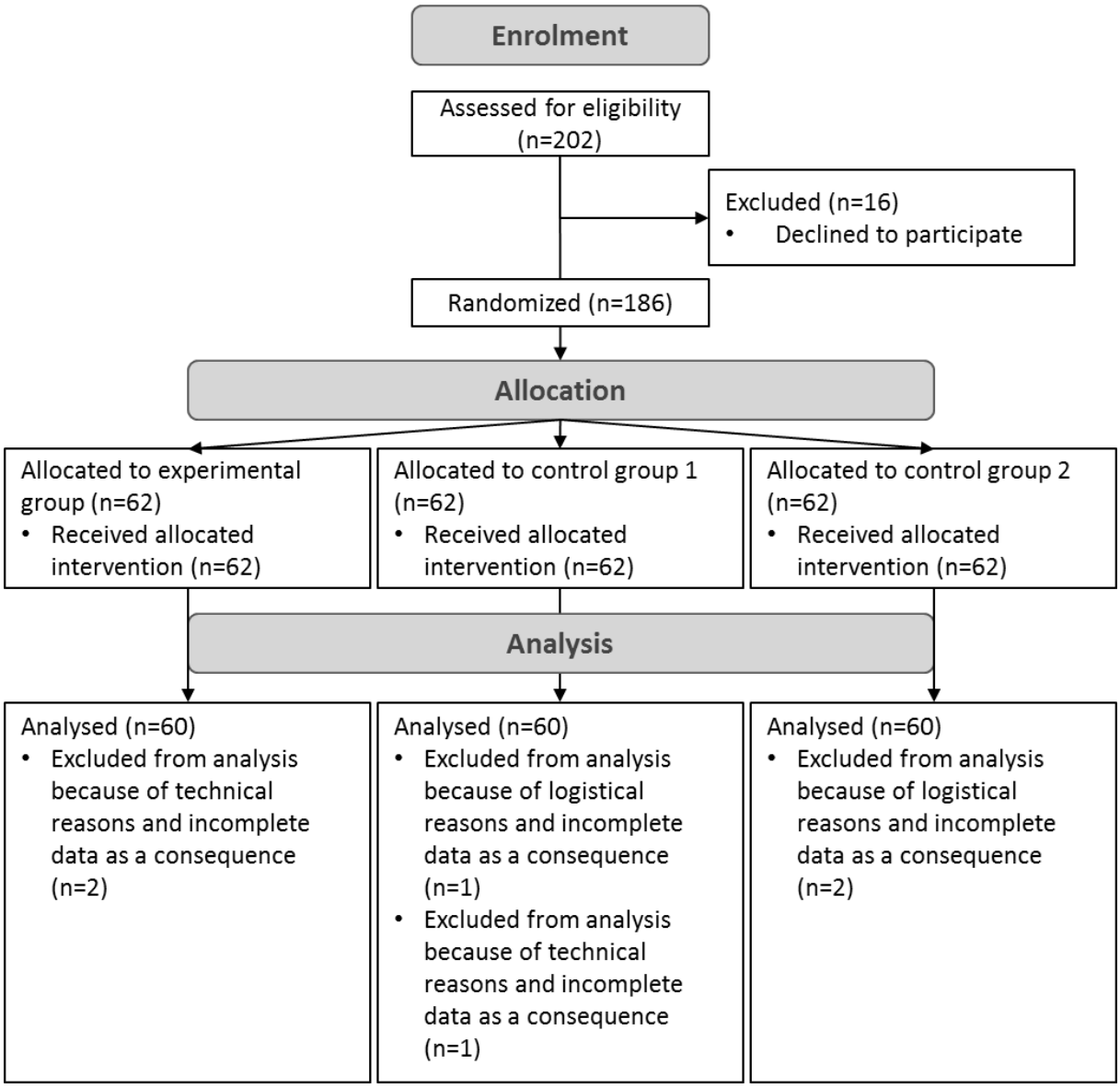

Figure 5.1 Progress through the phases of the parallel randomized trial of three groups. From: https://bmcpsychiatry.biomedcentral.com/articles/10.1186/s12888-019-2123-6

Before participation in the experimental phase, informed consent was ensured by detailed written forms signed by all participants. Participants received a 20€ expense allowance. Data collection and film presentations were computer-based. Participants filled in a baseline questionnaire and rated their current level of positive and negative affect. By viewing a short film about the bird of the year 2016 (nature documentary about woodpeckers; 2 min and 40 s), participants could become familiar with the laboratory setting and the method applied.

Positive and negative affect, level of valence, arousal, and familiarity of the film were assessed for manipulation check. Participants were then randomly assigned to one of three conditions. An allocation sequence list was based on computer-generated random numbers before recruitment. Experimenters allocated participants to

conditions chronologically, corresponding to the sequentially numbered allocation list, which was generated with Excel prior to recruitment.

5.3.2.1 Conditions

Experimental group (negative event relating to depression): Participants in the experimental group watched a short film (4 min and 21 s) that was based on news about the 2015 Germanwings plane crash in France retrieved from a database of www.ARD.de, a public TV channel. Several reports had been scanned and essential parts had been cut together to keep the testing time within an acceptable range while still covering essential information. In the film, reporters and representatives of Germanwings give statements about the pilot's clinical diagnosis of depression as a main reason for the incident. They call for more transparency and access to employees' medical records. This condition therefore covered both reporting about an exciting negative event and linking it to clinical diagnoses of depression.

Control group 1 (negative event without relation to depression): Participants in CG1 watched a film (4 min and 7 s) about news regarding the Fukushima catastrophe in March 2011 and its possible consequences for Japan and the world. The source was the same as that of the film of the experimental condition. Although this condition concerns an exciting negative event, no reference is made to mental illness. It can therefore control for negative affect, which is not related to stigmatization.

Control group 2 (neutral event relating to depression): Participants in CG2 watched a film (3 min and 56 s) about the second congress on depression organized by "Stiftung Deutsche Depressionshilfe" in cooperation with "Deutsches Bündnis gegen Depression" and "Deutsche Depressionsliga". This documentary film neutrally reports on an event referring to depression but without any exciting negative incidents. It can therefore control for reactions that refer to depression but without any stigmatizing context. Relevant dependent variables were assessed immediately before and after the film presentations.

In sum, there were three times when measurements were taken in addition to screening: t_1 = baseline measurement before watching any films; t_2 = after watching the film about the bird of the year; t_3 = after watching the second film. Please refer to Figure 5.2 for schedule of enrolment, interventions, and assessments at specific points in time.

Study 2: Effects of stigmatizing media coverage on stigma measures, self-esteem, and affectivity in persons with depression – an experimental controlled trial

	STUDY PERIOD						
	Enrolment	Allocation	Post-allocation				
TIMEPOINT	t_0		t_1	A	t_2	E	t_3
ENROLMENT:							
Eligibility screen	X						
Informed consent	X						
diagnoses, type of treatment	X						
Allocation		X					
INTERVENTIONS:							
report about the bird of the year 2016 (adaptation phase)				X			
experimental group						X	
control group 1						X	
control group 2						X	
ASSESSMENTS:							
socio-demography	X						
level of current depression			X				
stereotype awareness			X				X
stereotype agreement			X				X
self-concurrence			X				X
self-stigmatization			X				X
self-esteem			X				X
positive and negative affect			X		X		X
valence and arousal					X		X
understanding and familiarity of the film					X		X

Figure 5.2 Schedule of enrolment, interventions, and assessments; legend: A = Adaptation phase: A short nature documentary was presented to familiarize participants with the laboratory setting and the method applied; E = Experimental phase: Participants were randomly assigned to one of three conditions. Times of measurements: t_0 = screening phase; t_1 = baseline measurement before watching any films; t_2 = after watching the nature documentary; t_3 = after watching the second film. From: https://bmcpsychiatry.biomedcentral.com/articles/10.1186/s12888-019-2123-6

5.3.3 Measures

5.3.3.1 Self-stigma

The development and psychometrics of the Self-Stigma of Mental Illness Scale (SSMIS) were presented by Corrigan et al. (2006), German version by Rüsch and Brück, published in (Schiel, 2005). Of the four subscales, containing ten items each, the first three subscales were used in the current study, namely, stereotype awareness, stereotype agreement, and self-concurrence. Stereotype awareness refers to beliefs about the public's attitudes towards people with mental illness; stereotype agreement covers one's own beliefs about people with mental illness in general; self-concurrence implicates a causal relation between one's mental illness and stereotype characteristics. Response scales ranged from 1 = "I strongly disagree" to 9 = "I strongly agree". Cronbach's alpha was α=0.91 for stereotype awareness, α=0.87 for stereotype agreement, and α=0.81 for self-concurrence.

5.3.3.2 Self-esteem

Based on Watson et al.'s (2007) experience, the fourth SSMIS subscale of self-esteem decrement was not included in this study because of its difficult wording. Instead, a revised German adaptation of the well-known Rosenberg's self-esteem scale consisting of ten items was used (Collani & Herzberg, 2003; Rosenberg, 1965). Internal consistency was α=0.87.

5.3.3.3 Self-stigma of depression

The German adaptation of the Self-Stigma of Depression Scale for people with depression (SSDS-D) was added for measuring sample specific self-stigma of depression in comparison to self-stigma of mental illness in general (Göpfert et al., 2019). The original Self-Stigma of Depression Scale was the first scale to measure anticipated self-stigma in cases of mental illness, i.e., how people would feel or think if they had a depressive disorder (Barney et al., 2010). The German adaptation SSDS-D covers actually experienced self-stigma of people with depression. It consists of 16 items on four subscales, namely, shame (three items), self-blame (five items), social inadequacy (four items), and help-seeking inhibition (four items). Patients were asked to what extent they agreed with self-stigmatising attitudes regarding their depressive disorder (example: "I feel ashamed about it."). The response scale ranged from 1 = "I

do not agree at all" to 5 = "I totally agree". Internal consistencies were α=0.86 for shame, α=0.82 for self-blame, α=0.74 for social inadequacy, and α=0.83 for help-seeking inhibition.

5.3.3.4 Positive and negative affect

The Positive and Negative Affect Schedule consists of two subscales, namely, positive affect and negative affect, of ten adjectives each (PANAS; Krohne et al., 1996). Patients were asked to indicate how much they currently related to each adjective in terms of how they were feeling. The response scales ranged from 1 = "not at all" to 5 = "extremely". Internal consistencies were α=0.89 for positive and α=0.86 for negative affect. The PANAS was used to test changes in affect state after viewing the films.

5.3.3.5 Socio-demographic and clinical characteristics

The current severity of depression symptoms has been shown to be highly correlated with the current level of self-esteem (Rüsch et al., 2005a). It was measured via the German version of the Patient Health Questionnaire (Kroenke, Spitzer, & Williams, 2001; Löwe et al., 2002). Internal consistency of the nine item PHQ-depression scale was α=0.84. Age in years and gender have been inconsistently correlated with self-stigma in previous research and are therefore also assessed (Livingston & Boyd, 2010).

5.3.3.6 Manipulation check

For manipulation check of the films, the videos were rated applying von Heydendorff's and Dressing's categorical system of critical coverage (2016). It measures aspects of media reports that imply a causal relationship between negative events and mental illness. Additionally, patients rated on a scale from 1 = "not at all" to 9 = "extremely" the level of familiarity and arousal as well as valence on a 9-point scale from 1 = "very negative" to 9 = "very positive".

5.3.4 Data management and statistical methods

Data collection was online based via SoSci Survey, a professional tool for online surveys. As such, data could be directly exported to IBM SPSS Statistics 24.0. Data were downloaded weekly and stored on the research team's server. Personal data were stored separately in a hard copy folder in the researchers' office.

Baseline characteristics of the three groups, as well as familiarity, arousal, and valence of all the films, were compared using univariate ANOVAs followed by Bonferroni-adjusted pairwise comparisons. Interaction effects between time of measurement (i.e., measurements of t_2 and t_3 for positive and negative affect; measurements of t_1 and t_3 for all other outcome variables) and group (i.e., plane crash, Fukushima, Congress) on all the dependent variables (i.e., primary outcome: stereotype awareness, stereotype agreement, self-concurrence, and self-stigmatization; secondary outcome: negative affect, positive affect, and self-esteem) were analysed using general linear models with repeated measures. If interactions in these first analyses were statistically significant, one-way ANOVAs of the change in scores (post-film score minus pre-film score) were conducted, followed by Bonferroni-adjusted pairwise comparisons to identify specific group differences. Effect sizes are reported as partial η^2 values ($0.01 \leq \eta_p^2 \leq 0.06$ small effect; $0.06 \leq \eta_p^2 \leq 0.14$ medium effect; $\eta_p^2 \geq 0.14$ large effect) (Cohen, 1988). Analyses were run with IBM SPSS Statistics 24.0.

5.4 Results

5.4.1 Sample characteristics

Table 5.1 Baseline characteristics by group

	Germanwings Plane Crash	**Fukushima Tsunami**	**Depression Day Congress**	**Group Differences**
Sample size	60	60	60	
Age (years)				$F(2,177)=2.12$, $p=0.12$
Mean	38.65	41.22	36.52	
(standard deviation)	(13.32)	(12.65)	(11.55)	
Gender (%)				$\chi^2(2, n=180)=5.69$, $p=0.06$
Male	53.3	33.3	36.7	
Female	46.7	66.7	63.3	
Level of education(%)				$\chi^2(2, n=180)=1.68$, $p=0.43$
< 12 years of school	63.3	56.7	51.7	
≥ 12 years of school	36.7	43.3	48.3	
current depression: Yes (%)	100	100	100	
PHQ-9				$F(2,177)=0.01$, $p=1.00$
Mean	13.97	13.93	13.87	
(standard deviation)	(5.44)	(5.54)	(6.27)	
Negative Affect (PANAS) (t_1)				$F(2,177)=2.57$, $p=0.08$
Mean	17.62	15.08	16.47	
(standard deviation)	(7.36)	(4.54)	(6.17)	
Positive Affect (PANAS) (t_1)				$F(2,177)=0.54$, $p=0.59$
Mean	26.42	25.03	25.84	
(standard deviation)	(7.83)	(8.07)	(7.61)	

PHQ-9 = depression scale of the Patient Health Questionnaire; PANAS = Positive and Negative Affect Schedule; t_1 = time of measurement before allocation, time of measurement 1. From: https://bmcpsychiatry.biomedcentral.com/articles/10.1186/s12888-019-2123-6

Sample characteristics of the 180 study participants are presented in Table 5.1. Fifty percent of the participants were in outpatient and inpatient treatment each. According to the International Classification of Diseases 10 (ICD 10; World Health Organization, 2015), treatment diagnoses were recurrent depressive disorder (F33; 60.0%), major depressive disorder (F32; 30.0%), dysthymia (F34.1; 3.3%), and other depressive episodes (6.7%). The average age was 38.8 years, 58.9% were female, 50.0% were single, and 42.8% had a rather high level of education. The groups did not differ significantly regarding age, gender, level of education, current depressive symptoms, and affectivity at baseline.

5.4.2 Manipulation check

Based on Heydendorff's and Dressing's categorical system of risky coverage (2016), four separate cases of risky coverage could be identified in the experimental condition, i.e., mental health or depression (attribute) of the co-pilot were mentioned as causally related to the plane crash (crime). Additionally, three explicit stigmatizations could be discerned regarding professional bans for people with mental illness. Neither in CG1 nor in CG2 could any risky coverage or explicit stigmatization be found.

Univariate ANOVAs and Bonferroni-adjusted pairwise comparisons indicated differences in familiarity ($F(2,177)=16.44$, $p<0.001$, $\eta_p^2=0.16$), arousal ($F(2,177)=10.30$, $p<0.001$, $\eta_p^2=0.10$), and valence ($F(2,177)=114.24$, $p<0.001$, $\eta_p^2=0.56$) as expected: (i) The Depression Day Congress was less known than the other two topics, (ii) arousal ratings were higher for the plane crash than for the Depression Day Congress, and (iii) valence ratings were more positive for CG2 than for both EG and CG1.

5.4.3 Experimental phase: Main and interaction effects

Table 5.2 summarizes the means and standard deviations of outcome variables across groups. Regarding group x time interaction effects, the results of general linear models and subsequent one-way ANOVAs of change scores were unchanged when controlling for age, gender, and current depressive symptoms. Thus, the uncontrolled analyses of general linear models with repeated measures are presented in Table 5.3.

Table 5.2 Summary of means and standard deviations of outcome variables across conditions

	Germanwings Plane Crash				Fukushima Tsunami				Depression Day Congress			
	Pretest		Posttest		Pretest		Posttest		Pretest		Posttest	
Measures	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**
Awareness (SSMIS)	49.85	19.25	52.38	20.20	46.30	16.45	49.93	18.74	44.28	18.78	44.67	21.48
Agreement (SSMIS)	26.82	14.18	32.30	15.75	26.25	13.75	25.92	13.07	20.92	8.84	19.35	8.61
Self-concurrence (SSMIS)	27.65	14.58	26.70	16.26	25.95	12.61	21.77	10.16	24.17	11.25	21.87	11.16
Self Stigma (SSDS-D)	2.95	0.92	2.89	1.01	3.03	0.96	2.94	0.99	3.09	0.83	2.96	0.91
Shame	2.90	1.24	2.75	1.34	3.03	1.23	2.83	1.27	3.29	1.12	2.94	1.21
Self Blame	3.42	1.00	3.24	1.11	3.56	0.95	3.39	1.00	3.57	0.95	3.31	1.05
Social Inadequacy	2.99	1.10	3.04	1.15	2.98	1.27	3.03	1.29	3.00	1.11	3.08	1.17
Help Seeking inhibition	2.49	0.99	2.54	1.09	2.57	1.04	2.50	1.18	2.52	0.98	2.51	1.09
Self Esteem	14.57	5.89	14.28	6.98	14.03	6.34	13.97	7.12	13.98	6.39	14.47	7.16
Negative Affect (PANAS)	14.40	6.12	24.75	9.48	12.65	4.14	20.53	7.19	13.23	4.67	14.7	4.96
Positive Affect (PANAS)	24.97	8.74	22.27	6.53	22.23	8.27	20.17	5.61	23.78	7.26	23.35	7.87

Awareness = stereotype awareness; Agreement = stereotype agreement; SSMIS = Self-Stigma of Mental Illness Scale; SSDS-D = Self-Stigma of Depression Scale for people with depression; PANAS = Positive and Negative Affect Schedule. From: https://bmcpsychiatry.biomedcentral.com/articles/10.1186/s12888-019-2123-6

Table 5.3 Results of multivariate tests of general linear models with repeated measures for each outcome variable

dependent variable	df	df (error)	*F*	*p*	η_p^2
Awareness (SSMIS)					
main effect time	1	177	2.61	0.108	0.015
main effect group	2	177	2.31	0.102	0.025
interaction effect time x group	2	177	0.50	0.608	0.006
Agreement (SSMIS)					
main effect time	1	177	2.94	0.088	0.016
main effect group	2	177	9.85	0.000	0.100
interaction effect time x group	2	177	9.74	0.000	0.099
Self-concurrence (SSMIS)					
main effect time	1	177	13.19	0.000	0.069
main effect group	2	177	2.01	0.137	0.022
interaction effect time x group	2	177	1.89	0.154	0.021
Self Stigma (SSDS-D)					
main effect time	1	177	7.97	0.005	0.043
main effect group	2	177	0.20	0.822	0.002
interaction effect time x group	2	177	0.40	0.672	0.004
Shame					
main effect time	1	177	18.97	0.000	0.097
main effect group	2	177	0.924	0.399	0.013
interaction effect time x group	2	177	1.204	0.302	0.013
Self Blame					
main effect time	1	177	15.94	0.000	0.083
main effect group	2	177	0.35	0.708	0.004
interaction effect time x group	2	177	0.32	0.727	0.004
Social Inadequacy					
main effect time	1	177	1.63	0.204	0.009
main effect group	2	177	0.01	0.987	0.000
interaction effect time x group	2	177	0.02	0.977	0.000
Help Seeking inhibition					
main effect time	1	177	0.10	0.757	0.001
main effect group	2	177	0.01	0.993	0.000
interaction effect time x group	2	177	0.61	0.546	0.007
Self Esteem					
main effect time	1	177	0.03	0.863	0.000
main effect group	2	177	0.07	0.937	0.001
interaction effect time x group	2	177	0.79	0.456	0.009
Negative Affect (PANAS)					
main effect time	1	177	192.99	0.000	0.522
main effect group	2	177	15.55	0.000	0.149
interaction effect time x group	2	177	31.37	0.000	0.262
Positive Affect (PANAS)					
main effect time	1	177	14.44	0.000	0.075
main effect group	2	177	2.48	0.087	0.027
interaction effect time x group	2	177	2.19	0.115	0.024

Awareness = stereotype awareness; Agreement = stereotype agreement; SSMIS = Self-Stigma of Mental Illness Scale; SSDS-D = Self-Stigma of Depression Scale for people with depression; PANAS = Positive and Negative Affect Schedule; time of measurements: measurements of t_2 and t_3 for positive and negative affect; measurements of t_1 and t_3 for all other outcome variables; group: plane crash, Fukushima, congress. From: https://bmcpsychiatry.biomedcentral.com/articles/10.1186/s12888-019-2123-6

The main effect of time was not significant for stereotype awareness (F(1,177)=2.61, p=0.11), stereotype agreement (F(1,177)=2.94, p=0.09), self-esteem (F(1,177)=0.03, p=0.19), social inadequacy (F(1,177)=1.63, p=0.20), and help-seeking inhibition (F(1,177)=0.10, p=0.76).

There was a main effect of time for a decrease in self-concurrence (F(1,177)=13.19, p<0.001, η_p^2=0.07) and in self-stigma of depression (F(1,177)=7.97, p<0.01, η_p^2=0.04), shame (F(1,177)=4.96, p<0.001, η_p^2=0.10), self-blame (F(1,177)=15.94, p<0.001, η_p^2=0.08), and positive affect (F(1,177)=14.44, p<0.001, η_p^2=0.08) and for an increase in negative affect (F(1,177)=192.99, p<0.001, η_p^2=0.52). Most important, there were significant group × time interaction effects for stereotype agreement (F(2,177)=9.74, p<0.001, η_p^2=0.10) and negative affect (F(2,177)=31.37, p<0.001, η_p^2=0.26) but not for any of the remaining measures. In addition, the robustness of these results was confirmed via hierarchical regression analyses[5] (for details, please refer to chapter 5.8). To identify the interaction effects, subsequent one-way ANOVAs of the change in scores of stereotype agreement and negative effect were conducted. A significant main effect of group was found for both stereotype awareness (F(2,177)=9.74, p<0.001, η_p^2=0.10) and negative affect (F(2,177)=31.37, p<0.001, η_p^2=0.26). Pairwise comparisons revealed the increase in stereotype agreement as significantly higher in EG than in CG1 (mean difference = 5.17, 95% CI=1.69-9.94, p<0.01) and in CG2 (mean difference = 7.05, 95% CI=2.93-11.17, p<0.001). There was no significant difference in change between CG1 and CG2 (mean difference = 1.23, 95% CI=-2.89-5.36, p=1.00). Relative to CG2, the increase in negative affect was significantly higher in EG (mean difference = 8.83, 95% CI=6.08-11.68, p<0.001) and in CG1 (mean difference = 6.42, 95% CI=3.62-9.22, p<0.001). There was no significant difference in change in negative affect between EG and CG1 (mean difference = 2.47, 95% CI=-0.33-5.27, p=0.10).

[5] Baseline measurements were entered blockwise as independent variables: socio-demographics in step 1 (age, gender, level of education), all variables of relevance in step 2 (PHQ, SSMIS-Subscales, SSDS-D-Subscales, PANAS), and dummy coding for the 3 experimental conditions (i.e., EG = 1, 0, 0; CG1 = 0, 1, 0; CG2 = 0, 0, 1) in step 3.

The changes in mean scores and standard errors are shown in Figure 5.3 for stereotype agreement and negative affect in each group.

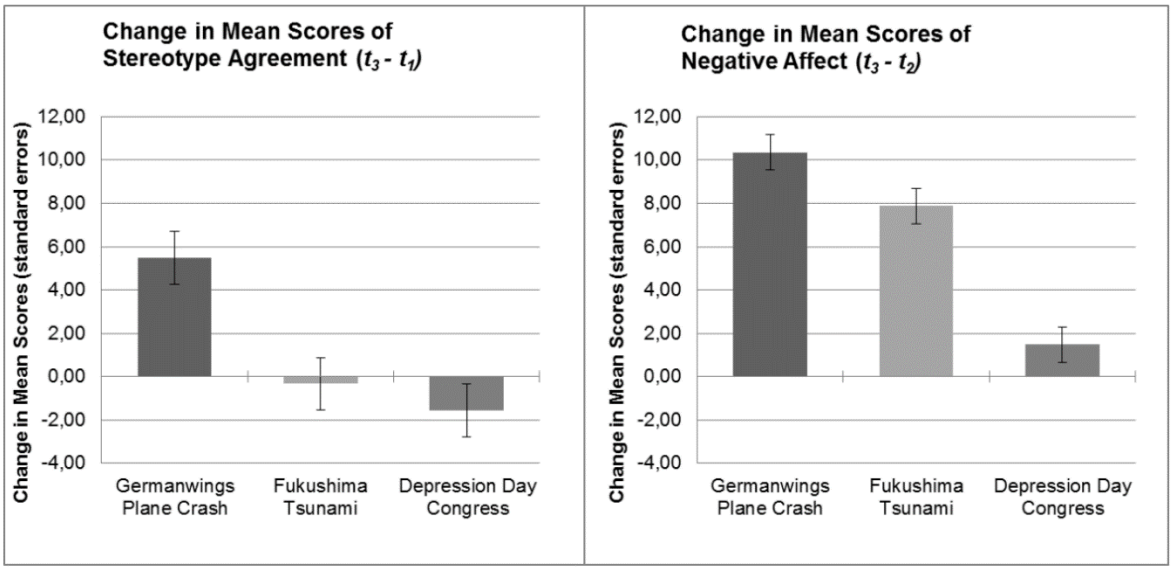

Figure 5.3 Changes in scores and standard errors for stereotype awareness and negative affect by group; legend: t_1 = baseline measurement before watching any films; t_2 = after watching the nature documentary; t_3 = after watching the second film.
From: https://bmcpsychiatry.biomedcentral.com/articles/10.1186/s12888-019-2123-6

5.5 Discussion

The present study was the first study that aimed at investigating the effect of SMC experimentally on stereotype awareness, stereotype agreement, self-concurrence, self-esteem, and affectivity in persons with the stigmatized attribute, i.e., depression. Hypotheses were based on Corrigan, Rafacz, and Rüsch's progressive model of self-stigma and tested with an experimental laboratory trial using a controlled design with three parallel randomized groups (2011). In support of the hypotheses, the experimental group indicated higher levels of stereotype agreement and negative affect after watching a film about a negative event referring to depression. Also supporting the hypotheses, watching a film about a negative event without reference to depression resulted in higher levels of negative affect but not in an increase in stigma-measures. Additionally, the effect of a film about a neutral event referring to depression on negative affect was smaller compared to that in the other groups; the effect on stereotype awareness was the reverse of that in the experimental group and did not differ from the condition without relation to depression. The interaction effect for stereotype agreement was of medium effect size and the interaction effect for negative affect of large effect size, both important.

Contrary to the hypotheses, these effects could not be found for other stigma-measures, self-esteem, or positive affect. Kohls and colleagues found corresponding results (2017): In their research, stereotype agreement seemed more easily influenced by an anti-stigma campaign than stereotype-awareness. Regarding the content of the potentially stigmatizing film used in this study, it does not refer directly to the public's attitudes but rather points out why specific measures should be taken because of potential dangerousness of people with mental illness. The focus is on notional facts of experts but not on what the public in general believes, which might explain a lack of change in stereotype awareness.

The familiarity of the films may also play an important role in stereotype awareness: The Germanwings plane crash was of public interest. Several media reports in print and on television were published over two years, during which public perception could have been formed. Reminding the study participants of this specific event might not have added crucial information about the public's view and therefore about the participants' perception about it.

According to Corrigan and Watson, the application of stereotype agreement to oneself must meet specific prerequisites (2002): Identification with the stigmatized attribute and group as well as the perception of legitimacy of the information received. The study samples consisted of persons carrying not only the stigmatized attribute of mental illness but even more specifically depressive diagnoses. As such, identification with the pilot could be expected to be higher than in a more heterogeneous sample. At the same time, acute suicidality was an exclusion criterion for ethical reasons, namely, protection of participants from serious harm. Most participants might not identify with the characteristics presented in the film and therefore would be protected from applying stigmatizing attitudes to themselves. Scherr and Reinemann indicated comparable findings, as exposure to suicidal media enhances belief in a change in thoughts, perceptions, and behaviour primed by violent media content in other people rather than in oneself (2011).

Moreover, protective factors such as emotional clarity (Wang et al., 2016), cognitive appraisal and a variety of coping responses (Rüsch et al., 2009) have been postulated to impact stigmatization effects. Future experiments may investigate potential protective factors, which may buffer the effect between stereotype agreement and self-concurrence or self-stigmatization.

There was a significant decrease over time in self-concurrence, self-stigmatization of depression, shame, self-blame, and positive affect during the experimental phase. These main effects may have arisen as methodological artefact. Schemata of depression and stigmatization were activated by informed consent. This priming may have led to easy accessibility and high values of affectivity and stigma-measures during baseline measurement (Pendry, 2007). As indicated by the adaptation phase, in which both positive and negative affect decreased over time but independently of groups, regression to the mean can be assumed for both stigma and affectivity measures. Considering regression to the mean – which predicts a decrease in all measures – medium to large interaction effects with increases of negative affect and stereotype agreement in the experimental condition appear particularly important for research and practice.

General strengths of experimental randomized controlled studies can be noted in reference to this study: There were two control groups, in which participants watched films without potentially stigmatizing content but partly about a negative event and partly about the stigmatized attribute. As such, specific stigmatizing effects could be controlled for potential confounding effects of negative affect or activation of depression schemata. Conducting manipulation checks validated intentions of the chosen conditions. Randomization guaranteed a minimization of selection bias. It is notable that no control groups of community samples or participants with other mental illnesses without depressive symptoms were added to the study design. Most measures would have been applicable to patients with mental illness in general. In addition to stereotype awareness and stereotype agreement, hypothetical self-stigma measures could have been used in a community sample. However, research indicated no to very small changes in the community's attitudes towards persons with mental illness after SMC about the 2015 Germanwings plane crash in France (Knesebeck et al., 2015). Adding such a control group to test the null hypothesis requires a very large sample. The added value would have been relatively low for the research questions of interest in this study, especially regarding self-stigma and harm-to-self. However, nothing in the results of this study suggests a specificity of effects for depression. Since the results mainly indicate an impact on stereotype agreement, independently of applying these attitudes to oneself, future research may control for community samples and samples of other mental illnesses to investigate differential effects on different target groups.

The following study limitations should also be addressed in future research: There was no follow-up measurement to determine long-term effects. As such, the present study can only give implications for immediate changes after watching the films. No conclusions can be drawn about persistent changes over days or even weeks.

There is also a lack of information about actual behaviour but rather only self-reported attitudes.

To guarantee that participants met the diagnostic criteria, only patients currently in treatment were recruited to participate. This might have led to selection bias regarding the level of self-stigmatization since help seeking is related to low self-stigma (Clement et al., 2014).

Another limitation concerns the difference in familiarity of the topics of the films of the conditions. While the Depression Day Congress was not particularly well known, most participants were familiar with the other two events. It could be interesting for future research to examine the effect of SMC covering new instead of familiar information.

There was a trend towards more males in the experimental group. Regression analyses indicated gender and age to have an effect on negative affect. Controlling for gender and age in the general linear models did not change any results regarding the interaction effect (for details, please refer to chapter 5.9). However, these results imply paying attention in future research to such factors as gender or age might moderate the effect of SMC.

5.5.1 Implications for practice

Confrontation with bad news seems to have a direct stigmatizing effect on people with depression, even if they are familiar with the information. News covering stigmatizing statements about people with mental illness form attitudes of people with depression. At least a short-term increase in stereotype agreement is indicated by the results of this study. Stereotype agreement is an important stage in the process of self-stigmatization, according to the stigma-model of Corrigan and colleagues (2011). Later stages of the self-stigmatizing process, namely, self-concurrence and harm-to-self, were not significantly influenced by watching short films of news at a single point in time. However, time spent reading tabloids was associated with higher endorsement of suicide myths, a lower level of suicide-related knowledge, and a higher level of

stigmatizing attitudes in recent studies (Till, Wild, Arendt, Scherr, & Niederkrotenthaler, 2018). Therefore, it can be postulated that extensive massive confrontation with SMC over a longer period of time might have a potent effect on self-stigmatization of people with mental illness. One of the most relevant motives for use of traditional media in people suffering under depressive symptoms is information seeking, independently of the depression severity; the higher the levels of depressive symptoms are, the stronger the motivation is to use media as a form of coping to forget about everyday concerns with the intention to overcome depression (Scherr, 2018). It is therefore important to train journalists in reporting in a non-stigmatizing manner about events and at the same time covering information that is relevant in this context. Some events, such as the Germanwings plane crash, may be intrinsically stigmatizing as indications for suicide cannot be denied. Instead of generalizing potential characteristics of the Germanwings pilot to the many people suffering from depression and suicidal ideation, media should rather call attention to how the person involved in this incident differs from these millions of people who do not harm anyone else.

On the other hand, news about the Depression Day Congress, which educates about depression and treatments, did not have a negative effect on affectivity or stigmatizing-processes. Both content and the way of reporting seem to play important roles in this context. For instance, character empathy was indicated as an important mediator for destigmatizing effects of media regarding Paralympic athletes: While pity decreased destigmatization, positive emotions increased destigmatization (Bartsch, Oliver, Nitsch, & Scherr, 2018). A similar effect may be found regarding media about mental illness and should be investigated in the future. Fair-media is one example of an initiative that guides journalists in reporting about mental illness without stigmatization and discrimination (https://www.seelischegesundheit.net/presse/fair-media).

5.6 Conclusions

Based on the results of this study, specific interventions related to media reporting may be developed for both patients (regarding the reaction to bad news in media and the management of potentially stigmatizing news) and for public prevention (e.g., psychoeducational programs). Media coverage as a main influencer of public attitudes must further develop and use its power for prevention and education instead of propagating stigmatization of mental illness.

Abbreviations: CG1: Control group 1; CG2: Control group 2; CIMH: Central Institute for Mental Health, Medical Faculty Mannheim / Heidelberg University, Germany; EG: Experimental group; PANAS: Positive and Negative Affect Schedule; PHQ-9: Patient Health Questionnaire 9; SMC: Stigmatizing media coverage; SSDS-D: Self-Stigma of Depression Scale for people with depression; SSMIS: Self-Stigma of Mental Illness Scale; t_0, t_1, t_2, t_3: Time of measurement before allocation, time of measurement 1, time of measurement 2, time of measurement 3

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Availability of data and materials: The materials used and datasets collected during the current study are available from the corresponding author on reasonable request.

Authors' contributions: All the authors participated in the development and design of the study, while JB and HD supervised the development and design process. NCG wrote and revised the manuscript, which was formulated in detail by her, SCH, and JB. Data were collected by NCG, SCH, and JB, who also supervised the experimental part of the study. All the authors revised and approved the final manuscript.

Ethics approval and consent to participate: Ethical approval to conduct the study was granted by the Ethical Committee of the Medical Faculty of Mannheim, Heidelberg University, Germany (study ID 2016-655 N-MA). Informed consent was obtained by all participants orally during the screening process and in written form at the beginning of the experimental phase.

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

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5.7 Trial registration details

Table 5.4 Trial registration details

Data Category	Information
primary registry and trial identifying number	German Clinical Trials Register DRKS00011855
date of registration in primary registry	23/06/2017, retrospectively
secondary identifying numbers	2016-655N-MA
source(s) of monetary or material support; primary sponsor	Adjunct Prof. Dr. Josef Bailer Manager of Center of Psychological Psychotherapy Mannheim, Studies and Outpatient Clinic Manager Department of Clinical Psychology, Central Institute of Mental Health, Medical Faculty Mannheim / University Heidelberg, Germany J5, 68159 Mannheim
contact for public and scientific queries	Mrs. Nele Göpfert nele.goepfert@zi-mannheim.de
public title	Effects of Media Reports on Self-Stigmatization, Self-Esteem and Affectivity in Persons with Depression
scientific title	Effects of Media Reports on Self-Stigmatization, Self-Esteem and Affectivity in Persons with Depression - MeStiD
countries of recruitment	Germany
health condition(s) or problem(s) studied	Depression
intervention(s)	Experimental group: Arm 1 - negative event referring to depression Control group 2: Arm 2 - negative event without reference to depression Control group 3: Arm 3 - neutral event referring to depression
key inclusion and exclusion criteria	Inclusion criteria: minimum of one depressive episode lifetime, sufficient cognitive abilities and German language skills Exclusion criteria: acute psychotic, manic, or hypomanic episode, acute addiction symptoms, acute suicidal tendencies Age minimum: 18 Years Age maximum: 70 Years Gender: both, male and female
study type	Experimental Allocation: randomized Intervention model: parallel assignment Masking: Open (masking not used)
date of first enrolment	06/03/2017
target sample size	180
recruitment status	completed
primary outcome(s)	Degree of self-stigmatization using the German version of Self Stigma of Depression Scale and the German version of Self-Stigma of Mental Illness Scale directly after watching the videos.
key secondary outcomes	Degree of self-esteem (Rosenberg, 1965; Collani & Herzberg, 2003) positive and negative affect (PANAS), as well as the reaction to the Videos regarding valence and arousal (SAM; Bradley & Lang, 1994)

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5.8 Linear regression to better understand the robustness of effects

5.8.1 Dependent variable: Stereotype agreement

Table 5.4 Regression analyses of blockwise entered baseline measurements

	Dependent variable: Stereotype agreement								
	step 1			step2			step3		
	β	*t*	*p*	*β*	*t*	*p*	*β*	*t*	*p*
age	0.023	0.284	0.777	-0.035	-0.634	0.527	-0.028	-0.543	0.588
gender	-0.047	-0.625	0.533	-0.049	-0.945	0.346	-0.082	-1.694	0.092
level of education	-0.080	-1.008	0.315	-0.033	-0.587	0.558	-0.018	-0.356	0.723
PHQ-9				0.048	0.693	0.489	0.060	0.940	0.348
Awareness				-0.071	-1.301	0.195	-0.095	-1.894	0.060
Agreement				0.659	10.934	0.000	0.611	10.875	0.000
Self-concurrence				0.189	2.705	0.008	0.168	2.621	0.010
Shame				0.053	0.562	0.575	0.145	1.629	0.105
Self Blame				-0.124	-1.696	0.092	-0.111	-1.652	0.100
Social Inadequacy				0.043	0.545	0.587	0.010	0.138	0.891
Help Seeking Inhibition				-0.016	-0.224	0.823	-0.032	-0.478	0.634
Self Esteem				0.068	0.838	0.403	0.076	1.033	0.303
Negative Affect				0.078	1.326	0.187	0.038	0.708	0.480
Positive Affect				-0.007	-0.118	0.906	-0.028	-0.539	0.591
EG							0.323	5.675	0.000
CG1							0.112	2.002	0.047
CG2*							---	---	---
R^2			0.010			0.585			0.656
(R^2 adjusted)			(0.007)			(0.550)			(0.622)
R^2 change			0.010			0.576			0.070
F change			0.585			20.824			16.626
sig. F change			0.626			0.000			0.000

PHQ-9 = depression scale of the Patient Health Questionnaire; Awareness = stereotype awareness; Agreement = stereotype agreement; SSMIS = self-stigma of mental illness scale; PANAS = Positive and Negative Affect Schedule of time of measurement 2; EG = dummy variable for groups, experimental group; CG1 = dummy variable for groups, control group 1; CG2 = dummy variable for groups, control group 2; *one less dummy variable is included in the analyses than there are categories of the group.

5.8.2 Dependent variable: Negative affect

Table 5.5 Regression analyses of blockwise entered baseline measurements

	Dependent variable: Negative affect								
	step 1			step2			step3		
	β	*t*	*p*	*β*	*t*	*p*	*β*	*t*	*p*
age	0.159	2.065	0.040	0.125	1.867	0.064	0.114	1.993	0.048
gender	-0.103	-1.406	0.161	-0.126	-2.008	0.046	-0.164	-3.061	0.003
level of education	-0.137	-1.771	0.078	-0.086	-1.287	0.200	-0.072	-1.267	0.207
PHQ-9				0.057	0.679	0.498	0.073	1.036	0.302
Awareness				-0.087	-1.314	0.191	-0.124	-2.219	0.028
Agreement				0.215	2.949	0.004	0.124	1.987	0.049
Self-concurrence				-0.017	-0.207	0.836	-0.048	-.671	0.503
Shame				-0.095	-0.831	0.407	0.077	0.777	0.438
Self Blame				-0.042	-0.474	0.636	-0.043	-.572	0.568
Social Inadequacy				0.146	1.541	0.125	0.084	1.055	0.293
Help Seeking Inhibition				0.146	1.651	0.101	0.123	1.653	0.100
Self Esteem				-0.008	-0.080	0.937	0.007	0.087	0.931
Negative Affect				0.446	6.306	0.000	0.399	6.622	0.000
Positive Affect				0.133	1.963	0.051	0.116	2.018	0.045
EG							0.524	8.306	0.000
CG1							0.320	5.177	0.000
CG2*							---	---	---
R^2			0.067			0.394			0.577
(R^2 adjusted)			(0.051)			(0.343)			(0.535)
R^2 change			0.067			0.327			0.182
F change			4.223			8.093			35.111
sig F change			0.007			0.000			0.000

PHQ-9 = depression scale of the Patient Health Questionnaire; Awareness = stereotype awareness; Agreement = stereotype agreement; SSMIS = self-stigma of mental illness scale; PANAS = Positive and Negative Affect Schedule of time of measurement 2; EG = dummy variable for groups, experimental group; CG1 = dummy variable for groups, control group 1; CG2 = dummy variable for groups, control group 2; * one less dummy variable is included in the analyses than there are categories of the group.

5.9 Analyses controlled for age, gender, and current depressive symptoms

5.9.1 Multivariate tests controlled for age, gender, and current depressive symptoms

Table 5.6 Results of multivariate tests of general linear models with repeated measures for each outcome variable controlled for age, gender, and current depressive symptoms

	df	df (error)	*F*	*p*	η_p^2
Awareness (SSMIS)					
main effect time	1	174	0.13	0.719	0.001
main effect group	2	174	2.83	0.062	0.031
interaction effect time x group	2	174	0.55	0.578	0.006
Agreement (SSMIS)					
main effect time	1	174	0.25	0.617	0.001
main effect group	2	174	9.98	0.000	0.103
interaction effect time x group	2	174	10.78	0.000	0.110
Self-concurrence (SSMIS)					
main effect time	1	174	0.43	0.514	0.002
main effect group	2	174	2.51	0.085	0.028
interaction effect time x group	2	174	1.66	0.193	0.019
Self Stigma (SSDS-D)					
main effect time	1	174	7.97	0.005	0.044
main effect group	2	174	0.32	0.725	0.004
interaction effect time x group	2	174	0.34	0.711	0.004
Shame					
main effect time	1	174	11.63	0.001	0.063
main effect group	2	174	0.89	0.412	0.010
interaction effect time x group	2	174	0.89	0.411	0.010
Self Blame					
main effect time	1	174	7.39	0.007	0.041
main effect group	2	174	0.88	0.418	0.010
interaction effect time x group	2	174	0.29	0.747	0.003
Social Inadequacy					
main effect time	1	174	1.42	0.236	0.008
main effect group	2	174	0.02	0.982	0.000
interaction effect time x group	2	174	0.10	0.902	0.001
Help Seeking inhibition					
main effect time	1	174	0.04	0.849	0.000
main effect group	2	174	0.08	0.920	0.001
interaction effect time x group	2	174	0.59	0.555	0.007
Self Esteem					
main effect time	1	174	0.63	0.430	0.004
main effect group	2	174	0.22	0.800	0.003
interaction effect time x group	2	174	0.85	0.431	0.010
Negative Affect (PANAS)					
main effect time	1	174	6.80	0.010	0.038
main effect group	2	174	19.46	0.000	0.183
interaction effect time x group	2	174	33.01	0.000	0.275
Positive Affect (PANAS)					
main effect time	1	174	3.07	0.082	0.017
main effect group	2	174	2.47	0.088	0.028
interaction effect time x group	2	174	2.29	0.105	0.026

Awareness = stereotype awareness; Agreement = stereotype agreement; SSMIS = self-stigma of mental illness scale; SSDS-D = Self-Stigma of Depression Scale for people with depression; PANAS = Positive and Negative Affect Schedule.

5.9.2 One-way ANOVAs controlled for age, gender, and current depressive symptoms

Table 5.7 Results of one-way ANOVAs for relevant outcome variables controlled for age, gender, and current depressive symptoms

	df	**df (error)**	***F***	***p***	η_p^2
Change in score of agreement					
age	1	174	0.05	0.825	0.000
gender	1	174	2.76	0.098	0.016
depressive symptoms	1	174	1.86	0.174	0.011
group	2	174	10.78	0.000	0.110
Change in score of negative affect					
age	1	174	6.06	0.015	0.034
gender	1	174	7.20	0.008	0.040
depressive symptoms	1	174	0.23	0.630	0.001
group	2	174	33.01	0.000	0.275

Awareness = stereotype awareness; Agreement = stereotype agreement; SSMIS = self-stigma of mental illness scale; SSDS-D = Self-Stigma of Depression Scale for people with depression; PANAS = Positive and Negative Affect Schedule.

6 GENERAL DISCUSSION

The central aim of this dissertation was to extend current scientific knowledge about effects of potentially stigmatizing media coverage on people with the stigmatized attribute, i.e., people with depressive symptoms. To this end, three empirical studies were conducted which addressed key research gaps regarding this specific target group, namely, an appropriate measurement of experienced self-stigma (pre-study), an empirically tested theoretical model of self-stigma (Study 1), and direct effects of existing media reporting on stigma attitudes, self-esteem, and affectivity (Study 2).

In the following sections, the key findings of these studies will be discussed, and limitations and strengths will be presented to derive an outlook before closing with a general conclusion and contributions of this dissertation.

6.1 Main findings

In the pre-study, all 16 items of the Self-Stigma of Depression Scale were translated into German and changed into indicative. Psychometric properties (i.e., factor structure, internal consistency, and construct validity) were tested in two independent clinical samples of persons with depressive symptoms. In the first sample, the original structure of four factors could be replicated in exploratory factor analyses with the exception of one item. In the second sample, confirmatory factor analyses supported a better fit for the empirically derived than for the alternatively tested original factor structure. As such, the final version of the Self-Stigma of Depression Scale for measuring self-stigmatization of people with depression (SSDS-D) consists of 16 items on four subscales, namely shame (three items), self-blame (five items), social inadequacy (four items), and help seeking inhibition (four items). Internal consistencies of subscales were acceptable to very good ($0.76 \leq \alpha_A \leq 0.89$; $0.74 \leq \alpha_B \leq 0.86$). The construct validity was supported by significant correlations to self-esteem and other self-stigma scales as expected, even when controlled for current depressive symptoms. The SSDS-D fills the research gap of a valid and reliable scale covering experienced self-stigma, specifically of people with depressive symptoms.

Study 1 tested the assumptions of the progressive model of self-stigma (trickle-down effect, higher correlations for proximal than for distal phases) (Corrigan et al., 2011) and its procedural character using a serial mediation model in two samples of people with depression. Analyses indicated a trickle-down effect for the first stage,

only: Significantly higher levels of stereotype awareness were reported compared to personal agreement (Sample A: z=23.307, p<0.001, r=0.70; Sample B: z=11.085, p<0.001, r=0.58) and self-concurrence (Sample A: z=20.768, p<0.001, r=0.63; Sample B: z=10.224, p<0.001, r=0.54). In sum, hypothesis I – postulating stigma attitudes to be endorsed decreasingly with the highest endorsement for stereotype awareness, followed by lower endorsements for each stage – could be supported only partially. This finding is in line with the results of several other studies conducted with samples of students and general population (e.g., Dietrich et al., 2014; Pedersen & Paves, 2014). Respondents' beliefs about the stigmatizing attitudes of others appear to be higher than beliefs and attitudes towards mental illness of oneself. Yet, comparing personal agreement and self-concurrence, results varied in different samples: Personal agreement was rated lower than self-concurrence in the online sample at the significance level of p<0.05 (z=-2.540, p=0.033, r=0.08) but there was no difference in the face-to-face sample (z=-0.861, p=1.000). Corrigan et al. (2011) reported reverse results in a sample of people with schizophrenia with higher endorsements of personal agreement compared to self-concurrence. As discussed in Study 1, sample size differences and diagnosis-specific associations may play a role in these differing findings (Hasan & Musleh, 2017).

Proximal phases were more highly correlated than distal phases, indicating support for hypothesis II – postulating proximal stages to be more strongly associated than more distant stages. There was only one exception: Stereotype awareness was more highly correlated with self-esteem (Sample A: r_S=-0.184, p<0.001; Sample B: r_S=-0.247, p<0.001) than with personal agreement (Sample A: r_S=0.176, p<0.001; Sample B: r_S=0.228, p<0.001) and self-concurrence (Sample A: r_S=0.149, p<0.001; Sample B: r_S=0.163, p<0.001). Stereotype awareness refers to others rather than internalized attitudes. It is therefore often considered as a separate construct of public stigma (Calear et al., 2011; Griffiths et al., 2004) which might explain the comparably weak correlation to personal agreement and self-concurrence.

Most importantly, the procedural character of the model was supported by the results of the serial mediation model in Study 1. The results of the serial mediation model indicated four significant direct pathways: from stereotype awareness to personal agreement (Sample A: β=0.182, t(545)=4.356, p<0.001; Sample B: β=0.237, t(175)=3.186, p<0.01); from personal agreement to self-concurrence (Sample A: β=0.506, t(544)=15.379, p<0.001; Sample B: β=0.417 t(174)=, p<0.001); and from self-

concurrence to self-esteem (Sample A: β=-0.237, t(543)=-5.533, p<0.001; Sample B: β=-0.208, t(173)=-2.903, p<0.001); the primary direct path from stereotype awareness to self-esteem (Sample A: β=-0.067, t(543)=-2.058, p<0.05; Sample B: β=-0.122, t(173)=-2.045, p<0.05) indicated a partial but not full mediation. Neither the direct effect of stereotype awareness on self-concurrence nor the direct effect of personal agreement on self-esteem was significant, indicating that direct associations of distant stages were mediated by proximal stages when integrated into one serial mediation model. Supporting hypothesis III – which postulates that direct associations of distant stages are mediated by proximal stages – the indirect pathway starting from stereotype awareness via personal agreement and then self-concurrence to self-esteem was significant in both samples (estimated indirect effects and 95% bootstrap confidence intervals for Sample A: -0.022 [-0.038, -0.010] and for Sample B: -0.021 [-0.045, -0.005]).

Based on the results of Study 1, the progressive model of self-stigma was applied in Study 2 as theoretical foundation. When testing the effects of SMC on stigma-measures, different stages of self-stigma were considered separately.

Most relevant for this dissertation were the results of group x time interaction effects: The EG indicated higher levels of stereotype agreement (F(2,177)=9.74, p<0.001, η_p^2=0.10) and negative affect (F(2,177) = 31.37, p<0.001, η_p^2=0.26) after watching a film about a negative event referring to depression. The increase in stereotype agreement was significantly higher than in CG1 and CG2 (CG1 – negative event without reference to depression: Mean difference = 5.17, 95% CI=1.69-9.94, p<0.01; CG2 – neutral event referring to depression: Mean difference = 7.05, 95% CI=2.93-11.17, p<0.001). The increase in negative affect was significantly higher in EG than in CG2 (mean difference = 8.83, 95% CI=6.08-11.68, p<0.001) but not in CG1 (mean difference = 2.47, 95% CI=-0.33-5.27, p=0.10). The interaction effect for stereotype agreement was of medium effect size (η=0.10) and the interaction effect for negative affect of large effect size (η=0.26). No interactions could be found for other stigma-measures, self-esteem, or positive affect. Therefore, while hypothesis IV – postulating an increase of the levels of stigma-attitudes and negative affect in persons with the stigmatized attribute after watching potentially stigmatizing media reports – was partially supported by the results, hypothesis V – which postulates a decrease of the levels of self-esteem and positive affect – was not supported by the results. In line with previous research, stereotype awareness seems to be more difficult to influence

than stereotype agreement (Kohls et al., 2017). Contents of film material and familiarity of topics might be factors in explaining the lack of change in stereotype awareness in the present study: Few additional information was added to the respondents in EG1 about the public's attitudes. Besides, the identification with the character presented in the film of EG might not have been strong enough to apply stereotype agreement on oneself, since suicidality was an exclusion criteria for study participation but an unneglectable factor in the film presented. As a consequence, there were no interaction effects on self-concurrence and on SSDS-D subscales or harm-to-self measures.

6.2 Limitations

Findings from all studies must be viewed considering some methodological and content- or scope-related limitations.

Both main studies have shortcomings regarding times of measurement. Study 1 is based on a cross-sectional design. As such, no causal but only correlative effects are allowed for interpretation. Although the procedural character of the model is supported, longitudinal data would be required for predictive statements. Study 2 lacks follow-up measurements to draw conclusions about persistent changes. Instead, only implications for immediate changes after watching the films are possible.

Besides, additional measures would have been of interest in all of the three studies: In the pre-study and in Study 1, measures of external validity, such as risk or protective factors or potential consequences of stigma measures could have given information about the specificity of different stages regarding prevention and treatment programs. In the pre-study and in Study 2, behavioral measures could have indicated actual self-discrimination beyond self-reported attitudes.

Disadvantages of an online sample in the pre-study and in Study 1 – such as self-reported diagnostic criteria – could be overcome in the face-to-face sample by clinical data and a more controlled data collection. Yet, in order to guarantee diagnostic criteria, one limitation of the face-to-face sample indicates a potential selection bias: All participants were currently in treatment. However, the level of help-seeking is negatively related to the level of self-stigma (Clement et al., 2014). Randomization intended to minimize this selection bias but should be controlled for in future studies.

Another major issue regarding the sample of Study 2 was not to include a control group of community samples or patients with other mental illnesses. Based on previous

research (Knesebeck et al., 2015) and the scope of this dissertation, the focus was on people with depression. Nevertheless, none of the results presented here indicate depression specificity. It could be of interest to investigate differential effects of SMC on community samples and samples of different mental illnesses.

Another issue is the difference in familiarity regarding the topics of the films indicated by participants of Study 2. Most participants knew about the event of the Germanwings plane crash and the Fukushima catastrophe but not about the Depression Day Congress. Especially, the SMC condition may cover new information in future research instead of familiar ones.

6.3 Strengths

Besides all of those limitations the studies show several strengths which allow drawing meaningful conclusions. Study 1 was the first to examine the progressive model of self-stigma specifically for people with depression using serial mediation analyses and controlling for current levels of depression in two clinical samples. Gaps of previous research were therefore covered statistically (one integrative analysed model), regarding investigated constructs (self-esteem as partly independent attitude from general depressive symptoms) and with reference to validity (by testing two independent samples). To the authors' knowledge prior to Study 2 there was no research that investigated direct effects of existing SMC on different stigma stages using an experimental randomized controlled trial. Unique contributions lie in the video material used, i.e., news of actual events, two control groups (controlling for potential confounding effects of negative affect or activation of depression schemata) and the perspective from people with the stigmatized attribute, namely depression. The pre-study offered the opportunity to capture depression specific self-stigma in the clinical samples.

6.4 Conclusion and perspective

In synopsis of the studies' results, their limitations and strengths, one can conclude that the progressive model of self-stigma can be applied to persons with diagnosed depression. It offers a process oriented foundation for stigma research pointing out different stages of stigma to be distinguished. Catalano, Brown, Lucksted, Hack, and Drapalski (2021) report similar results in a sample of veterans with serious mental illness: The same partially mediating pathway was supported by their study as

reported in this dissertation. They conclude that self-esteem may be harmed both by perceived public stigma and by internalizing SMC. Yu, Chio, Mak, Corrigan, and Chan (2021) synthesized findings on the progressive model of self-stigma across cultures. Again, their recent meta-analytic results indicate self-concurrence to partially mediate between stereotype awareness and stereotype agreement to well-being and recovery variables.

In line with these findings on the investigated model, future research may expand the analyses of differential effects on specific stages of self-stigma, which demand differential consideration of prediction, consequences, and potential interventions for the reduction of stigma aspects. Risk factors, for example self-criticism (Aruta, Antazo, & Paceño, 2021) or cultural values (Tan Tee Hng et al., 2020), and protective factors, such as emotional clarity, cognitive appraisal, coping responses (compare Wang et al., 2016),), and a variety of outcomes, e.g., self-discrimination, recovery attitudes (see Rüsch et al., 2009) may be added to the model.

To end, the value this research project adds to practice is not to be neglected: The results of this dissertation offer empirical evidence, which can be referred to in discussions about news on events related to depression. There was an effect of SMC on stereotype agreement and on negative affect in persons carrying the stigmatized attribute, i.e., depression. The development of innovative tools such as participatory videos is promising (Whitley, Sitter, Adamson, & Carmichael, 2020). Initiatives targeting anti-stigmatizing education of journalists and film producers are indispensable (see https://www.seelischegesundheit.net/presse/fair-media). Awareness campaigns in Germany and worldwide should continue fighting stigmatization of depression in media coverage and evaluate their impact: For this purpose, the results of this dissertation provide an instrument of good psychometric properties (Göpfert et al., 2019), empirical support of a theoretical model of self-stigma (Göpfert et al., 2019a), and considerable arguments for the need of change (Göpfert et al., 2019b).

7 SUMMARY

Depression is a leading cause of ill health and disability. More than 300 million people worldwide and four million people in Germany are living with depressive symptoms. Depression can be treated effectively. Yet, one main barrier to take up professional support is stigmatization and self-stigma. Self-stigma in turn is positively related to suicidal behavior and negatively related to protective factors such as professional help-seeking and self-esteem. Therefore, self-stigma should be reduced. There is an ongoing debate about the impact of news with potentially stigmatizing content on people with depression. Against this background, one pre-study and two main studies aimed at building an empirical foundation for future evidenced based practice concerning media coverage and stigmatization of people with mental illness, i.e., depression.

At first, an appropriate instrument for measuring the current level of self-stigma of people with depressive symptoms was required. The original 16-item Self-Stigma of Depression Scale was developed to measure anticipated self-stigma hypothetically in case of depression. In clinical samples, measuring actual experienced instead of hypothetical self-stigma may be more appropriate. Therefore, a pre-study aimed at changing all 16 items into German indicative and testing factor structure, internal consistency and construct validity in two independent clinical samples (n_A=550; n_B=180). The original structure of four factors (representing Shame, Self-Blame, Help-Seeking Inhibition, and Social Inadequacy) could be replicated in exploratory factor analyses with the exception of one item in Sample A. In Sample B, this empirically derived structure indicated a better fit than the alternatively tested original factor structure. Internal consistencies of subscales were satisfying to very good. Controlled for current depressive symptoms, there were significant correlations to self-esteem and other self-stigma scales as expected, supporting the construct validity. The adapted Self-Stigma of Depression Scale appears to be a valid and reliable scale for experienced self-stigma of people with depression. It therefore can be used in clinical samples to identify correlates, test theoretical models and the effectiveness of interventions.

Second, a theoretical model of self-stigma specifically for people with depressive symptoms was tested in Study 1. The progressive model of self-stigma describes four stages of internalizing stereotypes of mental illness: Stereotype

awareness, personal agreement, self-concurrence, and harm-to-self, i.e., self-esteem. The aim of Study 1 was to test the procedural character of the progressive model of self-stigma by one serial mediation model in two independent samples of people with at least one pre-diagnosed depressive episode or dysthymia. A cross-sectional computer-based survey was conducted in one online sample (n_A=550) and one clinical face-to-face sample (n_B=180). The PROCESS procedure for SPSS Version 3.00 was used for mediation analyses. The results support the progressive model of self-stigma in people with depression in most respects. Endorsements for stereotype awareness were higher than for personal agreement and self-concurrence; no relevant difference was found between personal agreement and self-concurrence. Successive stages had the strongest associations, with the exception of the association between stereotype awareness and self-esteem, which was higher than the association between stereotype awareness and personal agreement and self-concurrence. The association between stereotype awareness and self-esteem was partially mediated via personal agreement and self-concurrence. In sum, the progressive model of self-stigma offers a theoretical foundation for the process research of self-stigma.

Study 2 applies the progressive model of self-stigma and gives insights into direct effects of potentially stigmatizing media reporting on people with depression, namely changes in levels of stigma stages, positive and negative affect, and self-esteem. In an experimental controlled trial of 180 patients with a clinical diagnosis of depressive episode or dysthymia, participants watched a short film on either a negative event relating to depression (experimental group), about a negative event without relation to depression (control group 1), or about a neutral event relating to depression (control group 2). General linear models with repeated-measures and one-way ANOVAs of the change in scores, followed by Bonferroni-adjusted pairwise comparisons using IBM SPSS Statistics 24.0, indicated significant group × time interactions in stereotype agreement and negative affect. As such, even single short film presentations of familiar events that contain stigmatizing content increase the level of stigma measures (i.e., stereotype agreement) and negative affect in stigma carriers.

Nevertheless, longitudinal research on and long-term exposure to media coverage is needed to investigate predictive effects, consequences and potential interventions on people with depression, considering different stages of stigma separately for a deeper understanding of self-stigma processes.

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9 VALIDIERUNG EINER DEUTSCHEN, ADAPTIERTEN FASSUNG DER SELF-STIGMA OF DEPRESSION SCALE (SSDS) ZUR MESSUNG VON SELBSTSTIGMATISIERUNG BEI PERSONEN MIT DEPRESSION (SSDS-D)

An adapted version of this chapter has been published as ‘Göpfert, N. C.[6], Lehr, K.[6], Zillich, L.[6], von Heydendorff, S. C.[7], Dreßing, H.[8], & Bailer, J.[6] (2019). Validierung einer deutschen, adaptierten Fassung der Self-Stigma of Depression Scale (SSDS) zur Messung von Selbststigmatisierung bei Personen mit Depression (SSDS-D). [Validation of a German Adaptation of the Self-Stigma of Depression Scale (SSDS) for Measuring Self-Stigmatization of People with Depression (SSDS-D)]. *Psychotherapie, Psychosomatik, Medizinische Psychologie, 69*(11), 462-470. doi:10.1055/a-0838-4953‘.

9.1 Zusammenfassung

Die Self-Stigma of Depression Scale (SSDS) erfasst mit 16 Items das von der befragten Person antizipierte Selbststigma für den hypothetischen Fall, dass sie eine Depression hätte. Für die Befragung von Patienten ist die Erfassung des tatsächlich erlebten Selbststigmas sinnvoller. Ziel der Studie war folglich die Entwicklung und Validierung einer Patientenversion der SSDS, um das erlebte Selbststigma bei Personen mit Depression adäquat erfassen zu können.

Alle Items wurden neu übersetzt und in den Indikativ gesetzt. Die Skala wurde Self-Stigma of Depression Scale für Personen mit Depression genannt und mit SSDS-D (D für Depression) abgekürzt. Faktorstruktur, interne Konsistenz sowie Konstruktvalidität wurden in zwei unabhängigen klinischen Stichproben (N_A=550; N_B=180) an Personen mit Depression überprüft.

In Stichprobe A konnte – mit Ausnahme eines Items – die Originalstruktur mit den vier Faktoren Scham, Eigene Schuldzuschreibung, Hemmungen bei Hilfesuche und Soziale Unzulänglichkeit mittels explorativer Faktorenanalyse repliziert werden. Konfirmatorische Faktorenanalysen in Stichprobe B führten bei dem empirisch

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hergeleiteten Modell zu einem deskriptiv besseren Fit als beim alternativ getesteten Originalmodell. Die interne Konsistenz der neu gebildeten SSDS-D-Subskalen war zufriedenstellend bis sehr gut. Kontrolliert für Depressivität fanden sich erwartungskonforme Zusammenhänge der SSDS-D mit Selbstwert und anderen Selbststigma-Skalen, was die Konstruktvalidität der SSDS-D belegt.

Die SSDS-D erwies sich als valides und reliables Instrument zur Erfassung von erlebtem Selbststigma bei Personen mit Depression. Sie kann bei klinischen Stichproben genutzt werden, um Korrelate von Selbststigma zu identifizieren und theoretische Modelle sowie die Wirksamkeit von Interventionen zu testen.

Schlüsselwörter: Depression, Selbststigma, Self-Stigma of Depression Scale, Self-Stigma of Mental Illness Scale

9.2 Abstract

The 16-item Self-Stigma of Depression Scale (SSDS) was developed to measure anticipated self-stigma hypothetically in case of depression. It is perfect for assessing anticipated self-stigma in community samples. However, in clinical samples measuring actual experienced instead of hypothetical self-stigma may be more appropriate. Aims of this study were the adaptation and validation of the SSDS specifically for people with depression. The abbreviation SSDS-D will be used in the following (D for depression) for this adapted version.

All 16 items were translated into German and changed into indicative. Factor structure, internal consistency and construct validity were tested in two independent clinical samples (n_A=550; n_B=180).

In Sample A, the original structure of four factors (representing Shame, Self-Blame, Help-Seeking Inhibition, and Social Inadequacy) could be replicated in exploratory factor analyses with the exception of one item. In sample B, confirmatory factor analyses indicated a better fit for the empirically derived than for the alternatively tested original factor structure. Internal consistencies of subscales were satisfying to very good. Even controlled for current depressive symptoms, there were significant correlations to self-esteem and other self-stigma scales as expected, supporting the construct validity of SSDS-D.

The SSDS-D appears to be a valid and reliable scale covering experienced self-stigma of people with depression. It may be used in clinical samples to identify correlates, test theoretical models, and the efficacy of interventions.

Keywords: Depression, Self-Stigma, Self-Stigma of Depression Scale, Self-Stigma of Mental Illness Scale

9.3 Einleitung

Die Weltgesundheitsorganisation benennt Depression als bedeutendsten Einzelfaktor für psychische Gesundheitsprobleme (2012). Nach Schätzungen sind weltweit über 300 Millionen, in Deutschland über vier Millionen Menschen daran erkrankt (Weltgesundheitsorganisation, 2017). Gleichzeitig scheint die Stigmatisierung von Menschen mit psychischen Erkrankungen trotz einiger Aufklärungskampagnen in Deutschland zuzunehmen (Angermeyer, Matschinger, & Schomerus, 2013). Das Merkmal „Depression“ wird häufig im Zusammenhang mit negativen Bewertungen genannt: So seien an Depression erkrankte Personen schwach, unberechenbar, gefährlich und selbst schuld an ihrer Situation (Angermeyer et al., 2013; Conrad von Heydendorff, Meyer-Lindenberg, & Dressing, 2016). Solche negativen Meinungen der Allgemeinbevölkerung (Stereotypen), Zustimmung zu diesen Meinungen (Vorurteile) und Verhaltensreaktionen auf diese Vorurteile (Diskriminierung) werden unter dem Konzept öffentlicher Stigmatisierung zusammengefasst (Rüsch, Angermeyer, & Corrigan, 2005). Wenn Individuen, die zur stigmatisierten Gruppe gehören, stigmatisierende Einstellungen gegen sich selbst wenden, spricht man von Selbststigma (Corrigan & Watson, 2002). Corrigan, Rafacz und Rüsch beschreiben vier Phasen, die Menschen zur Internalisierung öffentlicher Stigmatisierung durchlaufen (2011): Von der Wahrnehmung öffentlicher Stigmatisierung kommt es über die Zustimmung zu stigmatisierenden Aussagen, zu negativen Meinungen über sich selbst und einem niedrigen Selbstwert. Selbststigma bezüglich psychischer Erkrankungen im Allgemeinen steht in negativem Zusammenhang mit Wohlbefinden (Cruwys & Gunaseelan, 2016), Aufsuchen professioneller Unterstützung (Schnyder, Panczak, Groth, & Schultze-Lutter, 2017) und Selbstwert (Corrigan, Watson, & Barr, 2006) sowie in positivem Zusammenhang mit suizidalem Verhalten (Campo-Arias & Herazo, 2015). Ein gesundheitspolitisches Ziel ist es, Selbststigma bei Personen mit Depression zu reduzieren. Um entsprechende Interventionen evaluieren zu können, werden spezifische Messinstrumente zur Erfassung von Selbststigma bei Personen mit Depression benötigt.

9.3.1 Self-Stigma of Depression Scale (SSDS)

Die SSDS stellt die erste Skala dar, welche diagnosespezifisch das antizipierte Selbststigma bei Erkrankung an einer Depression erfasst (Barney, Griffiths, Christensen, & Jorm, 2010). Es wird gefragt, wie man darüber denken oder sich fühlen würde, wenn man depressiv wäre. Um ein gemeinsames Verständnis von Depression für alle Befragten zu generieren, wird eine Vignette mit der Beschreibung einer Person mit diagnostizierter Depression vorgegeben. Die SSDS besteht aus 16 Items verteilt auf vier Subskalen (je vier Items): Scham (α=0,83; z. B. „I would feel ashamed“), Eigene Schuldzuschreibung (α=0,78; z. B. „I would think I only had to blame myself“), Hemmungen bei Hilfesuche (α=0,79; z. B. „I would feel embarassed about seeking professional help for depression“), Soziale Unzulänglichkeit (α=0,79; z. B. „I would feel inadequate around other people“). Alle Items sind im Konjunktiv formuliert. Zusammenhänge zu wahrgenommener sozialer Distanz, Wahrscheinlichkeit zur Hilfesuche, Depressivität und Selbstwert wurden berichtet. Durch die hypothetische Formulierung kann die Skala in Stichproben unabhängig einer bereits erlebten depressiven Erkrankung eingesetzt werden. Die Autoren schlagen vor, die Items für stationäre Settings anzupassen, um Betroffene direkt nach ihren selbststigmatisierenden Einstellungen zu fragen (Barney et al., 2010). In der Validierungsstudie einer deutschen Übersetzung der SSDS wurde die Formulierung im Konjunktiv beibehalten, das Antwortformat als vierstufige Likert-Skala mit Residualkategorie vorgegeben (Makowski, Mnich, & von dem Knesebeck, 2018). Die Ergebnisse deuteten auf eine drei-faktorielle Lösung hin. Im Gegensatz zur englischen Originalversion wurden bei der deutschen Befragung Unterschiede im Antwortverhalten von Personen mit und ohne Depression gefunden. Mögliche Erklärungen der abweichenden Ergebnisse zur englischen Version könnten in der Änderung des Antwortformats und in Unterschieden hinsichtlich der Stichprobenmerkmale gelegen haben (Makowski et al., 2018). Auch Makowski et al. empfehlen eine Umformulierung der Items für ein besseres Verständnis negativer Reaktionen gegen sich selbst (2018).

9.3.2 Ziel der Studie

Zwar kann in die Beantwortung der im Konjunktiv formulierten Fragen die eigene Erfahrung mit einfließen, wie hoch das Ausmaß der internalisierten

Einstellungen aber gegenüber sich selbst ist, kann nicht herausgefiltert werden (Crocker & Lutsky, 1986). Ziel der Studie war daher die Entwicklung einer adaptierten Version der SSDS speziell für Personen mit Depression (SSDS-D) zur direkten Erfassung des tatsächlich erlebten Selbststigmas. Die Faktorstruktur sollte in einer klinischen Stichprobe explorativ ermittelt und in einer zweiten Stichprobe kreuzvalidiert werden. Abschließend wurde angestrebt, psychometrische Kennwerte zu ermitteln sowie die konvergente Validität und den Einfluss soziodemografischer Merkmale zu untersuchen.

9.4 Material und Methoden

9.4.1 Prozedere

Grundlage der SSDS-D bildete die englische Originalskala (Barney et al., 2010). Nach Einholung der Genehmigung von Professor Griffiths wurde die SSDS im Rahmen einer Konsensdiskussion von unserem Forschungsteam (JB, NCG, LZ)[9] ins Deutsche übersetzt und in den Indikativ gesetzt (z. B. „I would feel ashamed" wurde zu „Ich schäme mich dafür"). Anstelle einer Fall-Vignette wurde direkt gefragt, inwiefern Teilnehmende selbststigmatisierenden Einstellungen zustimmten. Die SSDS-D weicht in der Einleitung, der Wortwahl und der grammatischen Struktur von der veröffentlichten deutschsprachigen Version der SSDS ab (Makowski et al., 2018). Entsprechend der englischen SSDS werden die Aussagen auf einer Skala von 1 (stimme gar nicht zu) bis 5 (stimme voll und ganz zu) beurteilt. Es können Gesamt- und Subskalenmittelwerte mit einem Wertebereich von 1 bis 5 gebildet werden. Höhere Werte bedeuten ein höheres Ausmaß an erlebtem Selbststigma.

9.4.2 Stichproben

Von 3/2017 bis 7/2018 war der Fragebogen für Stichprobe A online verfügbar. Der Link zur Befragung wurde über zielgruppenspezifische Foren (www.psychologieforum.de, Webseite der Deutschen Depressionsliga, Webseite des Zentralinstituts für Seelische Gesundheit) und Probandenaufrufe verbreitet. Die Umfrage wurde automatisch bei der Angabe beendet, im bisherigen Leben keine depressive Episode diagnostiziert bekommen zu haben. Die Teilnehmenden wurden

[9] JB: Professor für Klinische Psychologie; NCG: Doktorandin im Fach Klinische Psychologie; LZ: Bachelorstudentin im Fach Psychologie

vor Beginn der Befragung schriftlich über Ziele, Freiwilligkeit der Teilnahme und Ablauf der Befragung informiert. Ihre Einwilligung wurde eingeholt. Der Fragebogen wurde 849mal aufgerufen. 662 Personen nahmen bis zum Ende teil, 557 gaben eine vordiagnostizierte Depression an. Nach Ausschluss von Datensätzen mit auffälligen Antwortmustern verblieb ein Analyse-Datensatz von 550 Personen.

Stichprobe B entstammte dem Forschungsprojekt „Auswirkungen medialer Berichterstattung auf Selbststigmatisierung bei Personen mit Depression“[10]. Die Rekrutierungsphase erstreckte sich von 3/2017 bis 7/2018. Ärzte und Psychologische Psychotherapeuten verteilten Flyer an geeignete Patienten. Einschlusskriterien waren ein Alter von 18-70 Jahren, mindestens eine depressive Episode oder Dysthymie, ausreichend kognitive Fähigkeiten und deutsche Sprachkenntnisse. Ausschlusskriterien waren akute psychotische Symptomatik, Suchtsymptomatik, Manie oder Hypomanie sowie akute Suizidalität. 202 Personen wurden für die Studie gescreent. 186 Personen wurden für die Studienteilnahme gewonnen. Aus technischen Gründen konnten sechs Datensätze nicht ausgewertet werden. Für die Studienteilnahme gab es eine Aufwandsentschädigung von 20€. Ein positives Ethikvotum der lokalen Ethikkommission liegt vor (Studie: 2016-655N-MA).

9.4.3 Instrumente

9.4.3.1 Self-Stigma of Mental Illness Scale (SSMIS)

Zur Konstruktvalidierung wurden die ersten drei SSMIS-Skalen mit jeweils zehn Items eingesetzt (Corrigan et al., 2006; Deutsche Version von Rüsch und Brück, publiziert in Schiel, 2005). Corrigan, Raffacz und Rüsch postulieren vier Phasen, die mit Hilfe von vier SSMIS-Skalen erfasst werden können (Corrigan et al., 2011): 1) Wahrnehmung, welche Einstellungen die meisten Leute der Allgemeinbevölkerung über Personen mit psychischen Erkrankungen haben (öffentliche Stigmatisierung, SSMIS-Pub, z. B. „Ich denke, die Öffentlichkeit glaubt, die meisten Menschen mit einer psychischen Erkrankung sind schuld an ihren Problemen“); 2) eigene Zustimmung zu diesen Annahmen (SSMIS-Per, z. B. „Ich denke, die meisten Menschen mit einer psychischen Erkrankung sind schuld an ihren Problemen“); 3) Bezug der Annahmen auf sich selbst (Selbststigma, SSMIS-Selbst, z. B. „Weil ich eine psychische

[10] Die Studie ist im Deutschen Register Klinischer Studien registriert (retrospektiv am 23.06.2017): DRKS00011855.

Erkrankung habe, bin ich schuld an meinen Problemen“). Da bereits eine Selbstwertskala in unserer Fragebogenbatterie enthalten war, wurde die SSMIS-Skala zu Selbstwertaspekten ausgespart. Das Antwortformat zu jeder Aussage wurde auf einer Skala von 1 = „stimme überhaupt nicht zu“ bis 9 = „stimme völlig zu“ vorgegeben. Hohe Werte bedeuten eine stark ausgeprägte Stigmatisierung. Chronbachs α lag zwischen α=0,81 und α=0,91 (SSMIS-Pub: α_A=0,91, α_B=0,91; SSMIS-Per: α_A=0,85, α_B=0,87; SSMIS-Selbst: α_A=0,84 α_B=0,81). In Anlehnung an Corrigans Modell wurde angenommen, dass aufeinander folgende SSMIS-Skalen höher miteinander korrelieren als weiter auseinandergelegene. Ferner sollten die SSDS-D-Subskalen am höchsten mit SSMIS-Selbst und am niedrigsten mit SSMIS-Pub korrelieren.

9.4.3.2 Selbstwert

Ein reduzierter Selbstwert wurde in der Vergangenheit als direkte Folge von Selbststigma postuliert und mit der 10 Item umfassenden Selbstwertskala von Collani und Herzberg in die Erhebung aufgenommen (Collani & Herzberg, 2003; Corrigan et al., 2006). Hohe Werte bedeuten eine hohe Ausprägung des Selbstwerts. Die interne Konsistenz der Skala betrug α_A=0,91 und α_B=0,87. Es wurde erwartet, dass hohe SSDS-D-Werte mit niedrigem Selbstwert einhergehen.

9.4.3.3 Depressionsskala

Die aktuelle Depressivität wurde mit der Depressionsskala (PHQ-9) des Gesundheitsfragebogens für Patienten erfasst (Löwe, Spitzer, Zipfel, & Herzog, 2002). Die neun Items erfragen die Schwere der aktuellen Depressivität. Hohe Werte deuten auf eine schwerere Depressivität hin. In der vorliegenden Studie hatte Cronbachs α einen Wert von α_A=0,86 und α_B=0,84. Es wurde erwartet, dass hohe SSDS-D-Werte mit hoher Depressivität einhergehen (Livingston & Boyd, 2010; Rüsch et al., 2005).

9.4.4 Statistische Analysen

Um die Faktorenstruktur der SSDS-D zu untersuchen, wurden in Stichprobe A explorative Faktorenanalysen durchgeführt. Die Anzahl der zu extrahierenden Faktoren wurde mittels Velicer‘s Minimum-Average-Partial-Testes (MAP-Test), einer Parallelanalyse sowie eines Scree-Tests ermittelt und anhand von Hauptachsenanalysen mit Promax-Rotation mit Vorgabe von drei bzw. vier Faktoren bestätigt. Da eine Korrelation zwischen den vier SSDS-D-Subskalen angenommen

werden konnte, wurde eine schiefwinklige Rotation gewählt (Bühner, 2006). In Stichprobe B wurde die explorativ ermittelte Struktur mittels konfirmatorischen Faktorenanalysen basierend auf der Schätzung von Diagonally Weighted Least Squares (DWLS) mit ordinalskalierten Daten kreuzvalidiert und mit der Originalstruktur der SSDS deskriptiv verglichen. Nach Empfehlungen von Schermelleh-Engel, Moosbrugger und Müller wurden folgende Fit-Indices herangezogen, um die Anpassungsgüte der Modellstrukturen an die empirischen Daten zu beurteilen (2003): Chiquadrat-Anpassungstest (akzeptabler Modellfit bei $p>0,05$), Comparative Fit Index (CFI; guter Modellfit bei CFI≥0,97), Tucker Lewis Index (TLI; guter Modellfit bei TLI≥0,97), Root Mean Square Error of Approximation (RMSEA; akzeptabler Modellfit bei 0,05<RMSEA≤0,10), Standardized Root Mean Square Residual (SRMR; akzeptabler Modellfit bei 0,05<SRMR≤0,10).

Die Faktorenstruktur des finalen Modells wurde zur Bildung von Subskalen herangezogen. Als Indikator der Reliabilität wurde die interne Konsistenz mittels Cronbachs α gewählt: Nach Corina konnte bei α>0,7 von einer akzeptablen, nach Bühner bei α>0,8 von einer guten internen Konsistenz ausgegangen werden (Bühner, 2006; Cortina, 1993). Anschließend wurden deskriptive Kennwerte auf Item- und Subskalenebene sowie korrelative Analysen mit den oben genannten Skalen berechnet. Da aktuelle Depressivität per se mit negativen Kognitionen, Schuldgefühlen und einem verringerten Selbstwert einhergeht, wurden zusätzlich Partialkorrelationen bestimmt. Zusammenhänge zwischen den SSDS-D-Subskalen und soziodemografischen Merkmalen wurden untersucht. Unterschiede zwischen den Stichprobencharakteristika wurden mittels Kreuztabellen und univariaten Varianzanalysen ermittelt. Die Faktorenanalysen erfolgten mittels R 3.4.1, andere Analysen mittels IBM SPSS Statistics Version 24.

9.5 Ergebnisse

9.5.1 Stichprobenbeschreibung

Tabelle 9.1 Soziodemographische und krankheitsbezogene Merkmale

	Stichprobe A	**Stichprobe B**
Stichprobenumfang (*N*)	550	180
Alter in Jahren (Mittelwert, Standardabweichung)	37,3 (13,2)	38,8 (12,6)
Geschlecht (weiblich) (%)	83,8	58,9
Familienstand (%)		
Ledig	46,7	50,0
eingetragene Lebenspartnerschaft	26,5	25,0
in Partnerschaft	40,9	33,9
Bildung (%)		
weniger als 12 Jahre Schulbildung	33,1	57,2
12 oder mehr Jahre Schulbildung	66,9	42,8
Aktuelle psychotherapeutische/ psychiatrische Behandlung (%)		
ambulant	71,5	50,0
stationär	3,5	50,0
Aktuelle Depressivität (PHQ-9) (%)		
keine	7,1	1,7
milder Schweregrad	12,0	23,3
mittelgradiger Schweregrad	25,3	29,4
ausgeprägter Schweregrad	30,9	27,8
schwerster Schweregrad	24,7	17,8
Irgendeine diagnostizierte Depression (life time) (%)	100,0	100,0
Aktuelle Behandlungsdiagnose nach ICD-10 (%)		
Majore depressive Episode	k.A.	30,0
Rezidivierende depressive Störung	k.A.	60,0
Dysthymie	k.A.	3,3
sonstige depressive Episode	k.A.	6,7

PHQ-9 = Patient Health Questionnaire 9; k.A = keine Angaben. Publiziert in: Göpfert et al. (2019)

Die Teilnehmenden der Stichprobe A waren im Durchschnitt 37,3 Jahre alt, überwiegend weiblich (83,8%), ledig (46,7%), höher gebildet (66,9%) und in ambulanter Behandlung (71,5%). 3,5% der Teilnehmenden waren in stationärer Behandlung, 25% weder in ambulanter noch stationärer Behandlung (Tabelle 9.1).

In Stichprobe B lag das mittlere Alter bei 38,8 Jahren, 58,9% waren weiblich, 50,0% ledig und 42,8% verfügten über eine höhere Schulbildung (Tabelle 9.1). Alle Teilnehmenden waren in stationärer psychiatrischer (50,0%) oder ambulanter

psychotherapeutischer (50,0%) Behandlung. Die häufigste Diagnose (nach ICD 10) war die einer rezidivierenden depressiven Störung (60,0%), gefolgt von erstmaliger depressiver Episode (30,0%), Dysthymie (3,3%) sowie einer sonstigen depressiven Episode (6,7%).

Die beiden Stichproben unterschieden sich signifikant hinsichtlich Schulbildung ($\chi^2_{(730)}$=33,18; p<0,001; in Stichprobe A häufiger höhere Schulbildung), Geschlecht ($\chi^2_{(730)}$=48,60; p<0,001; in Stichprobe A häufiger weibliche Teilnehmende) und aktueller Behandlung ($\chi^2_{(730)}$=55,69; p<0,001; in Stichprobe A häufiger keine Behandlung). Auf den SSDS-D-Subskalen Scham (F(1,728)=5,72; p=0,02), Hemmungen bei Hilfesuche (F(1,728)=5,83; p=0,02) und Soziale Unzulänglichkeit (F(1,728)=35,04) sowie auf der Skala SSMIS-Pub (F(1,728)=14,91; p<0,001) wies Stichprobe B niedrigere Werte auf als Stichprobe A.

9.5.2 Faktorenanalysen

Die Voraussetzungen für eine explorative Faktorenanalyse waren in Stichprobe A mit einem Kaiser-Meyer-Olkin-Kriterium=0,91 und einem signifikanten Bartlett-Test auf Sphärizität mit $\chi^2_{(120)}$=5431,293 (p<0,001) gegeben (Kaiser & Rice, 1974).

9.5.2.1 Explorative Hauptachsenanalysen

Für Stichprobe A schlug die Originalversion des MAP-Tests vier und die revidierte Fassung des MAP-Tests drei Faktoren vor (Velicer, 1976; Velicer, Eaton, & Fava, 2000). Die Parallelanalyse wies auf eine vier-faktorielle, der Scree-Test auf eine drei-faktorielle Lösung hin. Aufgrund dieser Ergebnisse wurden zwei Hauptachsenanalysen mit Promax-Rotation unter Vorgabe der Anzahl von drei bzw. vier Faktoren durchgeführt. In der drei-faktoriellen Lösung wies Item 3 Ladungen auf zwei Faktoren auf (0,40; 0,34). 59,2% der Varianz wurden durch das Modell aufgeklärt. In der vier-faktoriellen Lösung ließ sich, mit Ausnahme von Item 4, die Originalstruktur mit einer Varianzaufklärung von 63,7% replizieren (Tabelle 9.2) (Barney et al., 2010).

Tabelle 9.2 Hauptachsenanalyse der 16 Items der SSDS-D mit Promax-Rotation (N_A=550).

Nr.⁺	Item	Skala[1]	Faktor 1	Faktor 2	Faktor 3	Faktor 4	h^2
1	Ich schäme mich dafür.	SC	-0,027	-0,094	**0,934**	0,070	0,84
2	Es ist mir peinlich.	SC	-0,100	-0,082	**0,809**	0,216	0,73
3	Ich fühle mich deshalb anderen gegenüber minderwertig.	SC	0,144	0,171	**0,682**	-0,148	0,65
4	Ich bin von mir enttäuscht.	SC	**0,649**	0,069	0,257	-0,124	0,67
5	Ich sollte im Leben besser zurechtkommen.	ES	**0,849**	-0,006	0,084	-0,117	0,71
6	Ich sollte es schaffen, mich zusammenzureißen.	ES	**0,924**	-0,017	-0,120	0,052	0,75
7	Ich sollte stärker sein.	ES	**0,985**	-0,099	-0,148	0,012	0,70
8	Ich gebe mir selbst die Schuld dafür.	ES	**0,456**	0,034	0,182	0,100	0,47
9	Es ist mir peinlich, wegen Depression professionelle Hilfe in Anspruch zu nehmen.	HE	0,003	0,025	-0,085	**0,758**	0,52
10	Es ist mir peinlich, wenn andere wissen, dass ich wegen Depression professionelle Hilfe in Anspruch nehme.	HE	-0,188	-0,082	0,134	**0,917**	0,78
11	Ich finde es schwach von mir, dass ich Antidepressiva einnehme.	HE	0,197	0,047	0,028	**0,366**	0,31
12	Ich möchte nicht, dass andere wissen, dass ich nicht zurechtkomme.	HE	0,138	0,117	0,091	**0,421**	0,43
13	Ich habe das Gefühl, sozial nicht viel beitragen zu können.	SO	0,055	**0,795**	-0,069	-0,005	0,63
14	Ich fühle mich unter anderen Leuten unzulänglich.	SO	-0,149	**0,854**	0,122	-0,015	0,67
15	Ich habe das Gefühl, keine gute Gesellschaft zu sein.	SO	-0,101	**0,970**	-0,070	0,024	0,78
16	Ich habe das Gefühl, für andere eine Last zu sein.	SO	0,173	**0,630**	-0,058	-0,001	0,52
	Eigenwerte		3,363	2,784	2,196	1,843	
	durch Faktor erklärte Varianzanteile		0,210	0,174	0,137	0,115	
	kumulative Varianzanteile		0,210	0,384	0,521	0,637	

Instruktion: „Welche Einstellungen haben Sie im Allgemeinen bezüglich Ihrer Depression?“ SC = Scham, ES = eigene Schuldzuschreibung, HE = Hemmungen bei Hilfesuche, SO = Soziale Unzulänglichkeit; h^2 = Kommunalitäten nach Extraktion; ⁺ Reihenfolge der Items und Zuordnung zu den vier Original-Subskalen entsprechend Tabelle 1 aus Barney et al. (2010). Publiziert in: Göpfert et al. (2019)

Aufgrund der eindeutigen Zuordnung der Items zu den Faktoren und der höheren Varianzaufklärung wurden die weiteren Analysen nur für die vier-faktorielle Struktur ausgeführt. Item 4 („Ich bin von mir enttäuscht.“) wies die höchste Faktorladung auf dem Faktor Eigene Schuldzuschreibung auf (0,6) und nicht auf dem Faktor Scham (0,3). Die Eigenwerte der vier Faktoren waren >1,8. Trotz teilweise niedriger Kommunalitäten von h^2=0,31 und geringer Variablenbesetzung (3-5 Items) kann aufgrund der großen Stichprobe (N>500) von einer stabilen Faktorenlösung ausgegangen werden (Bühner, 2006).

9.5.2.2 Konfirmatorische Faktorenanalyse

Mittels konfirmatorischer Faktorenanalyse wurde in Stichprobe B die empirisch hergeleitete Struktur auf seine Passung überprüft und gegen das theoretisch hergeleitete Modell der englischen Originalskala getestet (Tabelle 9.3). Der Modellfit für das empirisch hergeleitete Modell konnte anhand der DWLS als akzeptabel bis gut bewertet werden ($\chi^2_{(98)}$=195,797, p<0,001; χ^2/df=1,998; CFI=0,992; TLI=0,990; RMSEA=0,075; SRMR=0,069) (Schermelleh-Engel et al., 2003). Die Nützlichkeit des Chi-Quadrat Tests wurde in der Vergangenheit angezweifelt (Schermelleh-Engel et al., 2003). Stattdessen solle man den Chi-Quadrat Test nicht statistisch sondern deskriptiv interpretieren: Für 0<χ^2<2df und χ^2/df<2 kann von einem guten Fit, für 2<χ^2<3df und χ^2/df<3 von einem akzeptablen Fit gesprochen werden (Schermelleh-Engel et al., 2003).

Tabelle 9.3 Anpassungsgüte für das empirisch hergeleitete sowie für das Original-Modell der SSDS-D (N_B=180)

	χ^2	df	p	χ^2/df	CFI	TLI	RMSEA	SRMR
empirisch hergeleitetes 4-Faktoren-Modell								
DWLS	195,797	98	0,000	1,998	0,992	0,990	0,075	0,069
theoretisch hergeleitetes 4-Faktoren-Modell								
DWLS	209,080	98	0,000	2,133	0,991	0,989	0,080	0,072
Grenzwert	0 ≤ χ^2 ≤ 3df		>0,05	<3,00	≥0,97	≥0,97	≤0,08	<0,10

DWLS = diagonally weighted least square; df = Freiheitsgrade; CFI = comparative fit index; TLI = Tucker Lewis index; RMSEA = root mean error of approximation; SRMR = standardized root mean square residual. Publiziert in: Göpfert et al. (2019)

Das Originalmodell wies ebenfalls akzeptable bis gute Modellfits der DWLS auf ($\chi^2_{(98)}$=209,080, p<0,001; χ^2/df=2,133; CFI=0,991; TLI=0,989; RMSEA=0,080; SRMR=0,072). Da es sich bei den beiden Modellen weder um geschachtelte Modelle

handelte noch eine unterschiedliche Anzahl an Freiheitsgraden vorlag, wurden die Ergebnisse deskriptiv verglichen. Das empirisch hergeleitete Modell wies bessere Werte auf als das Originalmodell, sodass die folgenden Analysen sich auf das empirisch hergeleitete Modell beziehen.

9.5.3 Gütekriterien

Die interne Konsistenz lag für die SSDS-D-Subskalen in einem akzeptablen ($0{,}76 \leq \alpha_A \leq 0{,}89$; $0{,}74 \leq \alpha_B \leq 0{,}86$) und für die Gesamtskala in einem guten Bereich ($\alpha = 0{,}92$; Tabelle 9.4).

Tabelle 9.4 Interkorrelationen und deskriptive Kennwerte der SSDS-D[+]

		1	2	3	4	5	*M*		*SD*		α	
							A	B	A	B	A	B
1	Gesamtskala	-	0,82***	0,87***	0,77***	0,78***	3,31	3,03	0,96	0,90	0,92	0,92
2	Scham[++]	0,88***	-	0,64***	0,61***	0,47***	3,24	2,98	1,31	1,24	0,87	0,86
3	Eigene Schuldzuschreibung[+++]	0,85***	0,69***	-	0,52***	0,59***	3,56	3,48	1,17	0,99	0,89	0,82
4	Hemmungen bei Hilfesuche	0,82***	0,75***	0,56***	-	0,44***	2,75	2,53	1,09	1,00	0,76	0,74
5	Soziale Unzulänglichkeit	0,79***	0,55***	0,56***	0,51***	-	3,59	2,99	1,18	1,16	0,87	0,83

[+]Subskalenbildung entsprechend der Faktorenstruktur des empirisch hergeleiteten vier-faktoriellen Modells; [++]entspricht der Originalsubskala ohne Item 4; [+++]entspricht der Originalsubskala mit zusätzlichem Item 4; A = Stichprobe A, B = Stichprobe B; oberhalb der Diagonalen: Stichprobe A (*N*=550); unterhalb der Diagonalen: Stichprobe B (*N*=180). Korrelationskoeffizienten nach Pearson. ***p < 0,001. Publiziert in: Göpfert et al. (2019)

Wie erwartet zeigte sich in beiden Stichproben ein hoher positiver Zusammenhang zwischen PHQ-9 und allen SSDS-D-Subskalen ($0{,}27 \leq r \leq 0{,}51$; $p < 0{,}001$) (Tabelle 9.5). Daher werden im Folgenden nur die Ergebnisse der Partialkorrelationen von SSDS-D-Subskalen mit verwandten Konstrukten berichtet, unter Kontrolle des PHQ-9.

In Stichprobe A korrelierten die Gesamtskala und die SSDS-D-Subskalen signifikant negativ am höchsten mit dem Selbstwert ($0{,}27 \leq r \leq 0{,}56$; $p < 0{,}001$). Ein signifikanter positiver Zusammenhang bestand zu SSMIS-Selbst ($0{,}16 \leq r \leq 0{,}31$; $p < 0{,}001$). Ferner fanden sich positive Zusammenhänge zwischen den SSDS-D-

Subskalen und den konstruktferneren SSMIS-Skalen (SSMIS-Per: 0,14≤*r*≤0,23; *p*<0,001; SSMIS-Pub: 0,11≤*r*≤0,22; *p*<0,001).

Tabelle 9.5 Konstruktvalidität der SSDS-D[+]: Pearson-Korrelationen und Partialkorrelationen (in Klammern)

	PHQ-9	**SSMIS-Pub**	**SSMIS-Per**	**SSMIS-Selbst**	**Selbstwert**
Stichprobe A (*N*=550)					
SSDS-D Gesamtskala	0,49***	0,27***	0,29***	0,45***	-0,68***
(PHQ herauspartialisiert)		(0,22***)	(0,23***)	(0,31***)	(-0,55***)
Scham	0,32***	0,25***	0,24***	0,30***	-0,46***
(PHQ herauspartialisiert)		(0,20***)	(0,20***)	(0,19***)	(-0,35***)
Eigene Schuldzuschreibung	0,46***	0,18***	0,26***	0,42***	-0,67***
(PHQ herauspartialisiert)		(0,11***)	(0,19***)	(0,29***)	(-0,56***)
Hemmungen bei Hilfesuche	0,27***	0,20***	0,18***	0,25***	-0,38***
(PHQ herauspartialisiert)		(0,16***)	(0,14***)	(0,16***)	(-0,27***)
Soziale Unzulänglichkeit	0,51***	0,27***	0,25***	0,46***	-0,65***
(PHQ herauspartialisiert)		(0,21***)	(0,18***)	(0,31***)	(-0,50***)
Stichprobe B (*N*=180)					
SSDS-D Gesamtskala	0,41***	0,18*	0,28***	0,51***	-0,64***
(PHQ herauspartialisiert)		(0,14)	(0,25**)	(0,40***)	(-0,54***)
Scham	0,31***	0,15*	0,27***	0,40***	-0,51***
(PHQ herauspartialisiert)		(0,11)	(0,25**)	(0,31***)	(-0,42***)
Eigene Schuldzuschreibung	0,35***	0,14	0,25**	0,45***	-0,58***
(PHQ herauspartialisiert)		(0,10)	(0,22**)	(0,35***)	(-0,50***)
Hemmungen bei Hilfesuche	0,23**	0,17*	0,29***	0,35***	-0,41***
(PHQ herauspartialisiert)		(0,15)	(0,27***)	(0,28***)	(-0,35***)
Soziale Unzulänglichkeit	0,47***	0,14	0,14	0,48***	-0,60***
(PHQ herauspartialisiert)		(0,09)	(0,09)	(0,35***)	(-0,46***)

[+]Subskalenbildung entsprechend der Faktorenstruktur des empirisch hergeleiteten 4-Faktoren-Modells; PHQ-9=Patient Health Questionnaire 9; SSMIS-Pub = Subskala wahrgenommene öffentliche Stigmatisierung der Self-Stigma of Mental Illness Scale; SSMIS-Per = Subskala Zustimmung zu stigmatisierenden Aussagen der Self-Stigma of Mental Illness Scale; SSMIS-Selbst = Subskala Selbststigma der Self-Stigma of Mental Illness Scale; ***p<0,001; **p<0,01; *p<0,05. Publiziert in: Göpfert et al. (2019)

In Stichprobe B korrelierten die SSDS-D-Subskalen am höchsten mit dem Selbstwert (0,35≤*r*≤0,54; *p*<0,001) und mit SSMIS-Selbst (0,28≤*r*≤0,40; *p*<0,001). SSMIS-Per korrelierte signifikant mit Hemmungen bei Hilfesuche (*r*=0,27; *p*<0,001), Scham und Eigene Schuldzuweisung (0,22≤*r*≤0,25; *p*<0,01), aber nicht mehr signifikant mit Sozialer Unzulänglichkeit. SSMIS-Pub war marginal (Scham: *r*=0,11; *p*<0,05; Hemmungen bei Hilfesuche: *r*=0,15; *p*<0,05) bis gar nicht (Eigene

Schuldzuschreibung und Soziale Unzulänglichkeit) mit den SSDS-D-Subskalen korreliert.

9.5.4 Einfluss soziodemografischer Merkmale

In Stichprobe A gab es einen negativen Zusammenhang zwischen Alter und Eigener Schuldzuschreibung (r=-0,22, p<0,001), Hemmungen bei Hilfesuche (r=-0,13, p<0,01) und Sozialer Unzulänglichkeit (r=-0,18, p<0,001): Jüngere Personen gaben höhere Stigmawerte an. In Stichprobe B war dieser Zusammenhang für Scham (r=-0,16, p<0,05) und Eigene Schuldzuschreibung (r=-0,21, p<0,01) signifikant. T-Tests zu Geschlecht (Scham: p_A=0,89; p_B=0,49; Eigene Schuldzuschreibung: p_A=0,58; p_B=0,88; Hemmungen bei Hilfesuche: p_A=0,58; p_B=0,35; Soziale Unzulänglichkeit: p_A=0,33; p_B=0,99) und Schulbildung (Scham: p_A=0,57; p_B=0,05; Eigene Schuldzuschreibung: p_A=0,21; p_B=0,07; Hemmungen bei Hilfesuche: p_A=0,34; p_B=0,18; Soziale Unzulänglichkeit: p_A=0,21; p_B=0,93) ergaben keine signifikanten Mittelwertsunterschiede. Personen in Partnerschaft hatten niedrigere Stigmawerte als Personen ohne Partnerschaft: In Stichprobe A war dieser Unterschied bei Eigener Schuldzuschreibung (t(548)=3,14, p<0,01), in Stichprobe B bei Scham (t(178)=2,93, p<0,01), Eigener Schuldzuschreibung (t(178)=2,46, p<0,05) und Hemmungen bei Hilfesuche (t(178)=2,75, p<0,01) signifikant.

9.6 Diskussion

Ziel der Arbeit war es, eine deutschsprachige Version der SSDS zu erstellen, welche eine direkte Erfassung von selbststigmatisierenden Einstellungen bei Personen mit Depression erlaubt. Eine derartige Skala fehlte bislang, wäre aber hilfreich, insbesondere für die Untersuchung von Interventionseffekten. Die englischsprachige SSDS wurde zu diesem Zweck ins Deutsche übersetzt und adaptiert. Im Anschluss wurden die psychometrischen Eigenschaften der SSDS-D an zwei klinischen Stichproben überprüft.

Stichprobe A diente zur Untersuchung der Faktorenstruktur der SSDS-D. An dieser Stichprobe konnte die Struktur der Originalskala weitestgehend exploratorisch repliziert werden. Nur ein Item („Ich bin von mir enttäuscht.“) wurde aufgrund der Faktorladung einem anderen Faktor (Eigene Schuldzuschreibung) zugeordnet als bei der Originalstruktur (Scham). Während Scham und Schuld häufig als moralische Emotionen bezeichnet werden, welche sozial erwünschtes Verhalten fördern sollen,

beschrieb Lewis einen wesentlichen Unterschied (1971): Scham gehe mit einer negativen Bewertung des globalen Selbst, Schuld mit einer negativen Bewertung eines bestimmten Verhaltens einher. Die Instruktion der SSDS-D fragt direkt nach den Einstellungen der Probanden, die sie „bezüglich Ihrer Depression“ haben. Inhaltlich deutet die vorliegende Faktorladung des Items darauf hin, dass Probanden zwar hinsichtlich der depressiven Symptomatik jedoch nicht von ihrem globalen Selbst enttäuscht sind.

Bei der Extraktion der Faktorenzahl wurden neben eines Screetests objektive Kriterien (Paralleltest und MAP-Test) zugrunde gelegt. Die Ergebnisse legten sowohl ein drei- als auch ein vier-faktorielles Modell nahe. Bei dem vier-faktoriellen Modell fanden sich im Gegensatz zur drei-faktoriellen Lösung in der explorativen Hauptachsenanalyse keine Nebenladungen, zudem erklärte dieses Modell einen höheren Anteil der Gesamtvarianz.

In Stichprobe B wurden die empirisch gewonnene und die theoretisch vorgegebene Struktur mittels konfirmatorischen Faktorenanalysen überprüft. Im Rahmen dieser Kreuzvalidierung zeigte sich die empirisch gewonnene Struktur gegenüber der theoretisch vorgegebenen Struktur bezüglich des Modellfits als geringfügig überlegen. Bei der Konstruktion der SSDS-D-Subskalen orientierten wir uns daher an den empirisch gewonnenen vier Faktoren. Die Faktorenstruktur der SSDS-D ist näher am Original als an der deutschsprachigen Version der SSDS (Barney et al., 2010). Eine Erklärung könnte die unterschiedliche Antwortskalierung darstellen (Barney et al., 2010; Makowski et al., 2018).

Die SSDS-D-Subskalen erwiesen sich als reliabel mit akzeptablen bis guten internen Konsistenzen. Die Befunde zur Konstruktvalidität können als Beleg für die konvergente Validität der SSDS-D gewertet werden. Basierend auf dem Modell zu Selbststigma von Corrigan, Rafacz und Rüsch stehen aufeinander folgende Phasen der Selbststigmatisierung in höherem Zusammenhang als weiter auseinanderliegende; die Wahrnehmung von und Zustimmung zu stigmatisierenden Aussagen müssen nicht linear mit Selbststigma bei Personen mit Depression einhergehen (2011). Sie wurden in der vorliegenden Studie als konstruktfernere Skalen betrachtet. Rüsch und Kollegen postulieren Selbstwert, Depressivität und Selbststigma als in engem Zusammenhang stehende Konstrukte (2004): Sie empfehlen, bei Selbststigma bezüglich psychischer Erkrankungen zu berücksichtigen, inwiefern der Selbstwert – in Abgrenzung zu durch Selbststigma begründete

Selbstwertproblemen – als Ausdruck eines depressiven Syndroms zu interpretieren ist.

Wie in früheren Studien korrelierten die konstruktnahen Skalen zu Selbstwert, zu SSMIS-Selbst sowie zur aktuellen Depressivität hoch mit den SSDS-D-Subskalen (Barney et al., 2010; Cruwys & Gunaseelan, 2016). Reduzierter Selbstwert, negative Kognitionen und Schuldgefühle sind per definitionem Aspekte aktueller Depressivität. Für den Nachweis der Konstruktvalidität der SSDS-D war es daher von zentraler Bedeutung, dass die signifikanten Zusammenhänge zu den konstruknahen Skalen (Selbstwert und SSMIS-Selbst) auch nach statistischer Kontrolle der aktuellen Depressivität auffindbar waren. Die deutlich niedrigeren Korrelationen mit den konstruktferneren Facetten von Stigmatisierung (öffentliche Stigmatisierung und persönliche Zustimmung zu stigmatisierenden Aussagen) können ebenfalls als Beleg für die Konstruktvalidität gewertet werden. Die Korrelationen waren in Stichprobe A geringfügig höher als in Stichprobe B. Das generelle korrelative Befundmuster passte jedoch gut zur Annahme, dass für die Internalisierung stigmatisierender Aussagen weitere Faktoren eine wesentliche Rolle spielen (Corrigan & Rao, 2012; Rüsch et al., 2004).

Die Befunde zu Alter und Schulbildung fielen ähnlich aus wie bei der Originalskala (Barney et al., 2010): Jüngere und „Personen ohne Partnerschaft“ hatten höhere SSDS-D-Werte. Schulbildung und Geschlecht hatten dagegen keine signifikanten Effekte auf das Ausmaß an Selbststigma.

Die größten Stärken der Studie waren die großen klinischen Stichproben, die zur Validierung und Kreuzvalidierung der SSDS-D herangezogen werden konnten, sowie das gewählte methodische Vorgehen mit aufeinander bezogenen explorativen und konfirmatorischen Faktorenanalysen.

Die wichtigste Limitation betrifft die fragliche Repräsentativität der Stichprobe: In Stichprobe A könnten Verzerrungen infolge von Selbstselektionseffekten vorliegen (z. B. durch Art und Verlinkung der Befragung). Unterrepräsentiert waren in beiden Stichproben Personen ohne depressive Beschwerden, Jüngere und Ältere. Bei Stichprobe B handelte es sich im Gegensatz zu Stichprobe A ausschließlich um Personen, die sich zum Zeitpunkt der Befragung aufgrund einer depressiven Erkrankung in Behandlung befanden. Dieser Unterschied erklärt möglicherweise, weshalb Stichprobe B durchschnittlich niedrigere Ausprägungen in den Skalen Scham, Hemmungen bei Hilfesuche, Soziale Unzulänglichkeit und öffentliche Stigmatisierung

aufwies als Stichprobe A, da Aufsuchen professioneller Hilfe und Selbststigma in Zusammenhang stehen (Schnyder et al., 2017).

Ein weiteres methodisches Problem stellte der Zusammenhang zwischen Einstellungsurteilen zu Selbststigma und der aktuellen depressiven Symptomatik dar. In diesem Punkt wichen die Ergebnisse von jenen der Originalarbeit ab, stehen aber im Einklang mit Befunden aus anderen Studien (Corrigan et al., 2006; Link, Struening, Neese-todd, Asmussen, & Phelan, 2002; Ritsher & Phelan, 2004). Aufgrund des Querschnittsdesigns kann die Richtung dieses Zusammenhangs nicht kausal interpretiert werden. Die Frage nach Ursache und Wirkung sollte im Rahmen zukünftiger Längsschnittstudien untersucht werden.

Da für die Überprüfung der Kriteriumsvalidität der Subskala „Hemmungen bei Hilfesuche“ keine geeigneten externen Kriterien vorlagen, sollte auch dieser Aspekt in zukünftigen Studien überprüft werden. Schließlich kann die fehlende Rückübersetzung des SSDS-D ins Englische als Limitation betrachtet werden. Auf dieses Standardprozedere wurde bei der Fragebogenübersetzung verzichtet, weil der Fragebogen in Hinblick auf Einleitung und Verbmodus modifiziert wurde. Eine originalgetreue Rückübersetzung wäre nicht möglich gewesen.

9.7 Fazit für die Praxis

Erstmalig erfolgte eine Validierung einer deutschen Adaptation der SSDS zur Erfassung des tatsächlich erlebten Selbststigmas. Die Subskalen der Originalversion konnten weitestgehend repliziert werden und wiesen eine gute Reliabilität auf. Die SSDS-D kann in klinischen Stichproben eingesetzt werden, um Selbststigma spezifisch bei Menschen mit Depression valide und reliabel zu erfassen.

Interessenkonflikt: Die Autoren geben an, dass kein Interessenkonflikt besteht.

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PUBLICATIONS

Göpfert, N. C., Lehr, K., Zillich, L., von Heydendorff, S. C., Dreßing, H., & Bailer, J. (2019). Validierung einer deutschen, adaptierten Fassung der Self-Stigma of Depression Scale (SSDS) zur Messung von Selbststigmatisierung bei Personen mit Depression (SSDS-D). [Validation of a German Adaptation of the Self-Stigma of Depression Scale (SSDS) for Measuring Self-Stigmatization of People with Depression (SSDS-D)]. *Psychotherapie, Psychosomatik, Medizinische Psychologie, 69*(11), 462-470. doi: 10.1055/a-0838-4953

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