Online Supplement

Details of additional measures included in the analysis

Questionnaire on Anticipated Discrimination (QUAD)(1)*:* is a self-complete measure comprising 14 items assessing the extent to which participants expect to be treated unfairly in areas of life similar to the DISC. Each item is scored on a 4-point Likert scale ranging from 0 (Strongly disagree) to 3 (Strongly agree). Psychometric analyses indicate good internal consistency and construct validity(17). A mean score (range 0-3) is calculated by adding each item score (0, 1, 2 or 3) and dividing by the number of applicable, non-missing items.

Internalised Stigma of Mental Illness Scale (ISMI)(2)*:* a 29-item self-rated measure that assesses mental health service users' experience of internalised stigma (also known as self stigma) with 4-point Likert response categories. Strong internal consistency and test–retest reliability have been reported (18). There are five subscales including a five item 'Discrimination Experience' subscale, which due to being conceptually similar to the DISC was excluded. A total score was generated by summing the remaining 24 items.

Stigma Stress Appraisal (SSA)(3): an interview measure with four items assessing the extent to which stigma is appraised as personally harmful and four measuring perceived resources to cope with stigma. Items are scored from 1 to 7 with higher scores equalling higher agreement. A 'stress appraisal' score is computed by subtracting perceived resources from perceived harmfulness. A higher difference score indicates the appraisal of stigma as stressful and exceeding personal coping resources.

Lack of social support measure adapted from that used by Brohan and colleagues(4)*: P*articipants were deemed to lack social support if they answered no to all three of the following: 'Of the people you see regularly, is there someone you think of as a friend?'; 'Do you have a best friend?'; and 'Are you particularly close to anyone in your family?'

Scale to Assess Therapeutic Relationships (STAR)(5): comprises 12 items and has an overall score and subscales on positive collaboration, positive clinician input and non-supportive clinician input. The service user participant was asked to complete it about their main professional caregiver.

Mistrust in mental health services: used the item 'Generally you can trust mental health staff and services', adapted from the Generalized (horizontal) trust item ('Generally you can trust other people')(6), and had four response categories from strongly disagree (1) to strongly agree (4), dichotomised for the analysis in this study.

Discomfort disclosing: was assessed by the item: 'In general, how comfortable would you feel talking to a friend or family member about your mental health, for example, telling them you have a mental health diagnosis and how it affects you?'(7) with seven response categories, dichotomised as very / moderately / fairly uncomfortable vs other responses.

Brief Psychiatric Rating Scale (BPRS)(8)*:* comprises 18 items addressing symptomatology. The scale is very widely used and has been shown to be reliable and valid(8).

Justification for sample size

The sample size was based on a power calculation for the MIRIAD study's first aim: To establish what are the main effects of ethnicity, diagnosis, age, gender, education and income level upon the severity of discrimination(9) The associations between demographic characteristics and severity of discrimination were to be investigated using multiple regression, exploring 10 independent variables or variable equivalents: gender (2 categories = 1), age (1), diagnosis (4 categories = 3), ethnicity (3 categories = 2), income (1), education (3 categories = 2). For a multiple linear regression test of R^2=0 (alpha = 0.050) for 10 normally distributed covariates a sample size of 195 will have 90% power to detect an R^2 of 0.1000.

Service Engagement Scale-Service User version

People differ in the way that they use mental health services. Some of the questions refer to 'your mental health professional' – this is the person you see most for your mental health care e.g. your care coordinator (usually a community psychiatric nurse / CPN or a social worker), or for some people this might be your psychiatrist. Please indicate how well each of the following statements describes the way that you use the available services by circling one number on each line.

		Not at all or Rarely	Sometimes	Often	Most/All of the Time
	Availability				
1	I experience difficulties when my mental health professional and I arrange appointments	0	1	2	3
2	When an appointment has been arranged I will be there	0	1	2	3
3	I try to avoid making appointments	0	1	2	3
	Collaboration				
4	If my mental health professional offers advice, I usually don't want to go along with it	0	1	2	3
5	I take an active part in the setting of goals or treatment plans	0	1	2	3
6	I actively participate in managing my mental health problem	0	1	2	3
	Help Seeking				
7	I seek help from mental health services when I need assistance	0	1	2	3
8	I find it difficult to ask for help from mental health services	0	1	2	3
9	I seek help from mental health services to prevent a crisis	0	1	2	3
10	I actively seek help from mental health services	0	1	2	3
	Treatment Adherence				
11	I agree to take medication prescribed for me	0	1	2	3
12	I am clear about what medications I am taking and why	0	1	2	3
13	I follow the treatment plans my mental health professional has made for me	0	1	2	3
14	I miss out doses of my medication, or take less than was prescribed	0	1	2	3

Adapted from Tait, L., Birchwood, M., & Trower, P. (2002). A new scale (SES) to measure engagement with community mental health services. Journal of Mental Health, 11(2), 191-198 to enable completion by service users.

Items 2, 5, 6, 7, 9, 10, 11, 12 and 13 are reverse scored. Higher scores indicates greater difficulty engaging with services.

Items in original professional version of SES (10) for comparison to service-user version above

1) The client seems to make it difficult to arrange appointments

2) When a visit is arranged, the client is available

3) The client seems to avoid making appointments

4) If you offer advice, does the client usually resist it?

5) The client takes an active part in the setting of goals or treatment plans

6) The client actively participates in managing his/her illness

7) The client seeks help when assistance is needed

8) The client finds it difficult to ask for help

9) The client seeks help to prevent a crisis

10) The client does not actively seek help

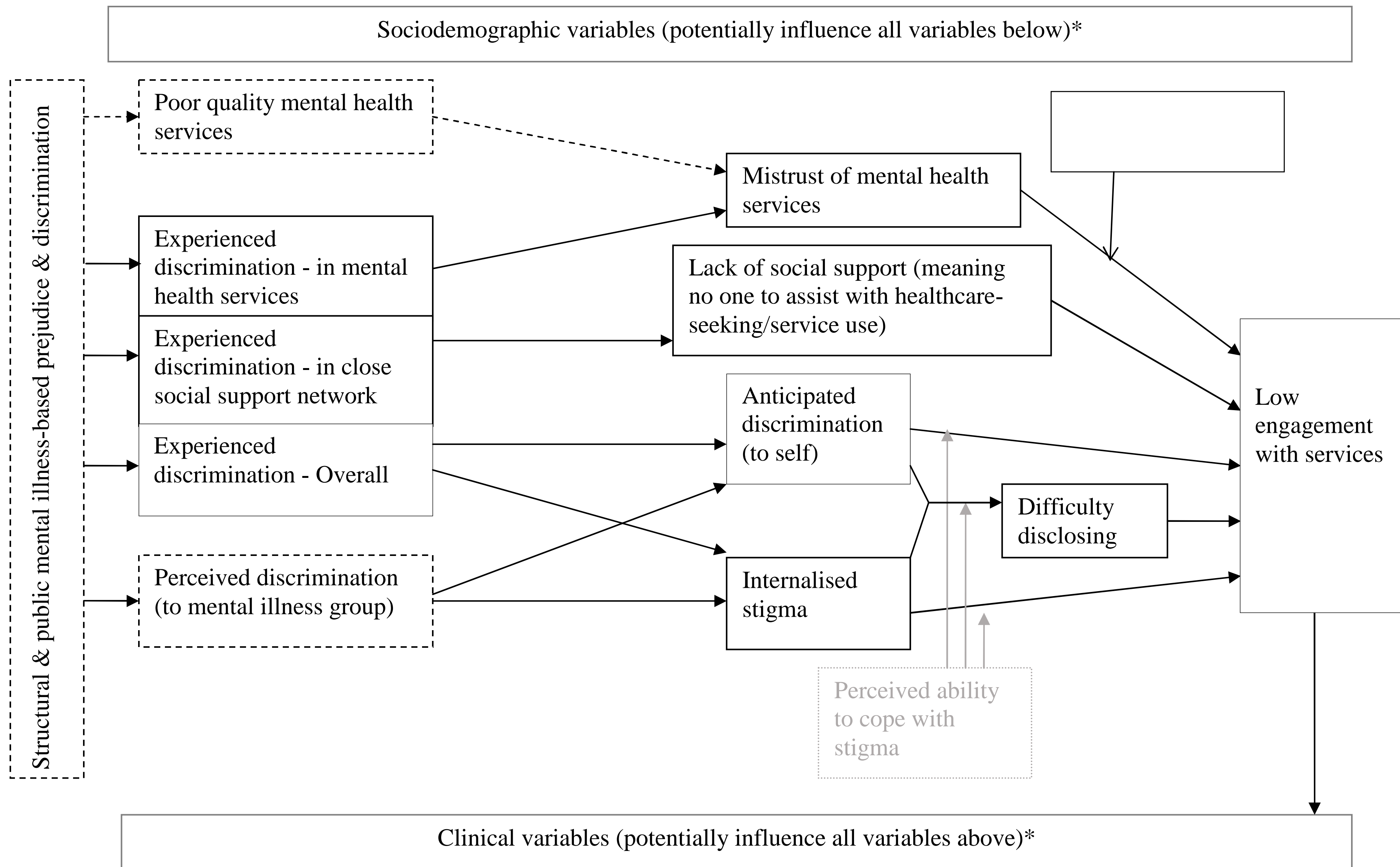
11) The client agrees to take prescribed medication

12) The client is clear about what medications he/she is taking and why

13) The client refuses to co-operate with treatment

14) The client has difficulty in adhering to the prescribed medication.

Hypothesized relationships between stigma and discrimination-related variables and service engagement



,Dashed line = not measured in MIRIAD;
grey = not included in analysis due to complexity of hypothesised relationship (post-hoc decision);
*age, ethnicity and symptomatology controlled for

Full details of structural equation modelling analysis

Univariable models were first explored then the SEM was estimated using robust weighted least squares means and variance adjusted estimator (WLSMV) as this allowed for the more accurate estimates of direct, indirect and total effects using bias-corrected confidence intervals (11) and for use with small sample sizes. A robust maximum likelihood (MLR) approach with 50 random starts and computing results on the 10 best solutions was also performed and produced similar results with the same interpretations. The model was constructed starting with the full unrestricted model and by testing each pathway, including adjustment by potential confounders (BPRS, age and ethnicity) using chi-squared difference testing between nested models. This was done until a parsimonious model that maximised model fit was reached. A small percentage of the data were missing (2.5%) and an exploration into possible predictors of missingness by sociodemographic and clinical characteristics using univariable statistics provided no evidence of a mechanism of missingness. Data were assumed to be missing at random and the models were estimated on the full sample using WLSMV. The reported model was estimated using Mplus version 7(12).

References for online supplement

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