Social Satisfaction and Living Alone: Predictors of Self-Perception of Mental Health Improvement After Psychosis

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Background: Psychosis recovery can accompany social and self-stigma for the survivor, which can interfere with the person reaching their personal recovery goals. We hypothesized that there would be a strong association between social satisfaction and self-perceived mental health improvement, and that living alone would be a risk factor to self-perceived improvement. *Study Design:* Our strengths-based quantitative study aims to identify the most important factors to psychosis survivors for their mental health recovery. Survey responses from wave 5 of the Population Assessment of Tobacco and Health (PATH) study were used, specifically from those who self-identified as psychosis survivors ($n = 710$), analyzing the association between self-reported mental health symptoms, social satisfaction changes in the last year, living alone, and demographic variables, with self-reported mental health recovery in the last year. *Study Results:* Ordinary least squares regression analysis revealed three predictors of self-reported mental health improvement for psychosis survivors: social satisfaction, living alone, and lower anxiety. As hypothesized, social satisfaction was the largest determinant in self-perceived mental health improvement, but contrary to our hypothesis, living alone was a protective factor. *Conclusion:* Prioritizing social satisfaction over group living environments for people recovering after psychosis.

Key words: schizophrenia/personal recovery/relationship satisfaction/social isolation

Introduction

Statistics on those who have experienced a psychotic episode reveal that the majority anticipate others' stigma and are distressed by it.[1] Psychosis can most readily be defined as a grouping of symptoms that are either hallucinations or delusions or both.[2] Psychosis often also includes thought disorganization, negative symptoms (avolition, anhedonia, social withdrawal, difficulty showing emotions, alogia), and cognitive symptoms (memory retrieval, information processing, and attention).[2] Unfortunately, in addition to the often-paralyzing symptoms, societal and structural stigma exists toward people with lived experience of.[3] It is important to identify the factors that people with psychosis view are most important to their recovery[4]; therefore, the purpose of this study is to determine which psychosocial factors contribute to mental health recovery for survivors of psychosis.

The Recovery Movement

Quantitative models of schizophrenia have been critiqued by members of the recovery movement as reductionistic and biased due to disregarding the lived experience of individuals with psychosis and a reliance typically on outsider observations.[5] The recovery movement arose in response to Kraepelin's dementia praecox theory, that postulated that schizophrenia was deteriorative, likening it to dementia.[6] Those in the recovery movement, composed of primarily psychosis survivors and their family members, countered that many people with psychosis symptoms fully recover[7] and defined recovery as both a process and an outcome, including more than symptom remission and decreased hospitalizations, defined by the recoveries.[4,8] Recovery from psychosis, therefore, cannot be based solely on symptoms diagnosed by a clinician or doctor; the person with lived experience will know when they have recovered.

Although rapidly gaining momentum, the recovery movement has been controversial. Kane[9] argued that recovery is defined by symptom remission, vocational functioning, and social functioning. Clinical outcomes,

outcomes defined by the clinician, take priority over those that are patient-defined.[7] Counter to Kane's model of recovery, some have argued that recovery cannot be objective and is only a subjective experience,[10] including a high self-rated quality of life and feeling a full sense of self. Still, others argue that both objective definitions and subjective definitions of recovery can be helpful, but potentially subjective understandings of recovery will have a greater impact on other areas of the person's life.[11]

Measuring Personal Recovery

With the assistance of different members of the recovery movement, researchers, and clinicians, the Substance Abuse and Mental Health Services Administration (SAMHSA) in the United States developed a list of core qualities that defined recovery: self-direction, holistic approaches, individualization, empowerment, nonlinear paths, strengths-based, peer support, respect, responsibility, and hope.[12] Although this definition is specific to westernized countries, given the emphasis on individuality and independence, SAMHSA's recovery definition humanizes the personal journey of people with psychosis toward recovery.[13,14]

Measuring personal recovery is complicated because people may define their own recovery in different ways. Although measures have been developed to attempt to operationalize the construct, few have been sufficiently tested to verify adequate validity and reliability.[15,16] Some studies focused on defining recovery have been qualitative in nature, with analyses of themes in interviews drawing connections in rich narratives. In these studies, commonalities found in the lived experience of psychosis are losses in identity, social satisfaction, feeling helped, and resilience.[17] One study aggregated four studies, including 971 individuals with schizophrenia-spectrum disorders, and examined associations between positive and negative symptoms of psychosis, items on the Social Performance Scale, and scores from the Questionnaire about the Process of Recovery.[11] Best et al[11] found that affective symptoms were most strongly associated with personal recovery, and that negative and disorganized symptoms were mildly related to symptom remission and personal recovery. Additionally, they defined personal recovery as the process of integrating mental health struggles into the person's self-identity, and corroborated others' work that personal recovery, although related, is psychometrically distinct from objective recovery or symptom remission.[18,19]

Social Elements of Personal Recovery

More research has revealed an even greater emphasis on the social component of personal recovery than previously believed. Secure attachment[20,21] and social connectedness[22] are important components of recovery. Furthermore, a quantitative analysis examining the relationship between social functioning and personal recovery in people with serious mental illnesses discovered a positive correlation between the two.[23] To the best of our knowledge, no other studies examine the possible relationship between social satisfaction and personal recovery. Given the literature that suggests that personal recovery and social satisfaction could be related, this study sought to investigate the association between the two variables using a relatively large sample of people ($N = 710$) who had experienced a psychosis episode in a secondary data analysis. We hypothesized that there would be a strong relationship between social satisfaction and personal recovery from mental illness. Additionally, we also hypothesized that living alone would be a risk factor for personal recovery from mental illness, given the importance of social connectedness in recovery, as defined by those with lived experience of psychosis and that social isolation is a risk factor for psychosis onset and recovery.[24,25]

Methods

Data and Sample

A cross-sectional, secondary data analysis using the Population Assessment of Tobacco and Health (PATH) dataset was conducted for this study. PATH is a US nationally representative longitudinal study that examines tobacco use and its effects on the health of individuals 12 and older using a stratified sampling design. Five waves of PATH data are publicly accessible; however, this study focuses only on the most recent wave, wave five, collected between 2018 and 2019. Although the initial three waves of the PATH study did not include any information about the respondents' psychosis history, wave four and wave five did, in addition to other measures of mental health, recovery factors, social factors, and demographic variables. To the best of our knowledge, this is the first study to use the dataset to study psychosis.

To examine the internal and external protective factors in predicting self-perceived mental illness recovery, we included only adults in wave five. Internal factors were defined as factors that are related to the person, such as traits, symptoms, and identity demographics. External factors were conceptualized as environmental factors such as income, living situation, and hospitalizations. Youth were not included due to the low prevalence of psychotic episodes in people under the age of 18. Although a longitudinal analysis would have been possible between waves 4 and 5, there was too small a sample size of shared respondents between waves to achieve statistical power. The original sample size of wave 5 in the PATH study was 33,822. Cases with missing values on mental illness recovery in the last year were removed from the analysis as well as cases that did not have a "psychosis" determination by a medical provider, yielding a final sample size

of 710 respondents. This is probably an underrepresentation of the actual number of people with psychosis who participated in this survey given the societal stigma and self-stigma that is highly pervasive in the population.[11]

Outcome Variable

Self-perceived mental health recovery was the outcome variable in our model. To operationalize self-perceived recovery from mental illness, we focused on the survey item, "Self-perception of mental health now compared with 12 months ago." The measure was a three-point Likert scale recorded as (2) worse, (3) about the same, and (4) better. Given that mental illness recovery is a subjective self-rated construct, we chose a survey item focusing on change in the last year rather than present mental health status to represent recovery.

Predictor Variables

We defined social satisfaction in the last year and living alone as the predictor variables in our model. Social satisfaction change was quantified with the survey item, "Level of satisfaction with social activities and relationships now compared with 12 months ago." The measure was also a three-point Likert scale with (2) worse, (3) about the same, and (4) better. Living alone was a dichotomous variable with (1) yes, and (0) no. Demographic factors that were included were: age, gender, race and ethnicity, marital status, educational level, vocational status, parental status, and household income (see Table 1). Mental illness indicators were also included in the model to account for any mental health symptoms that may influence the person's perception of recovery. The following items were included in this model: depressed mood, anxious thoughts, flashbacks, attentional difficulties, following instructions, interrupting others, and restlessness (see Table 2 for items).

Analysis

We collected descriptive statistics for the sample including mean recovery scores, social satisfaction scores, living alone, and demographic characteristics. Next, we used bivariate correlations to search for any possible moderating or mediating variables. Next, we conducted an ordinary least-squares regression (OLS) to determine the strength of association of recovery with internal and external factors and predict mental health recovery in people who have had a psychotic episode. We added each prediction variable in the model at a time, since living alone and social satisfaction within the last year are independent of one another. All demographic variables were added in one block, and all mental health symptom variables were added in the second block. Although self-rated recovery is an ordinal measure in the study, previous literature suggests that measures of recovery are adaptable to

Table 1. Demographic Characteristics (*N* = 759).

Variables	*N* (%)
Age (in years)	
18–24	236 (31.09)
25–34	173 (22.79)
35–44	117 (15.42)
45–54	111 (14.62)
55–64	88 (11.59)
65 years and older	34 (4.48)
Female	432 (56.92)
Race/Ethnicity	
Caucasian	389 (51.25)
African American	177 (23.32)
Hispanic	130 (17.13)
Other	62 (8.30)
Marital Status	
Single	402 (53.24)
Married	149 (19.74)
Divorced/Widowed/Separated	204 (27.02)
Education level	
Less than high school	144 (18.97)
GED	70 (9.22)
High school graduate	198 (26.09)
Some college	270 (35.57)
Bachelor's or advanced degree	77 (10.14)
Vocational status	
Full-time	179 (23.83)
Part-time (15–34 hours weekly)	93 (12.38)
Part-time (less than 15 hours weekly)	55 (7.32)
Unemployed	427 (56.46)
Parent of minor (Yes)	261 (34.39)
Live Alone	179 (23.60)
Household income	
1 = Less than $10,000	271 (37.43)
2 = $10,000–$24,999	204 (28.18)
3 = $25,000–$49,999	122 (16.85)
4 = $50,000–$99,999	72 (9.94)
5 = $100,000 or more	55 (7.60)

different regression models, such as OLS, ordered probit, or logit regressions.[26] A benefit of using OLS regression is its results are easier to interpret. The robustness of the results of the OLS regression were tested with ordered probit analyses. Consistent with our hypothesis, the OLS model can be expressed as follows:

$$Y_i = \beta_0 + \beta_1 * S_i + \beta_2 * A_i + \beta_3 * M_i + X_i B + \varepsilon$$

where Y_i is self-reported mental health recovery by respondent *i*; *S* indicates social satisfaction, *A* denotes living alone; *M* indicates general mental health symptoms; and *X* is a vector of indicators of demographic controls; and ε is an error term. We used a hierarchical linear modeling approach when adding the independent variables to the OLS models. Hierarchical regression was applied to analyze how social satisfaction affected perceived mental health improvement by observing the change in *r*-squared values. Thus, in the hierarchical regression, control variables and other known predictors were initially

Table 2. Selected Mental Health Survey Items.

Variable	Survey item	β
Depressed Mood	Last time you had significant problems with: Feeling very trapped, lonely, sad, blue, depressed, or hopeless about the future	0.09
Panic	Last time you had significant problems with: Feeling very anxious, nervous, tense, scared, panicked or like something bad was going to happen	0.12*
Distressing Memory	Last time you had significant problems with: Becoming very distressed and upset when something reminded you of the past	0.08
Paying Attention	Last time you did the following two or more times: Had a hard time paying attention at school, work, or home	−0.08
Following Instructions	Last time you did the following two or more times: Had a hard time listening to instructions at school, work, or home	0.03
Restlessness	Last time you did the following two or more times: Felt restless or the need to run around or climb on things	-0.06
Interrupting	Last time you did the following two or more times: Gave answers before the other person finished asking the question	-0.01

Note. $* P < .05$.

analyzed followed by the variables of interest, to assess the degree to which living alone and social satisfaction impacted perceived mental health improvement. Model 1 included the demographic control variables, Model 2 added symptoms of mental illness (M), Model 3 added the variable of living alone (A), and Model 4 added social satisfaction (S).

Results

Descriptive

Table 1 displays descriptive statistics of the selected sample from the PATH study. All the respondents included in the study disclosed in the PATH survey that they had been told by a medical provider that they had a psychosis episode or a psychotic disorder. Of the 710 respondents, approximately 54% were less than 35 years old, and 56% were female. Roughly 43% had at least some college, and about a third of the population were parents of minors. Half of the respondents were white, and half were people of color.

Multicollinearity, Mediation, and Moderation

Multicollinearity statistics were conducted for between-variable interactions. Variables were selected that had VIF values less than 1.5. Although we expected to find collinearity between social satisfaction and self-perceived mental health recovery in the last 12 months, there was none between the variables. Hospitalizations and living alone were also not collinear. No mediating or moderating variables were found.

Ordinary Linear Regression Results

Ordinary Linear Regression analysis was completed to determine the relationship between social satisfaction and mental health recovery while controlling for demographic characteristics and self-reported mental health symptoms. The model met the assumption of normality and did not have influential outliers, as verified with a P-P plot. The analysis was performed in four steps. The first model included respondents' demographic characteristics: age, gender, race and ethnicity, marital status, income, employment, education level, and parental status, and number of hospitalizations. Age, income, employment, and number of hospitalizations in the last 12 months were the only significant demographic factors in Model 1 (F (4, 708) = 12.24, $P < .001$, $R^2 = 0.06$). The second model examined the role of mental health symptoms on recovery, and only the symptom of feeling panicked reached significance (F (5, 707) = 17.38, $P < .001$, $R^2 = 0.10$). The third model examined the relationship between living alone and mental health recovery (F (6, 706) = 16.36, $P < .001$, $R^2 = 0.12$). The final model included the variable of interest, social satisfaction (F (7, 705) = 27.48, $P < .001$, $R^2 = 0.21$). The variables of age, income, vocational status, anxiety, living alone, and the variable of interest, social satisfaction, were the only statistically significant predictors of self-perceived mental health recovery (see Table 3). Demographic variables that were nonsignificant included gender, race, education level, and parental status, and the nonsignificant mental health variables were distressing memories, inattention, following instructions, restlessness, and interrupting. For internal factors, being younger, less frequent feelings of panic, and increased social satisfaction predicted increasing mental health recovery over one year. External factors that predicted increased mental health recovery included a higher household income, more hours worked weekly, and living alone.

Discussion

Our study addressed the gap in the literature for examining the predictive power of social satisfaction and

Table 3. Results of OLS Regression Analyses: Predicting Mental Health Recovery ($N = 712$).

Predictors	Model 1	Model 2	Model 3	Model 4	P
Age	−0.06	−0.08	−0.09	−0.07	<.001
Vocational status	−0.08	−0.07	−0.07	−0.06	.013
Income	0.04	0.04	0.05	0.04	.052
Hospitalizations	−0.04	−0.03	−0.03	−0.03	.031
Panic		0.18	0.17	0.14	<.001
Live Alone			0.24	0.20	.003
Social Satisfaction				0.34	<.001
Constant	3.45	3.43	3.17	2.02	<.001
R^2	.06	.10	.12	.21	<.001

Note. All *P*-values pertain to model 4.

living alone in mental health recovery. We also included respondent demographic characteristics and a variety of self-reported mental health symptoms. Our cross-sectional study reveals three predictors of personal mental health recovery: social satisfaction, living alone, and lower anxiety. Demographics that were significant were age, household income, and hours worked per week, consistent with other studies' findings.

It is notable that social satisfaction had the strongest association with the personal recovery of all the factors included in the analysis, including self-reported mental illness symptoms. People who were most satisfied in their social relationships in the last year also were the most likely to report that their mental health was improving as well. This supports our hypothesis that personal recovery from psychosis is more tied to social satisfaction and connectedness than to the following mental health symptoms: depressed mood, distressing memories, attentional difficulties, following instructions, restlessness, and verbally interrupting.

Our second hypothesis was that people who lived alone would be more likely to experience mental health decline in the last year. Contrary to our hypothesis, living alone significantly increased rather than decreased the odds of a person mentally recovering in the last year, even when accounting for hospitalizations. One interpretation of this result is that perhaps living alone does not decrease a person's social satisfaction. In fact, it may increase it. One of the reported difficulties that is common to people with lived experience of psychosis is being perceived by society, and by mental health clinicians as dangerous.[27] Meta-analyses point to a strong association between stigma and quality of life in people recovering from psychosis.[28,29] People recovering from psychosis are arguably one of the most stigmatized populations in the United States.[28] The stress of sharing a living space with someone, especially if they negatively esteem the person recovering from psychosis, may outweigh the social benefit of physical space sharing.

Some research has suggested that more social relationships and activities may not increase social satisfaction in people with psychosis,[30,31] even though loneliness is a risk factor in recovery from psychosis.[32] Our results suggest that a high level of satisfaction with social relationships aids recovery more than living with other people who may or may not be helpful to the survivor. Researchers have found a connection in the general population between social isolation and hallucination frequency, although no known studies have examined the relationship between physical isolation and loneliness in the psychosis population.[33] The results from our study suggest that social satisfaction and living alone are independent of one another. Recovery support specialists should therefore consider empowering a person who has had a psychotic episode to live independently should they desire to live alone. This could also apply to university students after an episode of psychosis, where instead of recommending dormitory living with a roommate or living in a home off-campus with other students, the student could live in a medical single dormitory room. Some universities have already begun providing this resource to students with serious mental illnesses, although more advocacy in this area is needed. As each person's situation is unique, it is imperative for recovery support specialists to follow the lead of the individuals they work with, to foster positive recovery outcomes.

Limitations

There were several limitations to the current study. As a secondary analysis, the source dataset was collected to assess tobacco use and attitudes and was not collected for the purpose of this study. Some of the data included in the analysis were very general, including the predictor variable of social satisfaction. Social satisfaction can be achieved various ways including one-on-one relationships, engaging in different in-person group activities, and using social media to connect with others; however, the dataset did not differentiate between the diverse forms of social interactions and connections. Although the results of the study indicate a positive correlation between social satisfaction and recovery from psychosis, how social satisfaction is achieved cannot be determined in the current study. Additionally, the survey was not created to assess psychosis and symptoms associated with psychosis; therefore, the variables associated with psychosis included in this analysis were limited. However, the benefit of the survey not being specific to psychosis is that response bias could be minimized as the questions pertaining to psychosis and mental health were scattered among tobacco use questions. Furthermore, this was a cross-sectional study. As the data were analyzed from a single point in time, causality between the variables cannot be established. Finally, given that our sample was less than 1000, findings cannot

be generalized to the entire US population. As survey responses were self-reported, we suspect our final sample size was smaller than the actual number of people who have been diagnosed with psychosis due to the stigma associated with psychosis.

Acknowledgments

References

1. Krajewski C, Burazeri G, Brand H. Self-stigma, perceived discrimination and empowerment among people with a mental illness in six countries: Pan European Stigma Study. *Psychiatry Res.* 2013;210(3):1136–1146. doi:10.1016/j.psychres.2013.08.013.

2. Arciniegas DB. Psychosis. *Continuum (Minneap Minn)* 2015;21(3):715–736. doi:10.1212/01.con.0000466662.89908.e7.

3. Yanos PT, DeLuca JS, Roe D, Lysaker PH. The impact of illness identity on recovery from severe mental illness: a review of the evidence. *Psychiatry Res.* 2020;288:112950. doi:10.1016/j.psychres.2020.112950.

4. Slade M, Amering M, Farkas M, *et al.* Uses and abuses of recovery: Implementing recovery-oriented practices in Mental Health Systems. *World Psychiatry* 2014;13(1):12–20. doi:10.1002/wps.20084.

5. Lysaker PH, Lysaker JT. Schizophrenia and alterations in self-experience: a comparison of 6 perspectives. *Schizophrenia Bull* 2008;36(2):331–340. doi:10.1093/schbul/sbn077.

6. Hamm JA, Leonhardt BL, Ridenour J, Lysaker JT, Lysaker PH. Phenomenological and recovery models of the subjective experience of psychosis: discrepancies and implications for treatment. *Psychosis* 2018;10(4):340–350. doi:10.1080/17522439.2018.1522540.

7. Leonhardt BL, Huling K, Hamm JA, *et al.* Recovery and serious mental illness: a review of current clinical and research paradigms and Future Directions. *Expert Rev Neurother.* 2017;17(11):1117–1130. doi:10.1080/14737175.2017.1378099.

8. Davidson CA, Lesser R, Parente LT, Fiszdon JM. Psychometrics of Social Cognitive Measures for psychosis treatment research. *Schizophr Res.* 2018;193:51–57. doi:10.1016/j.schres.2017.06.018.

9. Kane JM. Improving patient outcomes in schizophrenia. *J Clin Psychiatry.* 2013;74(09):e18. doi:10.4088/jcp.12117tx1c.

10. Lysaker PH, Hamm JA, Hasson-Ohayon I, Pattison ML, Leonhardt BL. Promoting recovery from severe mental illness: implications from research on metacognition and metacognitive reflection and insight therapy. *World J Psychiatry* 2018;8(1):1–11. doi:10.5498/wjp.v8.i1.1.

11. Best MW, Law H, Pyle M, Morrison AP. Relationships between psychiatric symptoms, functioning and personal recovery in psychosis. *Schizophr Res.* 2020;223:112–118. doi:10.1016/j.schres.2020.06.026.

12. Recovery and recovery support. SAMHSA. https://www.samhsa.gov/find-help/recovery. Accessed January 3, 2022.

13. Gopal S, Henderson AR. Trans-Cultural Study of recovery from severe enduring mental illness in Chennai, India and Perth, Western Australia. *J Psychosoc Rehabil Ment Health* 2015;2(1):51–57. doi:10.1007/s40737-015-0031-8.

14. Leonhardt BL, Hamm JA, Lysaker PH. The recovery model and psychosis. In: *A Clinical Introduction to Psychosis* 2020:113–132. doi:10.1016/b978-0-12-815012-2.00005-5.

15. Scheyett A, DeLuca J, Morgan C. Recovery in severe mental illnesses: a literature review of Recovery Measures. *Soc Work Res* 2013;37(3):286–303. doi:10.1093/swr/svt018.

16. van Weeghel J, van Zelst C, Boertien D, Hasson-Ohayon I. Conceptualizations, assessments, and implications of personal recovery in mental illness: a scoping review of systematic reviews and meta-analyses. *Psychiatr Rehabil J.* 2019;42(2):169–181. doi:10.1037/prj0000356.

17. McCarthy-Jones S, Marriott M, Knowles R, Rowse G, Thompson AR. What is psychosis? A meta-synthesis of inductive qualitative studies exploring the experience of psychosis. *Psychosis* 2013;5(1):1–16. doi:10.1080/17522439.2011.647051.

18. Van Eck RM, Burger TJ, Vellinga A, Schirmbeck F, de Haan L. The relationship between clinical and personal recovery in patients with schizophrenia spectrum disorders: a systematic review and meta-analysis. *Schizophrenia Bull.* 2017;44(3):631–642. doi:10.1093/schbul/sbx088.

19. Macpherson R, Pesola F, Leamy M, *et al.* The relationship between clinical and recovery dimensions of outcome in Mental Health. *Schizophr Res.* 2016;175(1-3):142–147. doi:10.1016/j.schres.2015.10.031.

20. Berry K, Bucci S, Danquah AN. (eds.). Attachment theory and psychosis: current perspectives and future directions. 2019. doi:10.4324/9781315665573.

21. Gumley AI, Taylor HE, Schwannauer M, MacBeth A. A systematic review of attachment and psychosis: measurement, construct validity and outcomes. *Acta Psychiatr Scand.* 2013;129(4):257–274. doi:10.1111/acps.12172.

22. Jose D, Ramachandra, Lalitha K, Gandhi S, Desai G, Nagarajaiah. Consumer Perspectives on the concept of recovery in schizophrenia: a systematic review. *Asian J Psychiatr* 2015;14:13–18. doi:10.1016/j.ajp.2015.01.006.

23. Thomas EC, Muralidharan A, Medoff D, Drapalski AL. Self-efficacy as a mediator of the relationship between social support and recovery in serious mental illness. *Psychiatr Rehabil J.* 2016;39(4):352–360. doi:10.1037/prj0000199.

24. de Sousa P, Spray A, Sellwood W, Bentall RP. "No man is an island". testing the specific role of social isolation in formal thought disorder. *Psychiatry Res.* 2015;230(2):304–313. doi:10.1016/j.psychres.2015.09.010.

25. Soundy A, Stubbs B, Roskell C, Williams SE, Fox A, Vancampfort D. Identifying the facilitators and processes which influence recovery in individuals with schizophrenia: a systematic review and thematic synthesis. *J Ment Health* 2015;24(2):103–110. doi:10.3109/09638237.2014.998811.

26. Chyi H, Mao S. The determinants of happiness of China's elderly population. *J Happiness Stud* 2011;13(1):167–185. doi:10.1007/s10902-011-9256-8.

27. Wood L, Birtel M, Alsawy S, Pyle M, Morrison A. Public perceptions of stigma towards people with schizophrenia, depression, and anxiety. *Psychiatry Res.* 2014;220(1-2):604–608. doi:10.1016/j.psychres.2014.07.012.

28. Degnan A, Berry K, Humphrey C, Bucci S. The relationship between stigma and subjective quality of life in psychosis: A systematic review and meta-analysis. *Clin Psychol Rev.* 2021;85:102003. doi:10.1016/j.cpr.2021.102003.

29. Vass V, Sitko K, West S, Bentall RP. How stigma gets under the skin: the role of stigma, self-stigma and self-esteem in subjective recovery from psychosis. *Psychosis* 2017;9(3):235–244. doi:10.1080/17522439.2017.1300184.

30. Gayer-Anderson C, Morgan C. Social networks, support and early psychosis: a systematic review. *Epidemiol Psychiatr Sci.* 2012;22(2):131–146. doi:10.1017/s2045796012000406.

31. Meltzer H, Bebbington P, Dennis MS, Jenkins R, McManus S, Brugha TS. Feelings of loneliness among adults with mental disorder. *Soc Psychiatry Psychiatr Epidemiol.* 2012;48(1):5–13. doi:10.1007/s00127-012-0515-8.

32. Michalska da Rocha B, Rhodes S, Vasilopoulou E, Hutton P. Loneliness in psychosis: a meta-analytical review. *Schizophrenia Bull.* 2017;44(1):114–125. doi:10.1093/schbul/sbx036.

33. El Haj M, Jardri R, Larøi F, Antoine P. Hallucinations, loneliness, and social isolation in Alzheimer's disease. *Cogn Neuropsychiatry* 2016;21(1):1–13. doi:10.1080/13546805.2015.1121139.