How stigma impacts on people with psychosis: The mediating effect of self-esteem and hopelessness on subjective recovery and psychotic experiences

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ABSTRACT

This study aimed to examine how stigma impacts on symptomatic and subjective recovery from psychosis, both concurrently and longitudinally. We also aimed to investigate whether self-esteem and hopelessness mediated the observed associations between stigma and outcomes. 80 service-users with psychosis completed symptom (Positive and Negative Syndrome Scale) and subjective recovery measures (Process of Recovery Questionnaire) at baseline and 6-months later, and also completed the King Stigma Scale, the Self-Esteem Rating Scale and the Beck Hopelessness Scale at baseline. In cross sectional regression and multiple mediation analyses of the baseline data, we found that stigma predicted both symptomatic and subjective recovery, and the effects of stigma on these outcomes were mediated by hopelessness and self-esteem. When the follow-up data were examined, stigma at baseline continued to predict recovery judgements and symptoms. However, self-esteem only mediated the effect of stigma on PANSS passive social withdrawal. Self-esteem and hopelessness should be considered in interventions to reduce the effects of stigma. Interventions that address the current and long-term effects of stigma may positively affect outcome for people being treated for psychosis.

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1. Introduction

Stigma is a widely researched concept, with public stigma and self-stigma frequently cited as problems by those experiencing mental health issues (Corrigan et al., 2005). Goffman (1986) described stigma as a negative evaluation of an individual as 'tainted' because of attributes such as mental disorder, disability, or ethnicity. Public stigma is typically described as a process of prejudice, stereotypes and discrimination towards the stigmatised group or individual, and self-stigma is the internalisation of these negative attitudes, beliefs and behaviour. This internalisation is a relatively under-researched topic (Yen et al., 2005; Wu and Tang, 2012) with only a small amount of the stigma research focusing on the experiences of the individual and how they personally respond to stigma (Schulze and Angermeyer, 2003; Bagley and King, 2005). Nevertheless, the internalisation of stigma, the processes and mechanisms which underlie it, and the impact that it has is an

important issue. Early studies found that people with mental health problems expect to experience discrimination and receive ill-treatment from others, have less life satisfaction because of stigma, and feel demoralised and rejected by others (Link, 1987; Link et al., 1989; Mansouri and Dowell, 1989; Herman, 1993). Later work has suggested that self-stigma results in reduced self-esteem, increases depression and anxiety and hinders recovery (Schulze and Angermeyer, 2003; Law and Morrison, 2014).

It has been suggested that people who experience psychosis are one of the most stigmatised minority groups in society (Wood et al., 2014a, 2014b) with The Schizophrenia Commission (2012) recently reporting that 87% of individuals with a schizophrenia diagnosis had experienced public stigma and discrimination. Research has repeatedly shown that the majority of the general public hold negative beliefs about people experiencing psychosis; and particularly those diagnosed with schizophrenia. For example, in a survey of a 1000 French citizens on their attitudes towards people with mental illness, it was found that 69% of individuals would engage in social-distancing from individuals with schizophrenia, compared to 29% for bipolar disorder and 7% with autism ($p < 0.001$) (Durand-Zaleski et al., 2012). The primary reason given for this discrepancy was a belief that individuals with

schizophrenia are highly dangerous. Other studies not only support this observation that people diagnosed with schizophrenia are considered dangerous, but also that they are considered unpredictable (Crisp et al., 2000; Walker and Read, 2002; Stuart et al., 2012), incompetent, to blame for their illness (Corrigan and Kleinlein, 2005) and unlikely to ever recover (Crisp et al., 2000).

These kinds of stigmatising attitudes create a vicious circle of disability and disadvantage through diminishing quality of life (Stolzman, 1994), preventing help-seeking and engagement with mental health services and treatment (Thornicroft et al., 2007), inhibiting social roles, increasing social exclusion and hindering social integration (Link et al., 1997a, 2001; Thornicroft et al., 2007). Individuals also experience reduced life, work and education opportunities (Thornicroft et al., 2009) leaving people feeling ashamed and unwilling to disclose their illness for fear of the repercussions, and questioning their value as a member of society (Jenkins and Carpenter-Song, 2009). This all has a potential impact on recovery in terms of regaining a sense of quality of life and wellbeing, so that individuals report feeling pessimistic about recovery and lacking hope for the future (González-Torres et al., 2007).

It is evident that the impact of public stigma and self-stigma are far-reaching. However, researchers have so far neglected the possibility that both types of stigma, as well as contributing to poor quality of life and poor adjustment, may have an impact on the course and outcome of psychotic illness (Livingston and Boyd, 2010). This could happen if they impact on psychological mechanisms which in turn affect either symptoms, or subjective recovery or both. Two likely mechanisms which may play this role, which are investigated in the current study, are self-esteem and hopelessness, which have both previously been identified as responses to public stigma (Link et al., 2001; González-Torres et al., 2007) and which are often important elements of psychotic patients' pessimism about their own illness (Pitt et al., 2007).

For self-esteem and hopelessness to play the mediating role hypothesised here, they would have to affect symptoms and subjective recovery, and there is evidence that this may be the case (Lysaker et al., 2007b). Low self-esteem has been identified as a risk factor for psychosis (Janssen et al., 2003) and modern cognitive accounts of positive symptoms, particularly paranoid delusions, emphasise the important role of self-esteem in driving symptoms, especially paranoia (Bentall et al., 2001; Freeman et al., 2002). Indeed, a recent longitudinal study found evidence that negative beliefs about the self and others predicted paranoid symptoms prospectively (Fowler et al., 2013). Another recent study found that self-esteem and negative emotion were major determinants of subjective recovery, and that the impact of positive symptoms on subjective recovery was largely mediated through these variables (Morrison et al., 2013). The role of hopelessness in driving suicidal thinking is well documented (Heilä et al., 1997; King et al., 2001; Nordentoft et al., 2002) and a recent systematic review identified hopelessness as a major barrier to recovery (Soundy et al., 2015). Hence it seems reasonable to hypothesise that one pathway through which stigma might affect both objective and subjective outcomes would be through self-esteem and hopelessness.

The aim of the present study is therefore to test the predictions that: (a) perceptions of stigma will predict both objective and subjective outcome of psychosis; we also attempted to assess whether any such effects are short term (immediate) or long-term (6-months); (b) that observed relationships between perceived stigma and outcome will be mediated by self-esteem or hopelessness.

2. Methods

2.1. Participants and design

Eighty service-users (49 male, 31 female, mean age=39.15, SD=11.56) with experiences of psychosis were recruited from psychiatric services in 5 NHS trusts in the North-West UK. Two had only completed primary education, 34 had completed secondary education, 28 had been in receipt of vocational training and 15 had been educated at university (data missing from one patient). Six patients had never had an inpatient admission, 7 had one admission and the others had multiple admissions (data missing for 10 patients). All met the ICD criteria for a schizophrenia spectrum diagnosis as determined by their responsible clinicians, and their symptoms were confirmed with a researcher-conducted PANSS interview (PANSS; Kay et al., 1987, 1989). 78 were in receipt of antipsychotic medication; 13 were in receipt of psychological therapies and 46 reported ever having received psychological therapy (data missing from 10 patients). All participants had a sufficient level of English literacy to complete the measures and capacity to provide informed consent. The majority were White British (75%). Participants were recruited from early intervention services ($n=12$), community mental health teams ($n=61$), assertive outreach teams ($n=3$) and other mental health services ($n=4$). Data for all measures were collected at baseline, and the outcome measures were administered a second time six months later.

2.2. Measures

All research measures were administered by graduate psychologists who had received specific training in the relevant assessments. For the present analyses we focused on data pertaining to the key concepts of perceived stigma and recovery, with the influence of hopelessness and self-esteem considered as mediators. Other measures which will be reported in later papers are not discussed here.

2.2.1. Independent variables
2.2.1.1. Stigma. The *King* et al. *Stigma Scale* (KSS; King et al., 2007) is a 28-item self-report questionnaire measure of perceived stigma with items rated on a scale of 0 (strongly disagree) to 4 (strongly agree). There are three sub-scales: Discrimination (12 items), Disclosure (11 items), and Potential Positive Aspects of mental illness (5 items). King et al. (2007) found all items to have a test–retest reliability kappa coefficient of 0.4 or greater. Cronbach's α for Discrimination was reported to be 0.87, for Disclosure 0.85, and for Positive Aspects 0.64. Alpha coefficients for all scales in the current sample are given in Table 1. It can be seen that, whereas the coefficients for Discrimination and Disclosure in this study were acceptable, that for Positive Aspects was not; therefore this subscale (which was short and, in any case, of less theoretical interest than the others) was not employed in subsequent analyses.

2.2.2. Mediator variables
2.2.2.1. Hopelessness. The *Beck Hopelessness Scale* (BHS; Beck et al., 1974) is a 20 item self-report measure which measures three aspects of hopelessness: feelings about the future, loss of motivation, and negative expectations. Participants rate each statement as true or false for their attitudes over the last week. The psychometric properties of the BHS have been examined in a number of studies and it has demonstrated good validity and reliability (Young et al., 1993; Dyce, 1996; Nunn et al., 1996).

2.2.2.2. Self-esteem. The *Self Esteem Rating Scale*—short form (SERS; Lecomte et al., 2006) is a 20-item self-report measure assessing

Table 1
Mean, reliabilities and Pearson's inter-correlations for all variables in the multiple mediation models of the effects of stigma on recovery.

Measure	n	α	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Total stigma	73	0.86	–													
2. Discrimination	73	0.79	0.80**	–												
3. Disclosure	73	0.84	0.86**	0.40**	–											
4. Positive aspects	73	0.34	0.58**	0.26*	0.48**	–										
5. Hopelessness	74	0.92	0.54**	0.47**	0.40**	0.40**	–									
6. Negative self esteem	74	0.91	0.53**	0.49**	0.37**	0.40**	0.70**	–								
7. Positive self esteem	74	0.89	−0.45**	−0.42**	−0.30**	−0.38**	−0.56**	−0.58**	–							
8. QPR baseline	78	0.90	−0.41**	−0.23*	−0.40**	−0.38**	−0.62**	−0.60**	0.53**	–						
9. QPR 6 months	52	0.87	−0.43**	−0.41**	−0.30*	−0.34*	−0.59**	−0.49**	0.58**	0.65**	–					
10. PANSS positive baseline	79	0.59	0.24*	0.23	0.19	0.07	0.46**	0.39**	−0.40**	−0.52**	−0.52**	–				
11. PANSS positive 6 months	54	0.67	0.21	0.27*	0.12	0.02	0.49**	0.44**	−0.36**	−0.55**	−0.63**	0.71**	–			
12. PANSS negative baseline	79	0.74	0.23	0.20	0.16	0.20	0.34**	0.34**	−0.43**	−0.39**	−0.38**	0.46**	0.46**	–		
13. PANSS Negative 6 Months	54	0.74	0.15	0.05	0.16	0.24	0.25	0.10	−0.38**	−0.24	−0.30*	0.29*	0.43**	0.65**	–	
14. PANSS general baseline	80	0.69	0.46**	0.44**	0.34**	0.22	0.64**	0.58**	−0.51**	−0.57**	−0.55**	0.64**	0.50**	0.63**	0.40**	–
15. PANSS general 6 months	54	0.80	0.35**	0.37**	0.22	0.23	0.57**	0.52**	−0.41**	−0.55**	−0.70**	0.51**	0.77**	0.53**	0.49**	0.68**

Notes: Total Stigma=KSS total score, Discrimination=KSS discrimination sub-scale, Disclosure=KSS disclosure sub-scale, Positive Aspects=KSS positive aspects of stigma sub-scale, Hopelessness=BHS, Negative self esteem=Negative sub-scale of SERS, Positive self esteem=Positive sub-scale of SERS. α=Cronbach's alpha coefficient.

  * $p \leq 0.05$.
  ** $p \leq 0.01$.

positive and negative beliefs about the self. Items are rated on a 7 point Likert scale ranging from "never" to "always". The scale has demonstrated good reliability and adequate validity. As the positive and negative totals for the self-esteem rating scale are so highly correlated ($r = -0.65$, $p = <0.01$) for the purpose of the regression and mediation analyses we extracted the principle component of the two subscales to yield a single scale score.

2.2.3. Outcome variables

2.2.3.1. Subjective recovery. The *Questionnaire about the Process of Recovery* (QPR; Neil et al., 2009) is a 22-item self-report measure developed in collaboration with service-users and clinicians. Items are rated on a five point Likert scale ranging from "strongly disagree" to "strongly agree". Higher scores on the measure are indicative of greater sense of recovery. In this study we used total scores, which had excellent reliability.

2.2.3.2. Symptomatic recovery. The *Positive and Negative Syndrome Scale* (PANSS; Kay et al., 1987, 1989) is a 30 item semi-structured clinical interview and rating scale which includes 7 items to evaluate positive symptoms (e.g. delusions), 7 items to evaluate negative symptoms (e.g. blunted affect) and 16 items to assess global psychopathology (e.g. anxiety). Symptoms are rated by the interviewer from 1 (not present) to 7 (severe). The PANSS has been used in many studies and has been shown to have good reliability and validity.

We tested whether the stigma variables predicted PANSS subscale (positive, negative and general) at baseline and follow-up. However, we also hypothesised that stigma would relate to particular PANSS items. Items 1 (delusions) and 6 (suspiciousness/persecution), from the PANSS positive subscale were expected to relate to stigma as past research has found that experiences of discrimination predicted the later development of paranoid symptoms (Janssen et al., 2003). As guilt and shame are often described as part of the process of experiencing and internalising stigma (Link et al., 2004; Scheff, 2013), item 3 (guilt feelings) from the PANSS general subscale was considered individually in relation to stigma. Similarly, as stigma is often linked to a withdrawal from social interaction (Yanos et al., 2008) item 16 (active social avoidance) from the general PANSS subscale, and item 4 (social withdrawal) from the negative PANSS subscale were examined.

2.3. Procedure

The study was approved by an NHS Research Ethics Committee, and was designed with the advice of a service-user reference group. Participants were recruited through posters, advertisements and referrals from health professionals. Mental health services and voluntary sector agencies across the North West were approached for suitable referrals to ensure diversity in experience of psychosis and service provision. All participants gave informed consent. To reduce participant burden, participants were given the option to complete some or all of the measures.

2.4. Statistical analyses

We hypothesised that perceived stigma would negatively affect recovery beliefs. That is, the more stigma experienced, the less recovered a person would feel. We also hypothesised that the variables self-esteem and hopelessness would mediate this relationship. In terms of symptoms, we hypothesised that the individual symptoms of interest from the PANSS would be predicted by perceived stigma at baseline and longitudinally at six months.

All analyses were conducted using SPSS (version 21). We examined bivariate relationships between the variables (including the KSS subscales) and Cronbach's alpha coefficient was used to estimate the reliability of the measures. In subsequent linear regression models, only KSS total scores were considered in the light of the high correlations between total scores and subscale scores, and also in order to reduce the risk of type-1 error proliferation.

If it was found that the potential mediators appeared to have an effect in the multiple regressions, mediational models were tested with the KSS discrimination and disclosure subscales using the PROCESS macro on SPSS 21 (Hayes, 2013). For this purpose, the direct effects (*c* paths) between stigma and the dependent variables (QPR or PANSS scores at baseline and at six months) were firstly estimated. The mediating variables (self-esteem and hopelessness) were then introduced, generating models with direct effects between the independent variables and the mediators (*a* paths), direct effects between the mediators and dependent variables (*b* paths), and direct effects between the independent and dependent variables whilst controlling for the mediators (*c′* paths). The six-month follow-up models controlled for the baseline recovery beliefs or PANSS data as appropriate. Similarly, each stigma sub-scale mediation model controlled for the other subscale to account for its influence. This allowed us to look at the

influence of each sub-scale individually whilst acknowledging them as part of the overall experience of stigma. The models were estimated using maximum likelihood (ML) estimators. As mediation models are sensitive to parametric assumptions and we had a relatively modest sample size, the statistical significance of mediating and indirect effects was examined with bootstrapped bias-corrected percentile-based confidence intervals of 1000 bootstrap draws. In cases where zero did not fall within the 95% intervals of the bootstrapped samples, the mediating effect was considered to be significant (MacKinnon et al., 2004, 2007; Preacher and Hayes, 2008).

3. Results

3.1. Correlation analysis

There were no effects of age or gender on the stigma scores. Table 1 shows the correlation matrix between stigma, self-esteem, hopelessness and the recovery measures (QPR and PANSS scales). Unsurprisingly, there were significant associations between the subjective recovery measure (QPR) and the symptom-based recovery measures (PANSS subscales).

As expected both total stigma and the sub-scales, discrimination and disclosure, correlated highly with the QPR at baseline and at six months.

Total stigma correlated with PANSS positive and general subscales scores at baseline, but only with the PANSS general subscale score at follow-up. The discrimination sub-scale correlated with PANSS general at both time points but only the PANSS positive subscale at 6 months follow-up. The disclosure subscale correlated only with the PANSS general scores at baseline.

Self-esteem and hopelessness all displayed significant associations with the positive, negative and general PANSS scores at baseline. At six months these relationships remained for positive and general PANSS scores, but became non-significant for negative PANSS scores. Hopelessness and self-esteem also correlated with QPR scores at both time-points.

3.2. Linear regression analyses

3.2.1. Subjective recovery at baseline

The upper portion of Table 2 shows the results for regression models calculated with total stigma as a predictor of baseline subjective recovery (QPR). The stigma variable was entered first and then the self-esteem and hopelessness measures were entered afterwards. Stigma predicted subjective recovery at baseline, $F[1,70] = 14.31$, $p < 0.001$, adjusted $R^2 = 0.16$, but, when self-esteem and hopelessness were entered into the model, the model improved, $F[2,68]_{change} = 18.98$, $p < 0.001$, leading to a final significant model, $F[3,68] = 19.88$, $p < 0.001$, adjusted $R^2 = 0.44$. In this final model, both self-esteem and hopelessness became significant predictors but the effect for stigma was no longer significant. The fact that stigma was no longer significant after the addition of self-esteem and hopelessness suggests that the latter two variables may be mediators of the relationship between stigma and subjective recovery that was significant at the earlier stage.

3.2.2. Subjective recovery at follow-up

The lower portion of Table 2 shows similar models calculated for subjective recovery scores at the six-month follow-up. In the case of these data, predictors were entered in three stages: first, the baseline recovery scores, then stigma, and finally the hypothesised mediators. The second stage in these models therefore indicates whether stigma predicts subjective recovery at six months even when baseline subjective recovery is controlled for. The addition of KSS total scores led to a significantly better model

Table 2
Multiple regressions for subjective recovery at baseline and 6-month follow-up.

Variable	Subjective recovery at baseline Model 1			Subjective recovery at baseline Model 2		
	B	Std. error	β	B	Std. error	β
Total stigma	−0.27	0.07	−0.41***	0.01	0.07	0.02
Self-esteem				3.89	1.21	0.42**
Hopelessness				−0.58	0.22	−0.34**
Discrimination	−0.29	0.14	−0.23*	0.29	0.13	0.23*
Self-esteem				4.64	1.17	0.50***
Hopelessness				−0.66	0.21	−0.39**
Disclosure	−0.46	0.13	−0.40***	−0.15	0.11	−0.13
Self-esteem				3.59	1.15	0.39**
Hopelessness				−0.50	0.21	−0.30*

Variable	Subjective recovery at 6 months Model 1			Subjective recovery at 6 months Model 2			Subjective recovery at 6 months Model 3		
	B	Std. error	β	B	Std. error	β	B	Std. error	β
Baseline	0.72	0.12	0.65***	0.63	0.12	0.57***	0.42	0.16	0.38**
Total stigma				−0.18	0.09	−0.24*	−0.10	0.09	−0.13
Self-esteem							2.12	1.69	0.20
Hopelessness							−0.30	0.30	−0.16
Baseline	0.72	0.12	0.65***	0.64	0.12	0.58***	0.48	0.16	0.44**
Discrimination				−0.41	0.15	−0.29**	−0.24	0.19	−0.17
Self-esteem							1.66	1.80	0.15
Hopelessness							−0.25	0.31	−0.13
Baseline	0.72	0.12	0.65***	0.69	0.13	0.62***	0.40	0.16	0.36*
Disclosure				−0.13	0.16	−0.09	−0.11	0.15	−0.08
Self-esteem							2.62	1.63	0.24
Hopelessness							−0.35	0.30	−0.18

Note: Subjective Recovery = QPR, Baseline = QPR at baseline, Total Stigma = KSS Total Score, Discrimination = KSS discrimination sub-scale, Disclosure = KSS disclosure sub-scale, Self-Esteem = SERS factor, Hopelessness = BHS.

   * $p \leq 0.05$.
   ** $p \leq 0.01$.
   *** $p \leq 0.001$.

Table 3
Multiple regressions for PANSS sub-scale and items at baseline.

	Positive PANSS			Suspiciousness/persecution			Passive social withdrawal			Guilt feelings			Active social avoidance		
	B	Std. error	β	B	Std. error	β	B	Std. error	β	B	Std. error	β	B	Std. error	β
Model 1															
Total stigma	0.71	0.03	0.24*	0.04	0.01	0.37***	0.01	0.01	0.19	0.02	0.01	0.22	0.03	0.01	0.31**
Discrimination	0.13	0.07	0.23*	0.06	0.02	0.34**	0.04	0.02	0.26*	0.06	0.02	0.31**	0.04	0.02	0.24*
Disclosure	0.10	0.06	0.19	0.05	0.02	0.29**	0.07	0.02	0.06	0.03	0.021	0.14	0.04	0.02	0.27*
Model 2															
Total stigma	−0.02	0.04	−0.08	0.01	0.01	0.05	−0.01	0.01	−0.14	0.01	0.01	0.03	−0.00	0.01	−0.05
Self-esteem	−1.07	0.65	−0.26	−0.48	0.20	−0.35*	−0.27	0.16	−0.26	−0.31	0.24	−0.22	−0.57	0.18	−0.47**
Hopelessness	0.24	0.12	0.32*	0.06	0.04	0.23	0.06	0.03	0.34*	0.03	0.04	0.13	0.04	0.03	0.19
Discrimination	−0.02	0.07	−0.04	0.01	0.02	0.06	0.00	0.02	0.01	0.03	0.03	0.18	−0.02	0.02	−0.10
Self-esteem	−1.02	0.65	−0.25	−0.47	0.20	−0.35*	−0.21	0.16	−1.33	−0.24	0.23	−0.17	−0.59	0.18	−0.48***
Hopelessness	0.23	0.12	0.31*	0.06	0.04	0.23	0.06	0.03	0.30*	0.03	0.04	0.10	0.04	0.03	0.19
Disclosure	−0.01	0.06	−0.02	0.01	0.02	0.07	−0.02	0.02	−0.18	−0.00	0.02	−0.01	0.01	0.02	0.04
Self-esteem	−0.97	0.63	−0.24	−0.48	0.19	−0.35*	−0.25	0.15	−1.63	−0.33	0.23	−0.23	−0.54	0.17	−0.44**
Hopelessness	0.23	0.12	0.30*	0.06	0.04	0.22	0.07	0.03	0.35*	0.04	0.04	0.14	0.04	0.03	0.16

Note: Positive PANSS=PANSS positive sub-scale, Suspiciousness/persecution=PANSS item P6, Passive social withdrawal=PANSS item N4, Guilt feelings=PANSS item G3, Active social avoidance=PANSS item G16, Total stigma=KSS Total Score, Discrimination=KSS discrimination sub-scale, Disclosure=KSS disclosure sub-scale, Self-Esteem=SERS factor, Hopelessness=BHS.

* $p \leq 0.05$.
** $p \leq 0.01$
*** $p \leq 0.001$.

than the baseline scores alone, $F[1,48]_{change} = 4.41$, $p < 0.04$, leading to a significant model, $F[2,48] = 21.41$, $p < 0.001$, adjusted $R^2 = 0.45$, in which stigma was a significant predictor. However, adding self-esteem and hopelessness did not lead to a further improvement in the model.

Overall, these findings indicate that perceived stigma strongly predicts current subjective recovery judgements, with self-esteem and hopelessness as potential mediators of this association. However, the evidence that perceived stigma affects future recovery judgements is less clear; in the case of KSS total scores there is some evidence that this may be the case but there was no evidence of mediation by self-esteem and hopelessness.

3.2.3. PANSS symptoms at baseline

Table 3 shows the results of the multiple regressions for PANSS subscales and items at baseline. As with the subjective recovery analyses, the stigma variable was entered first and then the self-esteem and hopelessness measures were entered afterwards. Stigma predicted PANSS Positive subscale scores, $F[1,71] = 4.36$, $p < 0.05$, adjusted $R^2 = 0.05$, but, when self-esteem and hopelessness were entered into the model, the model improved, $F[2,69]_{change} = 8.37$, $p < 0.01$, leading to a final significant model, $F[3,69] = 7.33$, $p < 0.001$, adjusted $R^2 = 0.24$. Self-esteem and hopelessness both became significant predictors and effect of stigma was no longer significant, indicating possible mediation.

Stigma further predicted PANSS item P6 (suspiciousness/persecution), $F[1,71] = 10.96$, $p < 0.01$, adjusted $R^2 = 0.12$. However, when self-esteem and hopelessness were added to the model, the model improved, $F[2,69]_{change} = 9.36$, $p < 0.001$, leading to a final significant model, $F[3,69] = 10.76$, $p < 0.001$, adjusted $R^2 = 0.29$, where self-esteem and hopelessness both became significant predictors of suspiciousness/persecution, and stigma no longer had a significant effect.

Similarly, stigma predicted PANSS item G16 (active social avoidance), $F[1,71] = 7.75$, $p < 0.01$, adjusted $R^2 = 0.10$. When self-esteem and hopelessness were added, the model improved, $F[2,69]_{change} = 12.99$, $p < 0.001$. This led to a final significant model, $F[3,69] = 12.11$, $p < 0.001$, adjusted $R^2 = 0.32$, with self-esteem and hopelessness significantly predicting G16, and the effect of stigma becoming non-significant. However, stigma did not predict PANSS item N4 (passive social withdrawal) or G3 (guilt feelings).

Overall, these findings suggest that current experiences of stigma strongly predict positive symptoms, particularly suspiciousness and persecution; and active social avoidance. Moreover self-esteem and hopelessness may potentially mediate these relationships.

3.2.4. PANSS symptoms at follow-up

For symptomatic recovery at 6 months follow-up we included baseline symptomatic recovery scores in the first stage in order to control for their effect. Stigma was added in the second stage, and self-esteem and hopelessness were added in at the third stage. Stigma did not predict PANSS positive subscale scores or P6 (suspiciousness) at 6 months but it did predict three of the individual PANSS items in ways that were consistent with our hypotheses.
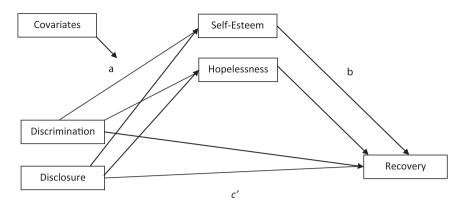
Despite the lack of association between stigma and passive social withdrawal (N4) at baseline, N4 at 6 months was unexpectedly predicted by total stigma, $F[1,51] = 9.20$, $p < 0.005$, adjusted $R^2 = 0.18$, when baseline PANSS N4 data was controlled for. When self-esteem and hopelessness were added into the model, the model improved, $F[2,49]_{change} = 3.95$, $p < 0.05$, leading to a significant final model, $F[4,49] = 5.73$, $p < 0.01$, adjusted $Rk = 0.26$, in which self-esteem (but not hopelessness) became a significant predictor and the effect of stigma was no longer significant.

Active social avoidance (G16) was also significantly predicted by total stigma $F[1,51] = 4.03$, $p \leq 0.05$, adjusted $R^2 = 0.41$ after controlling for baseline scores. The addition of self-esteem and hopelessness did not improve the model. Similarly, guilt feelings (G3) was predicted by total stigma, $F[1,51] = 7.49$, $p < 0.01$, adjusted $R^2 = 0.33$, but the addition of self-esteem and hopelessness in the third stage did not improve the model.
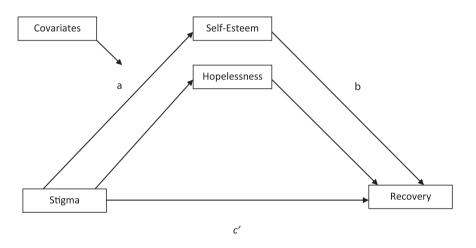
In summary, there was evidence that stigma at baseline predicted passive social withdrawal, active social avoidance and guilt feelings at six month follow-up. The effect of stigma on passive social withdrawal may be mediated by self-esteem and hopelessness.

3.2.5. Multiple mediation analyses at baseline

Multiple mediation analyses were carried out using the PROCESS macro for SPSS (Hayes, 2013) to further interrogate the data where the regression analyses indicated that they might be

Note: Model 1 was run for PANSS and QPR at baseline and at 6 months. Self-Esteem = SERS factor, Hopelessness = BHS, Discrimination = KSS discrimination sub-scale, Disclosure = KSS disclosure sub-scale, Recovery = QPR, or PANSS subscale, or PANSS item at baseline or at 6 month follow-up.

Note: Model 2 was run for PANSS and QPR at baseline and at 6 months. Self-Esteem = SERS factor, Stigma = KSS total, Recovery = QPR, or PANSS subscale, or PANSS item at baseline or at 6 month follow-up.

Fig. 1. Mediation models 1 and 2 Note: Model 1 was run for PANSS and QPR at baseline and at 6 months. Self-esteem=SERS factor, Hopelessness=BHS, Discrimination=KSS discrimination sub-scale, Disclosure=KSS disclosure sub-scale, Recovery=QPR, or PANSS subscale, or PANSS item at baseline or at 6 month follow-up. Note: Model 2 was run for PANSS and QPR at baseline and at 6 months. Self-esteem=SERS factor, Stigma=KSS total, Recovery=QPR, or PANSS subscale, or PANSS item at baseline or at 6 month follow-up.

appropriate. In these analyses it was possible to consider the effects of the individual KSS subscales (discrimination and disclosure) together, in each case controlling for the remaining subscale. In the case of 6-month follow-up data, baseline scores on the appropriate recovery measure were also controlled for; see Fig. 1. Detailed statistical results are available in online Supplementary Tables S1 (for baseline data) and S2 (6 month follow-up data).

At baseline, the effect of total KSS scores on subjective recovery was fully mediated by both low self-esteem (specific indirect effect $B=-0.16$, 95% CI$=-0.28$ to -0.05) and hopelessness ($B=-0.12$, 95% CI$=-0.25$ to -0.04). The effect on PANSS positive scores was fully mediated by hopelessness ($B=0.05$, 95% CI$=0.00$–0.10) and not by self-esteem.

When individual PANSS items were examined, the effect on suspiciousness (P6) was fully mediated through self-esteem ($B=0.02$, 95% CI$=0.01$–0.03) as was active G16 social avoidance ($B=0.02$, 95% CI$=0.00$–0.04). The effect of total stigma on passive social withdrawal (N4) was fully mediated through hopelessness ($B=0.01$, 95% CI$=0.00$–0.03).

When the KSS subscales discrimination and disclosure were entered together as predictors, substantially similar results were obtained with the exception of the analysis for the QPR, in which the effect of disclosure was only mediated through hopelessness, and the effect of discrimination was only partially mediated through both self-esteem and hopelessness (there was a residual direct effect of discrimination on QPR scores).

3.2.6. Multiple mediation analyses at follow-up

For the 6-month follow-up data, only N4 passive social withdrawal showed evidence of mediation in our regression models and so only this outcome was considered in our multiple mediation analysis. In the case of total KSS scores, the association between stigma and outcome was fully mediated by self-esteem ($B=0.01$, 95% CI$=0.00$–0.04). When the individual KSS subscales were considered, the effect of discrimination was fully mediated by self-esteem ($B=0.03$, 95% CI$=0.01$–0.07) but there was no effect for disclosure.

4. Discussion

The primary aim of the study was to examine whether internalised stigma had a negative impact on subjective and symptomatic recovery. Previous research has suggested that this may be the case through a number of pathways, for example reduced help-seeking (Thornicroft et al., 2007), reduced social functioning and engagement (Link et al., 1997b, 2001; Thornicroft et al., 2007) and reduced life opportunities (Thornicroft et al., 2009). However, whilst it is clear that internalised stigma affects a number of aspects of recovery, the underlying processes and the nature of these relationships requires further clarification.

The results of this study suggest that both subjective recovery judgments and symptoms may be affected. At baseline, experiences of internalised stigma strongly predicted poor subjective recovery judgements. Similarly, internalised stigma appeared to predict positive symptoms, particularly suspiciousness and persecution, and active social avoidance. At 6 month follow up, active social avoidance, guilt feelings and self-blame were predicted by internalised stigma. Passive social withdrawal was also longitudinally predicted by internalised stigma, and by discrimination. The effect of stigma and discrimination on passive social withdrawal at six months appeared to be mediated by self-esteem. The effect of internalised stigma on baseline recovery judgements appeared to be mediated through low self-esteem and hopelessness. However, neither self-esteem nor hopelessness appeared to explain the persisting association between internalised stigma and long-term recovery judgements (as discussed below, this might be because there was a long gap between the measurement of these mediators and the six-month outcome).

Previous research has highlighted one aspect of the relationship between positive symptoms and internalised stigma, suggesting that more positive symptoms result in more experiences of internalised stigma (Lysaker et al., 2007a). Our results suggest that the relationship might also work in the opposite direction, with internalised stigma experiences affecting later positive symptoms. Our results were consistent with previous work which has described feelings of guilt and shame as integral to the internalisation of stigma (Corrigan and Watson, 2002) as we found that guilt feelings and self-blame were predicted by stigma at 6 month follow-up in our regression analyses. However, it is difficult to determine to what extent the guilt feelings are related to the causes or the consequences of mental illness without examining the content of the feelings expressed. For example, research suggests that service users with psychosis are 2.72 times more likely to have been exposed to childhood adversity than the general population (Varese et al., 2012) and self-blame is well-documented in victims of trauma (Coffey et al., 1996). Therefore, whilst we cannot assume that internalised stigma is the sole predictor of guilt and self-blame, it clearly has a significant effect on this experience in people with psychosis.

The negative effects of stigma on social interaction have often been observed (Link et al., 1997b, 2001; Thornicroft et al., 2007), but it was interesting to find in our data that the effects of internalised stigma at baseline were still significant six months later. Active social avoidance is characterised by diminished social involvement consequent on unwarranted fear, hostility, or distrust. The long-term effects apparent in the data suggests that patients may be self-stigmatising and pre-emptively withdrawing from social interaction in the anticipation of experiencing negative reactions from others. This finding is consistent with previous findings from Yanos et al. (2008), who, in a cross-sectional study, found that internalised stigma increases avoidant coping and active social avoidance. Yanos et al. further found hope and self-esteem to be influential in this relationship; however we only found self-esteem to have a mediating effect between experienced stigma and active social avoidance at baseline, whereas hopelessness mediated the effect on passive avoidance. Contrastingly, at 6 months the effect of stigma on passive (but not active) social withdrawal was mediated by low self-esteem. These discrepancies between the role of self-esteem and hopelessness at the different time points may be less important than they at first appear; the two variables were measured at the same time point at the beginning of the study and were moderately correlated; hence, it may have been difficult for our design to discriminate between these different facets of a pessimistic cognitive style.

Neither self-esteem nor hopelessness were able to explain the persisting association between internalised stigma and long-term recovery judgements. It is possible that this finding reflects a study limitation, as only the recovery measures and not the mediators were repeated at the six month follow up. Perhaps mediation would have been detected had self-esteem and hopelessness been assessed closer to the 6-month follow-up point. Previous research has shown that perceived discrimination and stigma strongly predict future self-esteem at 6 months and 24 months (Link et al., 2001, 2004), although no comparable data is available for hopelessness. It is also possible that the effects of perceived stigma are cumulative as an individual may have more discriminatory experiences over time; in which case the association between internalised stigma, self-esteem and hopelessness may have an even greater impact on recovery judgements long-term if six-month data were available for all measures.

Nevertheless, for both subjective recovery and symptoms at baseline, and for symptoms at six month follow-up, it is evident that hopelessness and low self-esteem play a key role in facilitating the effects of stigma. Overall, the findings are consistent with existing research which suggests that stigma causes loss of self-esteem (Link et al., 2001) and hope (González-Torres et al., 2007), and can impede recovery.

There are several limitations of the present study that might be noted. First, the mediating psychological mechanisms were measured only at baseline and it would have been preferable to repeat them at follow-up, which might include several time points. Secondly, we deliberately invited a broad range of patients to take part in the hope of sampling a range of symptom profiles and recovery judgments but this may have obscured effects that are important at particular stages of illness course. Third, stigma is clearly a multi-faceted construct and there are aspects that we have not measured; for example there has recently been interest in implicit measures of stigma (Teachman et al., 2006; Rüsch et al., 2010). Fourth, the KSS is time-nonspecific (items do not specify whether stigma is experienced in the present or the past); future studies which address the question of whether stigma fluctuates over time may be better able to address associations with self-esteem, hopelessness and symptoms which, undoubtedly, also fluctuate. Finally, of course, even the longitudinal approach we have adopted cannot eliminate unmeasured confounding and so it is not possible to exclude the possibility that an unmeasured predictor of internalised stigma predicts outcome, creating a spurious correlation between stigma and outcome. While we feel this is unlikely, in the absence of an experimental manipulation of stigma, it is extremely difficult to eliminate these kinds of effects, although new instrumental variable methods that are being applied to analyse mediators in trial data may have promise in this regard (Goldsmith et al., 2015).

Given our finding that stigma may impact on future clinical outcomes, further research is vital to test this possibility. In the light of the limitations of the present study just listed, future studies should include mediator variables at later time points, should consider focusing on the first episode (or even during the prodromal period before first onset) to understand how stigma evolves across the course of illness, and the extent to which stigma

impedes recovery, should also consider the inclusion of implicit measures, and also consider more sophisticated ways of demonstrating that stigma has a causal effect on outcome.

The limitations of the present study notwithstanding, our findings have some important clinical implications. Whilst there are numerous anti-stigma campaigns which target stigma on a societal level (Wood et al., 2014b) they have had varying success with some campaigns resulting in increased desire for social distance from individuals with mental health problems (Read et al., 2006, 2013). However, it is important to target stigma not only on the population level, but also on an individual level with a view to ameliorating its injurious effects on self-perception and sense of recovery. Our results suggest that the mediators of self-esteem and hopelessness may be crucial targets in this respect.

NICE (National Institute for Health and Care Excellence, 2009) recommends Cognitive Behavioural Therapy (CBT) as the first line of psychological intervention for psychosis. Crucially, since their inception, CBT interventions for psychosis have included a normalising rationale, with the aim of reducing the patient's perception of being different from others, and therefore internalised stigma (Kingdon and Turkington, 1991). Normalising strategies include providing information about the widespread prevalence of psychotic experiences and of famous people who have been successful despite experiencing psychosis (Morrison et al., 2003). Research has shown that CBT shows promise in terms of improving self-esteem in clients with psychosis (Hall and Tarrier, 2003) and it has been suggested that it would be the most appropriate approach to addressing issues such as feelings of hopelessness regarding recovery (Yanos et al., 2008; Wood et al., 2014b). Moreover, when CBT is utilised as a group therapy there is preliminary evidence from uncontrolled studies to suggest it may be successful at reducing internalised stigma, improving self-esteem, and advancing recovery (Knight et al., 2003; MacInnes and Lewis, 2008; Lucksted et al., 2011), and a recent randomised controlled trial found that a cognitive behavioural self-stigma reduction programme had significant benefits on self-esteem (Fung et al., 2011). Other interventions that aim to promote optimism and improve self-esteem, such as peer support, may also be worth evaluating in terms of effects on internalised stigma (Pyle and Morrison, 2013).

Interventions may extend beyond conventional psychological therapies. A focus on how internalised stigma is handled, encouraging social participation and preventing isolation is important for wellbeing and symptomatic recovery in the long-run (Garety et al., 2000, 2001; Pyle and Morrison, 2013; Wood et al., 2014a). Hence, mental health services need to consider practical ways of minimising patients′ social exclusion, for example by encouraging service-user led self-help groups and by employing service-user advisors, and by developing robust anti-stigma policies that apply to all staff.

Contributors

Victoria Vass: study design, data analysis, and write-up.
Anthony Morrison: study design and write-up.
Heather Law: study design and write-up.
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Pamela Taylor: data collection.
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Conflict of interest

None.

Appendix A. Supplementary material

Supplementary data associated with this article can be found in the online version at http://dx.doi.org/10.1016/j.psychres.2015.09.042.

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