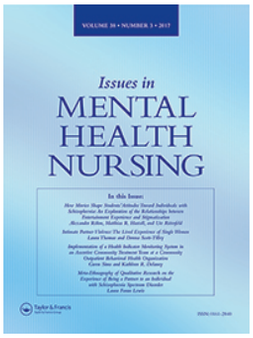

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How Movies Shape Students' Attitudes Toward Individuals with Schizophrenia: An Exploration of the Relationships between Entertainment Experience and Stigmatization

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ABSTRACT

Mass media shape not only public, but also healthcare professionals' attitudes towards individuals with a mental illness. This study investigates how watching a movie about schizophrenia affects stigma-related attitudes of rehabilitation science students, who are likely to work with affected individuals. Participants watched an entertainment movie portrayal of schizophrenia. Stigma-related attitudes and social distance were assessed one week before watching the movie, directly afterwards, and one week later. No significant differences in stigmatization emerged between viewers and non-viewers. Enjoyment, appreciation, and general movie evaluation mediated viewers' transportation into the story on changes in stigmatization. Results are discussed with respect to media effects on stigma-related attitudes and their implications for mental health nursing practice and education.

Consequences of mental health stigmatization are manifold and have dramatic effects for affected individuals (Henderson et al., 2014). Mass media, particularly fictional entertainment programs, are long known to shape audiences' attitudes toward people with mental illness (Anderson, 2003; Owen, 2012). This social group is predominantly negatively depicted in media entertainment, typically as a danger to themselves and to the society (e.g., Diefenbach & West, 2007; Sieff, 2003). Such portrayals are not just inaccurate, they are also presumed to cultivate and reinforce stigmatizing attitudes and behaviors among viewers (Morgan, Shanahan, & Signorielli, 2009; Shrum, 2009).

Although the impact of media portrayals on recipients' attitudes and behaviors toward stigmatized groups and individuals has been repeatedly demonstrated (Jain & Slater, 2013; Kimmerle & Cress, 2013; Knifton & Quinn, 2008; Maier, Gentile, Vogel, & Kaplan, 2014; Sieff, 2003; Thornton & Wahl, 1996), several inconsistent or contradictory findings deserve further attention (Clement et al., 2013). Perciful and Meyer (2016), for example, observed that an accurate movie portrayal of schizophrenia decreased viewers' stigmatizing attitudes compared to an inaccurate depiction. However, there was no difference to individuals in the control group, who also reported slightly decreased stigmatization after watching a neutral movie. Numerous aspects of the depictions could be responsible for these conflicting results, which appear to challenge Allport's (1954) well-established contact hypotheses, according to which extended contact through media portrayals should result in more positive attitudes (Clement et al., 2012). The current study examines if a consideration of (a) narrative-specific processes such as transportation, enjoyment, or appreciation and (b) a broader range of stigma-related attitudes such as benevolence, exclusion, and social distancing can help to better understand the diversity and direction of stigma-related attitude changes after watching movie portrayals of persons with mental health problems. Additionally, we study the effects of mass media consumption on stigma-related attitudes on students of a university rehabilitation science program, hence on a sample that is likely to work with affected individuals.

Consequences of stigmatization are manifold and intense for individuals with mental health problems (Corrigan, 2004; Henderson et al., 2014). They range from diminished self-esteem, shame, and fear of help-seeking to social exclusion and severe health problems (Corrigan, 2004; Henderson et al., 2014; Rüsch et al., 2014). Sullivan and colleagues (2015) found that healthcare providers' experiences with people with schizophrenia can negatively affect their expectations regarding treatment compliance, and consequently their treatment of patients with this condition. Recent studies suggest that students in various healthcare fields show stigmatizing attitudes toward people with schizophrenia (Kerby, Calton, Dimambro, Flood, & Glazebrook, 2008; Peer, Warnecke, Baum, & Goreczny, 2015; Serafini et al., 2011), which may influence their later behavior and treatment of patients with mental illnesses. This recipient group consequently deserves particular attention, as media-induced changes in stigma-related attitudes and social distancing would not merely affect their private actions, but could also contribute to institutional and professional stigmatization (e.g., Henderson et al., 2014).

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Movies and stigma cultivation

While it is widely acknowledged that mass media portrayals of people with mental illness shape recipients' attitudes toward these individuals (e.g., Kimmerle & Cress, 2013; Sieff, 2003), several critical questions are not yet adequately answered: First, it is unclear if realistic portrayals—in contrast to the common unrealistic depictions—are generally better suited to reduce stigmatization. In the case of schizophrenia, a realistic portrayal with clinically diagnosable symptoms implies the "need to provide accurate information about mental illness to counter the negative messages found in mass media" (Owen, 2012, p. 659). This includes insight on actual causation, coping with symptoms, and treatment. Kerby and colleagues (2008), for instance, presented two anti-stigma films to 46 medical students. The films attempted "to convey to the viewer the first-hand experience of being diagnosed with a serious mental illness" (Kerby et al., 2008, p. 346), yet, did not produce significant differences in stigma-related attitudes between control group and experimental group. Within the intervention group, however, stigmatization slightly decreased at the post-intervention measurement, but increased at the eight weeks' follow-up, compared to the baseline. Penn, Chamberlin, and Mueser (2003) similarly observed no significant reduction in viewers' stigma after watching a realistic movie documentary that depicted the heterogeneity of schizophrenia with different portrayals. Accordingly, accurate portrayals can be disturbing and may increase viewers' confusion and social distancing (e.g., Baumann, Zaeske, & Gaebel, 2003; Ritterfeld & Jin, 2006). Second, it is still largely unknown which specific aspects of the narrative depiction of affected individuals influence movie viewers' stigma-related attitudes most intensively. Third, the roles of viewer characteristics as moderators and narrative-specific processes as mediators of stigma-related attitude and behavior changes deserve more attention, as movies produce different—and sometimes even opposite—effects on audience members. Accordingly, Anderson (2003) emphasizes the importance for both mental health professionals and media producers to "understand the nature of the audience consuming representations of mental illness" (p. 305). Fourth, more research is needed to understand the multitude and complex interrelations of stigma-related processes that can be affected by movies. For example, it is not unlikely that an entertaining portrayal increases knowledge about a mental illness, but the effects on stigma-related attitudes may still be negative. Baumann et al. (2003), for example, found that viewing a rather realistic movie about a person with schizophrenia increased not only social distance, but also the differences between audiences' knowledge and expert opinions about this disease. The authors attribute their results to the first-person narration that allowed viewers to experience the intense events from the perspective of an affected individual, which ultimately increased social distancing.

Narrative-specific processes were not considered by Baumann and colleagues (2003) or other scholars (e.g., Kerby et al., 2008), but might help to better understand how different audience processes yield different stigma outcomes. Research also indicates the advantage of distinguishing several dimensions of stigma-related attitudes, such as individuals' reluctance to engage in social relationships with members of a stigmatized group or their acceptance of means to reduce financial support for this group (e.g., Angermeyer, Matschinger, Link, & Schomerus, 2014). To date, it is neither fully understood how these facets interact with each other, nor how they can be influenced in the desired direction only (Corrigan & Fong, 2014).

Transportation into narrative worlds as precondition for narrative media effects

Transportation, a flow-like mental state in which recipients become absorbed into a story, can be characterized as "an integrative melding of attention, imagery, and feelings" (Green & Brock, 2000, p. 701) in which viewers "lose track of time, fail to observe events going on around them, and feel they are completely immersed in the world of the narrative" (Green, 2004, p. 247). Transportation is widely considered as a key factor for narrative persuasion, as transported viewers are less likely to notice manipulative messages and are thus less likely to show counterarguing or reactance (Moyer-Gusé & Nabi, 2010). Slater, Johnson, Cohen, Comello, and Ewoldsen (2014) suggest that high transportation and either enjoyment or appreciation of a narrative content can erode viewers' in-group/out-group distinctions, and consequently foster attitude change. Caputo and Rouner (2011) found transportation related to viewers' social distancing toward people with mental illness. Accordingly, we regard transportation as precondition for narrative effects, but assume that the direction of resulting stigma-related attitudes and social distancing depends considerably on mediating entertainment experience processes.

Entertainment experience: Enjoyment, appreciation, and overall movie evaluation

Following Oliver and Bartsch's (2010) classification of audience responses toward entertainment media content, three entertainment experience processes are subsequently considered as mediators of stigma-related attitude changes. *Enjoyment* refers to a positive, hedonistic emotional state, whereas *appreciation* indicates the extent to which a movie is perceived as meaningful, moving, or thought provoking. This distinction between enjoyment and appreciation resembles the classic philosophical distinction between pleasurable/hedonistic versus meaningful/inspiring experiences, and has recently been linked to a variety of motivational and cognitive-emotional states (e.g., Oliver & Raney, 2011; Ryan & Deci, 2001; Waterman, Schwartz, & Conti, 2008). *General movie evaluation* finally refers to the extent that a movie is perceived as generally good and likeable. While it seems plausible that these responses are a function of transportation, their relationships to the manifold facets of stigmatization remain unclear. Although entertainment experiences have been recognized as potentially relevant for stigma-related movie effects (e.g., Slater et al., 2014), these experiences encompass a relatively wide array of positive as well as negative emotional states and cognitive judgments. Contradictory effects on viewers' stigma-related attitudes are not unlikely. Following dual-process assumptions (e.g., Petty, Priester, & Brinol, 2002), we presume that positive hedonistic experiences (enjoyment) are linked to message-consistent

responses, whereas thought-provoking processes (appreciation) are more likely to induce story-inconsistent responses due to an intensified elaboration phase. For stereotypical movie depictions of individuals with a mental illness that facilitate misinformation and misconceptions, enjoyment should produce increased rather than decreased distancing, whereas the opposite effect can be expected for viewers that describe movies as thought-provoking and moving (appreciation). For realistic movie depictions, in contrast, the opposite relationship between entertainment experience and stigmatization can be presumed. Appreciation is, at least to some extent, likely the result of irritation and confusion, which can increase social distancing and stigmatization, whereas enjoyment can be expected to reduce negative attitudes toward the depicted individuals. Drawing on these reflections, we propose that contradictory audience responses in stigma-related outcomes can be explained by taking different modes of entertainment experiences into account.

Hypotheses

Two hypotheses are tested in this study. First, we suppose that watching a relatively realistic movie about schizophrenia changes students' attitudes and social distancing toward these individuals, and that these persuasive effects can be explained by narrative-specific processes. Specifically, we hypothesize that transportation is linked to stigma-related attitudes and social distance, albeit mediated through entertainment experience such as enjoyment, appreciation, and general movie evaluation (*Hypothesis 1*). Second, we assume that enjoyment and appreciation have opposite effects on changes in stigma-related attitudes and social distance in this regard, with enjoyment being linked to stigma-reduction and appreciation being linked to stigma-enhancing outcomes (*Hypothesis 2*). Additionally, the following research question is posed: Do general movie evaluations mediate the effects of transportation on stigmatization, and if yes, in which direction?

Method

Procedure

Participants watched the German movie *Das weiße Rauschen* (transl.: The White Noise; Weingartner, 2001), which portrays the experiences of a person with schizophrenia. This movie constitutes a realistic depiction of schizophrenia (c.f. Gudlowski & Juckel, 2006; Hauser & Koch, 2002) and provides viewers with an intense visual and auditory insight in the perceptions of an affected individual, which include confused thinking and auditory hallucinations (Baumann et al., 2003). The protagonist, Lukas, is a young man in his twenties who moves to his older sister. While slowly adapting to his new living situation, he experiences sudden mood changes. The consumption of hallucinogenic mushrooms induces a predisposed schizophrenia. After canceling drug therapy, he relapses. The movie shows these and subsequent events, which lead to an open ending, to a large extent from the main characters' first-person perspective.

One group of respondents filled out a paper-and-pencil questionnaire one week before watching the movie (t1), directly after watching it (t2), and one week later (t3). This questionnaire contained measures about social distancing and attitudes toward individuals with schizophrenia, and additional entertainment experience scales at t2. A second group with respondents who did not watch the movie served as control group and therefore completed only the t1 and t3 questionnaires. All procedures were in accordance with ethical standards for experimental media effect studies. Consent was obtained from all participants before being included in the study and a full debriefing was given to ensure that individuals were aware of the purpose of the study as well as the possibility of media effects on their stigma-related attitudes.

Sample

Fifty-one students were recruited as respondents from different courses in bachelor and master programs in rehabilitation sciences at a German university. The experimental group includes 31 female students ($M = 22.4$ years, $SD = 2.54$), the control group 20 students ($M = 23.8$ years, $SD = 3.26$; one male).

Measures

Social distance

Social distancing was measured using a seven-item German social distance scale (Soziale Distanz Skala; Angermeyer & Matschinger, 1995). Respondents were asked to indicate their level of agreement or disagreement with behaviors in fictional situations that involve people with schizophrenia, ranging from neighborhood to close family relations (ranging from 1 = "in any case", to 5 = "in no case at all"). High scores reflect high levels of social distance. Cronbach's alphas indicate sufficient internal consistency for all three measurement points (t1: .89, t2: .82, t3: .84).

Stigma-related attitudes

The German version of the community attitudes toward the mentally ill (CAMI) inventory (Angermeyer et al., 2003) was used as a measure of four dimensions of stigma-related attitudes. High scores on the subscales *integration* (nine items) and *benevolence* (nine items) reflect positive attitudes like support and tolerance, whereas high scores on the sub-dimensions *exclusion* (eight items) and *social control* (eight items) indicate stigmatizing attitudes such as desires for further separation, a high perceived dangerousness, and fear of individuals with mental illness. Respondents indicated their level of disagreement or agreement with these statements on a five-point Likert scale (1 = "do not agree at all", 5 = "fully agree"). All subscales showed satisfying internal consistency at all three measurement points (Cronbach's alphas at t1, t2, and t3: exclusion: .86, .78, .82; integration: .85, .72, .78; benevolence: .82, .74, .76; social control: .87, .74, .78).

Narrative engagement

The four-item marker version of Busselle and Bilandzic's (2009) narrative engagement scale was used to measure transportation into the movie (1 = "does not apply at all", 7 = "fully applies"; Cronbach's alpha = .68).

Enjoyment, appreciation, and general movie evaluation

These three entertainment experiences were measured using a ten-item scale (Oliver & Bartsch, 2010) that distinguishes *enjoyment* (three items; Cronbach's alpha = .90), *appreciation* (three items; Cronbach's alpha = .77), and *general evaluation* (four items; Cronbach's alpha = .95). Respondents indicated their agreement on a seven-point Likert scale (1 = "do not agree at all", 7 = "fully agree").

Tables 1 to 3 display means, standard deviations, and zero-order correlations of all mediator and dependent variables.

Results

Differences between experimental group and control group

As a first step, we examined if viewers and nonviewers differed significantly with regard to reported stigma-related attitudes and social distance between measurement points t1 and t3. Univariate analyses of variance (ANOVAs) were conducted with the experimental variation (watching the movie vs. control group) as factor and the four stigma-related attitudes and social distance as dependent variables. No significant main effects emerged for the experimental condition (see Tables 1 and 2 for group means and standard deviations). It should be noted, however, that the statistical power of this analyses was only sufficient to detect relatively large movie effects on stigma-related measures ($f > .50$).

Within-effects as a function of transportation and entertainment experience

To test hypotheses H1 and H2 regarding the mediating role of entertainment experiences, parallel mediation analyses were conducted using Hayes' (2013) PROCESS script (model 4) for each difference in stigma-related attitudes and social distance from time points t1 to t2 and t1 to t3. The underlying conceptual model is depicted in Figure 1. Transportation as precondition of narrative media effects was incorporated as independent variable. Enjoyment, appreciation, and general evaluation were included as parallel mediators. The indicated paths represent linear regressions of the predictor (transportation) on the three mediators (*a* paths), linear regressions of the mediators on the outcome variable (*b* paths), and the direct effect (*c*' path) of the predictor on an outcome variable when controlling for the mediators. We also report the total effect of transportation on the dependent variables without mediators (*c* path). A significant $a \times b$ path represents an indirect effect of transportation on stigma-related attitudes and social distance via a particular mediator as predicted in hypotheses H1 and H2.

Several significant indirect effects of transportation on attitudes and social distancing were found, overall supporting hypothesis H1. As suggested by Field (2013), completely standardized indirect effects (β_s) were calculated for every obtained significant indirect effect and are reported below. Significance is indicated by a 10,000 bootstraps confidence interval not containing zero (Preacher & Kelley, 2011). Unstandardized regression coefficients of all mediation paths are presented in Table 4.

Immediate effects

In line with hypothesis H2, opposite effects were found for hedonic enjoyment and eudaimonic appreciation as mediators of the effect of transportation on stigma-related attitudes. These effects materialized for three dependent variables. Enjoyment mediated the effect of transportation on benevolence, $\beta_s = .24$, 95% BaCI [0.019,0.562], and integration, $\beta_s = .20$, 95% BaCI [0.010,0.569], and appreciation mediated the effect of transportation on exclusion, $\beta_s = .27$, 95% BaCI [0.019,0.634]. General movie evaluation mediated the effect of transportation on social control, $\beta_s = .33$, 95% BaCI [0.044,0.759]. Besides, a significant negative direct effect of transportation on attitudes after controlling for mediators (*c*' path) was found for social control. A significant total effect of transportation on attitudes (*c* path) emerged for elevated levels of benevolence (see Table 4 for details).

Follow-up effects

From t1 to t3, just one indirect effect of transportation was found via general evaluation on social control, $\beta_s = .43$, 95% BaCI [0.082,0.985]. A significant total effect of transportation on attitudes (*c* path) emerged for exclusion, indicating that transportation decreased excluding attitudes toward individuals with schizophrenia.

Discussion

The current study examined if a consideration of entertainment experience processes can help to uncover and explain the occasionally contradictory effects of movie portrayals of individuals with a mental illness on viewers' attitudes toward these individuals. We argued that narrative processes such as transportation, enjoyment, appreciation, and overall movie evaluation play distinct roles in shaping different stigma-related attitudinal outcomes, immediately as well as over time. An improved understanding of their relationship appears vital to better understand and predict the arguably complex effects on viewers' stigma-related attitudes. This was tested on a sample of rehabilitation science students that is likely to work with people with mental illness in their later professional life.

We did not find significant changes in stigma-related attitudes or social distance when comparing respondents of the experimental movie group with respondents of the control group. This indicates that there were either no substantial effects of watching the movie on stigma-related attitudes, or more likely, no *uniform* effect. This finding is consistent with Kerby and colleagues' (2008) results. Subsequent parallel mediation analyses for respondents of the movie group revealed that, as hypothesized, transportation affects stigma-related outcomes both directly and indirectly, except for social distance. The entertainment experience processes enjoyment, appreciation, and general movie evaluation mediated this effect, supporting our first hypothesis. Enjoyment mediated stigma-reducing immediate effects of transportation (for benevolence and integration) whereas appreciation was linked to an increased tendency for exclusion. We thus found initial support for the second hypothesis, although it should be noted that the predicted relationships were not found for all dependent variables and

Table 1. Means, standard deviations, and zero-order correlations between stigma-related attitudes (experimental group).

Attitude		*M*	*SD*	Zero-order Correlations														
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Before the Movie (t1)																		
1	Social Distance	14.34	4.73															
2	Exclusion	15.83	5.62	.398*														
3	Integration	34.53	6.15	−.424*	−.899**													
4	Benevolence	38.20	6.55	−.217	−.599**	.659**												
5	Social Control	14.32	6.00	.327	.753**	−.756**	−.696**											
Directly After the Movie (t2)																		
6	Social Distance	16.87	4.64	.409*	.300	−.163	− .013	.141										
7	Exclusion	15.45	4.77	.285	.274	−.107	.096	.090	.685**									
8	Integration	35.00	4.78	−.273	−.190	.169	−.109	−.057	−.644**	−.796**								
9	Benevolence	39.33	3.99	−.089	−.112	−.044	.129	−.042	−.445*	−.564**	.509**							
10	Social Control	14.71	4.11	.429*	.329	−.200	−.158	.375*	.666**	.685**	−.502**	−.641**						
One Week Later (t3)																		
11	Social Distance	15.90	4.48	.273	.281	−.184	−.007	.069	.874**	.725**	−.695**	−.569**	.571**					
12	Exclusion	15.97	5.04	.284	.362	−.255	.006	.198	.664**	.876**	−.848**	−.672**	.672**	.780**				
13	Integration	35.23	4.84	−.230	−.305	.197	−.057	−.111	−.597**	−.807**	.749**	.541**	−.609**	−.711**	−.842**			
14	Benevolence	39.35	3.67	−.014	−.149	.044	.265	−.098	−.392*	−.528**	.415*	.717**	−.615**	−.524**	−.574**	.540**		
15	Social Control	14.77	4.44	.187	.357	−.256	−.026	.178	.638**	.777**	−.604**	−.665**	.689**	.791**	.797**	−.691**	−.622**	

Note. $^{*}p < .05$; $^{**}p < .01$.

Table 2. Means, standard deviations, and zero-order correlations between stigma-related attitudes (control group).

Attitude		*M*	*SD*	Zero-order Correlations									
				1	2	3	4	5	6	7	8	9	10
Before (t1)													
1	Social distance	15.45	5.13										
2	Exclusion	15.45	6.12	.692**									
3	Integration	36.37	4.35	−.663**	−.885**								
4	Benevolence	38.75	3.54	−.432	−.503*	.615**							
5	Social control	13.30	4.01	.576**	.716**	−.523*	−.172						
After (t3)													
6	Social distance	16.05	4.48	.720**	.862**	−.698**	−.437	.712**					
7	Exclusion	16.05	4.79	.716**	.846**	−.752**	−.497*	.698**	.804**				
8	Integration	36.40	4.17	−.536*	−.729**	.612**	.563**	−.517*	−.829**	−.628**			
9	Benevolence	38.65	4.18	−.343	−.516*	.348	.694**	−.351	−.490*	−.459*	.678**		
10	Social control	13.95	3.83	.419	.650**	−.354	−.249	.829**	.664**	.586**	−.591**	−.589**	

Note. $^{*}p < .05$; $^{**}p < .01$.

Table 3. Means, standard deviations, and zero-order correlations between narrative-specific processes (experimental group).

Variable		*M*	*SD*	Zero-order Correlations			
				1	2	3	4
1	Transportation	17.26	4.83				
2	Fun	11.19	4.39	.491**			
3	Appreciation	14.10	4.13	.658**	.633**		
4	General Evaluation	18.74	6.73	.631**	.676**	.768**	

Note. $^{*}p < .05$; $^{**}p < .01$.

did not materialize as follow-up effects one week later. Transportation increased favorable movie evaluation, which in turn yielded augmented desires for more social control. This particular stigma-increasing effect was found as both immediate and follow-up outcome. Additionally, transportation had a positive direct effect on benevolence and a negative direct effect on social control, as well as a total negative follow-up effect on exclusion.

These effects indicate that being transported into a realistic movie alone can lead to several stigma-reducing effects. The null effects on social distance indicate that the movie affected only students' attitudes, but not their behavioral intentions toward persons with schizophrenia. All in all, however, more immediate than follow-up effects were observed. This underlines the importance of considering narrative processes for the investigation of attitude changes through media reception as proposed by other scholars (e.g., Caputo & Rouner, 2011; Slater at al., 2014). Furthermore, this can be a possible explanation underlying nonsignificant findings in other studies that screened movie portrayals of schizophrenia to mostly student audiences (e.g., Penn et al., 2003). In our study, pleasurable media consumption with high levels of enjoyment lead to the unconscious, hence

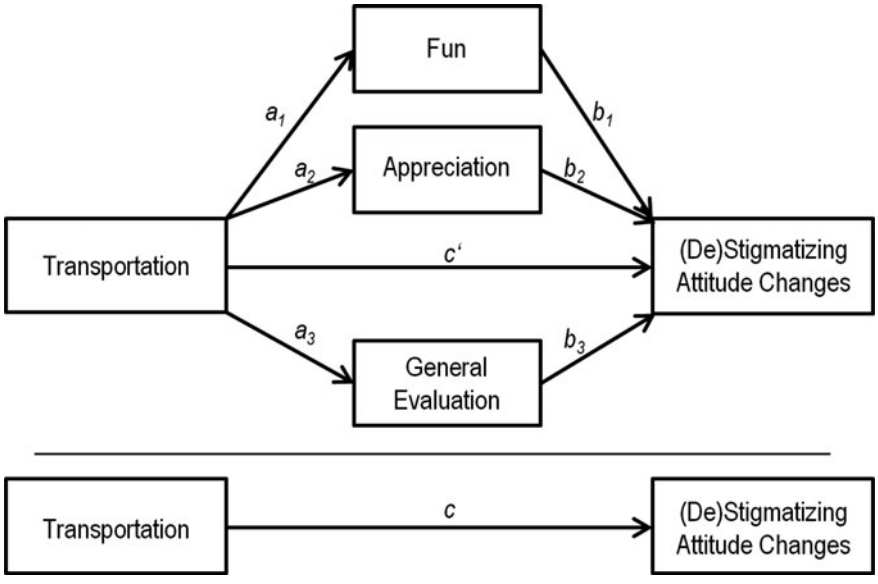

Figure 1. Conceptual parallel mediation model (Model 4; Hayes, 2013). An indirect effect (mediation) of transportation on (de)stigmatizing attitude changes is assumed if the $a \times b$ path becomes significant. The *a* paths represent the effect of transportation on the mediators. The *b* paths represent the effect of each mediator on (de)stigmatizing attitude changes. The *c* path represents the total effect of transportation on (de)stigmatizing attitude changes and the *c'* path represents the direct effect of transportation on (de)stigmatizing attitude changes controlling for the three mediators.

Table 4. Entertainment experience as mediator of the relationship between transportation and stigma-related attitudes and social distance.

	Benevolence								
Dependent Variable	Immediate Effects (from t1 to t2)					Follow-up Effects (from t1 to t3)			
Paths	*a*	*b*	*c′*	*c*	*a* × *b*	*b*	*c′*	*c*	*a* × *b*
Mediator									
Fun	.45*	.75	.54	.60*	.36*	.45	.48	.44	.22
Appreciation	.56*	.32	.54	.60*	.18	−.02	.48	.44	−.01
General Evaluation	.88*	− .54	.54	.60*	− .48	−.28	.48	.44	−.25
	Integration								
Dependent Variable	Immediate Effects (from t1 to t2)					Follow-up Effects (from t1 to t3)			
Paths	*a*	*b*	*c′*	*c*	*a* × *b*	*b*	*c′*	*c*	*a* × *b*
Mediator									
Fun	.45*	.65	.52	.41	.29*	.53	.66	.43	.23
Appreciation	.56*	−.47	.52	.41	−.26	−.25	.66	.43	−.13
General Evaluation	.88*	−.15	.52	.41	−.13	−.37	.66	.43	−.32
	Exclusion								
Dependent Variable	Immediate Effects (from t1 to t2)					Follow-up Effects (from t1 to t3)			
Paths	*a*	*b*	*c′*	*c*	*a* × *b*	*b*	*c′*	*c*	*a* × *b*
Mediator									
Fun	.45*	−.58	−.56	−.26	−.26	−.35	−.51	−.45*	−.15
Appreciation	.56*	.61	−.56	−.26	.34*	.23	−.51	−.45*	.12
General Evaluation	.88*	.25	−.56	−.26	.22	.10	−.51	−.45*	.08
	Social Control								
Dependent Variable	Immediate Effects (from t1 to t2)					Follow-up Effects (from t1 to t3)			
Paths	*a*	*b*	*c′*	*c*	*a* × *b*	*b*	*c′*	*c*	*a* × *b*
Mediator									
Fun	.45*	−.12	−.66*	−.39	−.05	−.34	−.53	−.32	−.15
Appreciation	.56*	−.15	−.66*	−.39	−.09	−.43	−.53	−.32	−.24
General Evaluation	.88*	.46	−.66*	−.39	.40*	.69*	−.53	−.32	.61*
	Social Distance								
Dependent Variable	Immediate Effects (from t1 to t2)					Follow-up Effects (from t1 to t3)			
Paths	*a*	*b*	*c′*	*c*	*a* × *b*	*b*	*c′*	*c*	*a* × *b*
Mediator									
Fun	.45*	−.12	—.04	−.15	−.05	−.24	−.11	−.12	−.10
Appreciation	.56*	−.37	−.04	−.15	−.20	−.37	−.11	−.12	−.19
General Evaluation	.88*	.16	−.04	−.15	.14	.34	−.11	−.12	.29

Note. Unstandardized regression coefficients from Hayes (2013) process macro. t1 = one week before watching the movie, t2 = directly after watching, t3 = one week after watching. A significant *a* × *b* path represents an indirect effect of transportation on stigma-related attitudes via a particular mediator. The *a* paths represent the effect of transportation on the mediators. The *b* paths represent the effect of the each mediator on (de)stigmatizing attitude changes. The *c* path represents the total effect of transportation on (de)stigmatizing attitude changes and the *c′* path represents the direct effect of transportation on (de)stigmatizing attitude changes controlling for the three mediators.

*$p < .05$ (Significance has been indicated by a 10,000 bootstraps confidence interval not containing zero).

unquestioned, acceptance of the media message and therefore fostered comparatively positive attitudes. Appreciation and general movie evaluation (i.e., feeling touched and inspired by the movie, and rating it as likeable), in contrast, lead to increased stigmatization. Yet, contrary to our findings, Ritterfeld and Jin (2006) found that high involvement and high enjoyment of a movie portrayal of schizophrenia were connected with negative attitudes and confusion. This indicates that realistic movie portrayals have manifold effects on students' stigma-related attitudes simultaneously and that entertainment experiences play an important role in this process. Educational efforts for stigma-related attitude change should therefore be arranged following an individual-centered perspective: On the one hand, students who enjoyed the movie might have had their first media-elicited experience with a person with schizophrenia which affirmed positive attitudes. On the other hand, students who report high levels of appreciation could have developed stigmatizing attitudes, possibly affecting their future treatment of people with mental illness negatively. Using a rather realistic portrayal about schizophrenia for student education can increase audiences' positive attitudes; yet, it can also foster misconceptions or negative emotional reactions such as guilt and fear (e.g., Carter, Read, Pyle, & Morrison, 2016; Scior & Furnham, 2016).

Implications for mental health nursing practice and education

Educational and contact-based interventions have been successful in reducing stigmatizing attitudes in the context of undergraduate trainings in various health care fields (Corrigan & Penn, 2015). This effect has been shown for movie documentaries (e.g., Kerby et al., 2008), but also for entertainment media that typically reach a far greater audience and are usually consumed in a flow-like "transported" state with high levels of empathy for protagonists (Green & Brock, 2000). The wealth of possible stigma-related movie effects, which can occur

conscious as well as unconscious, therefore deserve a more prominent part in the education of future health care professionals, especially regarding their potential to influence the attitudes and behaviors of both health professionals and the general public. Students and professional workers should become aware of the complexity of such effects in order to develop realistic expectations, and as a mean to reflect on individual as well as professional stigmatization of people with schizophrenia as a result of media use. Without doubt, media-based education and contacts provide powerful means to raise awareness for stigma and discrimination processes in healthcare, but may also have negative effects that are easily overlooked if they are not adequately addressed.

Limitations

No male students were included in the experimental group, limiting the generalizability of our findings. As women have a tendency to show more positive and open-minded attitudes toward people with mental illness than males (e.g., Ewalds-Kvist, Högberg, & Lützén, 2013) a ceiling effect cannot be ruled out. Angermeyer et al. (2003), however, found no influence of sex on participants' attitudes on mental illness when they constructed the scale: the only observed difference was that women demonstrated slightly higher scores on the integration subscale than men. Nonetheless, we were able to demonstrate that watching one movie can have stigma-increasing effects even on this semi-professional sample. It seems not unlikely that the observed effects would have been even more pronounced with a different sample. Future research with a bigger sample, drawn from a more diverse population, is needed to investigate if our findings can be replicated for other accurate as well as stereotypical movie depictions of mental illnesses.

Conclusion

Our findings emphasize the importance of examining how movie portrayals are enjoyed and appreciated by viewers, especially when they are students in healthcare and related fields, to understand the immediate and follow-up impact on their attitudes. Further research is needed to uncover the underlying mechanisms and relevant audience characteristics and to explore ways to utilize this knowledge in media-based interventions to reduce discrimination and stigmatization of individuals with a mental health problem.

Declaration of interest

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the paper.

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