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The Long-Term Relationship Between Psychological Resilience, Psychosis, Distress, and Suicidal Thoughts and Behaviors

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Suicide deaths in people with non-affective psychosis represent a major health care concern. Previous research has shown that psychosis and the associated distress increase suicidal experiences, whereas psychological resilience weakens the impact of suicide precursors, such as defeat, entrapment, and hopelessness on suicidal experiences. The moderating roles of psychosis, distress, and psychological resilience in the relationships between defeat, entrapment, hopelessness, and suicidal thoughts and behaviors have not been tested longitudinally. This 3-month longitudinal study used moderated mediation analysis to investigate: (1) the impact of defeat/entrapment and hopelessness on suicidal thoughts and behaviors and (2) the moderating effects of psychosis, distress, and psychological resilience in the relationships between defeat/entrapment, hopelessness, and suicidal thoughts and behaviors. Individuals with non-affective psychosis-related diagnosis (including schizophrenia, schizophreniform disorder, schizoaffective disorder, delusional disorder, or psychotic disorders not otherwise specified) and lifetime experiences of suicidal thoughts, plans, and/or acts were recruited from the North-West of England, UK. Of the 100 participants at baseline, 90 took part in the follow-up assessment. At baseline, most of the participants had experienced one or more lifetime suicide attempts. Suicidal thoughts and behaviors scores were significantly lower at follow-up, compared with baseline. Over time, defeat/entrapment predicted suicidal thoughts and behaviors when the severity of psychosis and the associated distress were moderate and high, and resilience was lowest. The impact of defeat/entrapment, psychosis, distress due to psychosis, and resilience needs to be incorporated into interventions aiming to reduce suicidal experiences. These findings impact psychosis

and resilience-focused suicide prevention interventions for people with non-affective psychosis.

Key words: suicide/suicidal thoughts and behaviors/psychosis/schizophrenia/moderated mediation/longitudinal study

Introduction

Schizophrenia is a severe mental health problem, which affects people globally.¹ It increases the risk of premature mortality² and is estimated to shorten life expectancy by approximately 20 years.³ People with a diagnosis of schizophrenia are at an increased risk of suicide death and suicidal thoughts and attempts, compared with the general population. In 2018, there were 6507 suicide deaths in the United Kingdom and 48 344 in the United States.^{4,5} Meta-analytical studies have reported that between 5% and 10% of people with a diagnosis of schizophrenia die by suicide.^{6,7} In comparison, the risk of suicide death in people without mental health problems is 0.3%.⁸ There are epidemiological risk factors for death by suicide in people with schizophrenia, such as gender, age, unemployment, and poverty, but these can be amplified by psychosis (eg, delusions and hallucinations).^{6,9-14}

The relationship between psychosis and suicide-related experiences has been extensively investigated and studies highlight psychosis as a putative amplifier of suicidal thoughts and behaviors.¹⁵⁻²⁷ Furthermore, individuals with psychosis are vulnerable to distress due to psychosis.²⁸ Previous research has indicated that suicidal experiences may be a consequence of the psychological distress caused by delusions and hallucinations.²⁹ One study found that

the presence of psychosis alone did not predict the future risk of non-suicidal self-injury and suicide attempts but psychosis, combined with the associated psychological distress, was strong predictor.³⁰ It is important to consider both the presence of psychosis and the associated distress in pathways to suicidal thoughts and acts.

Psychological and epidemiological risk factors on their own do not offer a comprehensive understanding of the psychological mechanisms underpinning suicidal experiences.^{3,31,32} Psychological factors that buffer against suicidal thoughts and behaviors and contribute to resilience have not been studied as rigorously, nor as frequently, as risk factors.³³ In the context of suicide research, one definition of psychological resilience is positive self-appraisals that buffer against the deleterious impact of a range of internal and external negative stressors on suicidal experiences.³⁴

Contemporary psychological models of suicide have implicated factors that buffer against suicide precursors (eg, hopelessness, defeat, and entrapment) in the development of suicidal thoughts and behaviors.^{27,35,36} For example, the Cry of Pain model includes perceived social support and positive future thinking as moderators of the relationship between entrapment and suicidal thoughts and behaviors, which reduce the risk of suicide death.³⁵ The Schematic Appraisals Model of Suicide builds on the Cry of Pain model and has identified positive self-appraisals (ie, perceptions of high social support, emotion regulation, and problem-solving abilities), which reduce the likelihood of developing hopelessness, defeat, entrapment, and subsequent suicidal thoughts and behaviors.²⁷ Previous studies have highlighted the issues of conceptual overlap between defeat and entrapment. For example, O'Connor³⁷ found that defeat and entrapment were not independent predictors of suicidal experiences and should be defined as a single construct.^{38–43} Therefore, models including defeat/entrapment as a composite and as separate predictors were tested in this study.

There are 2 gaps pertaining to the current empirical knowledge. The first is the lack of longitudinal research examining the amplifying effect of psychosis and the associated distress in the relationships between defeat, entrapment, hopelessness, and suicidal thoughts and behaviors, using moderated mediation models. The second one relates to understanding the extent to which psychological resilience can buffer these relationships. Consequently, this study tested 2 hypotheses:

1. Delusions and hallucinations will amplify the relationships between: (1) defeat/entrapment and hopelessness, (2) hopelessness and suicidal thoughts and behaviors, and (3) defeat/entrapment and suicidal thoughts and behaviors, whereas psychological resilience will weaken the strength of these relationships.
2. Psychological distress associated with delusions and hallucinations will amplify the relationships between: (1) defeat/entrapment and hopelessness, (2)

hopelessness and suicidal thoughts and behaviors, and (3) defeat/entrapment and suicidal thoughts and behaviors. In contrast, psychological resilience will weaken the strength of these relationships.

Three additional exploratory analyses assessed the relative contribution of: (1) defeat and entrapment as separate predictors, (2) delusions and hallucinations as separate moderators, and (3) distress associated with delusions and hallucinations as separate moderators in the model.

Methods

Design

A longitudinal design with a 3-month follow-up period was adopted. A moderated mediation analysis was used, including defeat/entrapment as a predictor at baseline, hopelessness as a mediator at follow-up, and suicidal thoughts and behaviors as an outcome variable at follow-up. Psychosis, distress, and resilience were moderator variables measured at baseline. Baseline hopelessness, baseline suicidal thoughts and behaviors, and follow-up depression scores were controlled for. The STROBE guidelines for reporting observational studies were used.⁴⁴

Participants

Individuals were recruited into the study between April 2018 and May 2019, based on the following inclusion criteria:

1. Experiences of non-affective psychosis or a diagnosis of schizophrenia (including schizophrenia, schizophreniform disorder, schizoaffective disorder, delusional disorder, or psychotic disorders not otherwise specified).
2. Lifetime experiences of suicidal thoughts and/or behaviors.
3. 18 years or older.
4. English-speaking.
5. Capacity to provide informed consent.

Measures

Beck Scale for Suicide Ideation. The Beck Scale for Suicide Ideation (BSS) is a 21-item scale assessing suicidal thoughts, planning, and intent in the past week.⁴⁵ For each item, respondents can choose between 3 options (eg, “I have no wish to die,” “I have a weak wish to die,” or “I have a moderate to strong wish to die”). The scale has been reported to have high internal consistency ($\alpha = .96$) in a sample of people with psychosis.⁴⁶ Cronbach’s alpha in this study was .94.

Beck Hopelessness Scale. The Beck Hopelessness Scale (BHS) is a 20-item scale designed to assess the presence of

hopeless thoughts and beliefs in the past week.⁴⁷ Example item includes: “My future seems dark to me,” to which respondents can answer with “True” or “False.” The scale had high internal consistency ($\alpha = .93$) in a study including people with schizophrenia.⁴⁸ Cronbach’s alpha in this study was .92.

Defeat and Entrapment Scales. The scales contain 16 items each measuring feelings of failed struggle, low social rank (eg, “I feel that I am one of life’s losers”), being trapped, and the desire to escape (eg, “I am in a situation I feel trapped in”).³⁶ The Defeat scale assesses experiences in the past week, whereas the Entrapment scale does not have a specified time frame for completion. Both are measured on a 5-point scale. The defeat scale ranges from “Never” to “Always/all the time,” whereas the entrapment scale ranges from “Not at all like me” to “Extremely like me.” The internal consistency was .86 for the Defeat scale and .94 for the Entrapment scale in a study including people with schizophrenia.⁴⁰ Cronbach’s alpha in this study was .91 and .93 for the Defeat and Entrapment scale, respectively.

Positive and Negative Syndrome Scale. The Positive and Negative Syndrome Scale (PANSS) is a structured clinical interview, which measures the severity of positive and negative psychosis symptoms and general psychopathology in the past week.⁴⁹ Items are scored on a scale between 1 and 7 (highest severity of symptoms). It had a good internal consistency in a sample of people with schizophrenia ($\alpha = .71$).⁵⁰ Cronbach’s alpha in this study was .82. Only the delusions (item P1) and hallucinations (item P3) items from the positive symptoms subscale were included in the analysis.

Psychotic Symptom Rating Scales. The Psychotic Symptom Rating Scales (PSYRATS) are 2 semi-structured interviews, which assess perceptions of hallucinations and delusions in the past week.⁵¹ The auditory hallucinations scale contains 11 items assessing frequency, duration, controllability, loudness, location, amount and intensity of distress, amount and degree of negative content, beliefs about the origin of voices, and disruption caused by voices. The delusions scale contains 6 items assessing duration and frequency of preoccupation, amount and intensity of distress, conviction, and disruption. In this study, only the items assessing the amount and intensity of delusions distress (items 4 and 5) and auditory hallucinations distress (items 8 and 9) were included in the analysis. The scales have high internal consistencies in a study with people with mild and moderate intellectual disabilities (auditory hallucinations scale $\alpha = .88$; delusions scale $\alpha = .94$).⁵² Cronbach’s alpha in this study was .96 and .93 for the auditory hallucinations scale and delusions scale, respectively.

Resilience Appraisals Scale. The Resilience Appraisals Scale (RAS) is a 12-item scale consisting of three, 4-item positive self-appraisals subscales, namely perceived ability to cope with emotions, difficult situations, and gain social support.²⁷ The scale does not have a specified time frame for completion. An example of an item from the emotion coping subscale includes: “I can control my emotions,” an item from the situation coping subscale includes: “I can generally solve problems if they occur,” and an item from the social support subscale includes: “My family and friends are very supportive of me.” Items are scored on a 5-point scale ranging from “Strongly disagree” to “Strongly agree.” The scale has a high internal consistency in a sample of people with schizophrenia ($\alpha = .88$).²⁷ Cronbach’s alpha in this study was .83.

Calgary Depression Scale for Schizophrenia. The Calgary Depression Scale for Schizophrenia (CDS) is a 9-item observer-rated measure of depression over the past 2 weeks.⁵³ It was specifically designed for people with severe mental health problems, including schizophrenia. Example item includes: “How would you describe your mood over the past 2 weeks?” Items are scored from 0 (Absent) to 3 (Severe). The scale has good internal consistency in a sample of people with schizophrenia ($\alpha = .79$).⁵⁴ Cronbach’s alpha in this study was .81.

Procedures

This study received ethical approval from the North West-Greater Manchester Central Research Ethics Committee (18/NW/0181). Participants were recruited from the UK National Health Service mental health trusts in Northern England. The author (K.H.) attended mental health team meetings to disseminate information to mental health professionals who referred potential participants to the study. In addition, individuals were able to self-refer to the study via information leaflets displayed within services (eg, waiting rooms) and contact K.H. directly. Potential participants were provided with a study participant information sheet. At least 24 hours after receiving the information sheet, K.H. contacted the potential participants to ascertain whether they wanted to participate in the study. If they agreed, K.H. arranged a convenient time and place to meet and obtain participants’ informed consent and complete the measures. The measures were counterbalanced across participants. Half of the participants completed the clinical interview, followed by the questionnaires, and the other half completed the questionnaires, followed by the clinical interview. After 3 months, participants were asked to complete the same measures. Participants were offered a compensation of £10 upon completion of each assessment.

Statistical Analysis

G*Power⁵⁵ was used to estimate the number of participants needed to test the hypotheses. The calculation showed that a sample of 100 participants would provide an effect size of .3,⁵⁶ with 95% power, at a .05 significance level.

The variables included in the analysis were screened for normality and multicollinearity.⁵⁷ The z-scores for the skewness and kurtosis of the variables were calculated for which skewness and kurtosis scores were divided by their standard errors. Values greater than ± 1.96 indicate a non-normal distribution.⁵⁸ Pearson's correlation coefficients for normally distributed data and Spearman's rho for non-normally distributed data were used to explore associations between variables. Relationships between variables are considered strong if their correlation coefficients are greater than .7.⁵⁹ A correction for multiple comparisons was not performed as it is associated with an increased likelihood of false negatives, where there is a statistically significant effect, as the significance value is reduced substantially.⁶⁰

Paired *t*-tests were used to ascertain potential significant differences in the scores for the baseline and follow-up variables (ie, suicidal thoughts and behaviors, hopelessness, defeat, entrapment, depression, psychosis severity, psychosis distress, and resilience). Bootstrapping was used for the *t*-tests and moderated mediation analyses.⁶¹ Model 73 of the PROCESS macro for SPSS version 25.0 was used to test for moderated mediation effects.⁶²

Results

Missing Data

The Little's Missing Completely at Random test⁶³ showed that data were missing completely at random

($\chi^2 = 1749.01$, $df = 5001$, $P = 1.00$). The expectation-maximization approach was adopted to impute missing data.⁶⁴

Participants

Of the 100 participants recruited into the baseline phase of the study, 99 completed all baseline assessments and 89 completed all follow-up assessments at 3 months (see [figure 1](#) for participant flow diagram). The main analyses included 89 participants who had completed baseline and follow-up assessments.

Of the total baseline sample ($n = 100$), 80 participants identified as men and 20 identified as women. At 3-month follow-up ($n = 90$), 75 participants identified as men and 15 identified as women (see [table 1](#) for demographic characteristics of the sample). In relation to suicidal experiences, 21 participants reported 1 lifetime suicide attempt and 56 reported 2 or more lifetime suicide attempts at baseline (see [table 2](#) for demographic characteristics of the sample).

The *t*-tests revealed that at follow-up, participants had significantly lower suicidal thoughts and behaviors scores (BSS; $t(88) = 2.17$; $P = .04$), Entrapment scores ($t(88) = .2.30$; $P = .02$), and delusions (PANSS item P1; $t(89) = 2.30$; $P = .02$) and hallucinations scores (PANSS item P3; $t(89) = 2.51$; $P = .01$), compared with baseline (see [table 2](#)).

Correlation Coefficients

Spearman's rho and Pearson's correlation coefficients between the study variables, namely defeat, entrapment, hopelessness, suicidal thoughts and behaviors, resilience, hallucinations and delusions severity, distress associated with hallucinations and delusions, and depression, are presented in [supplementary table S1](#).

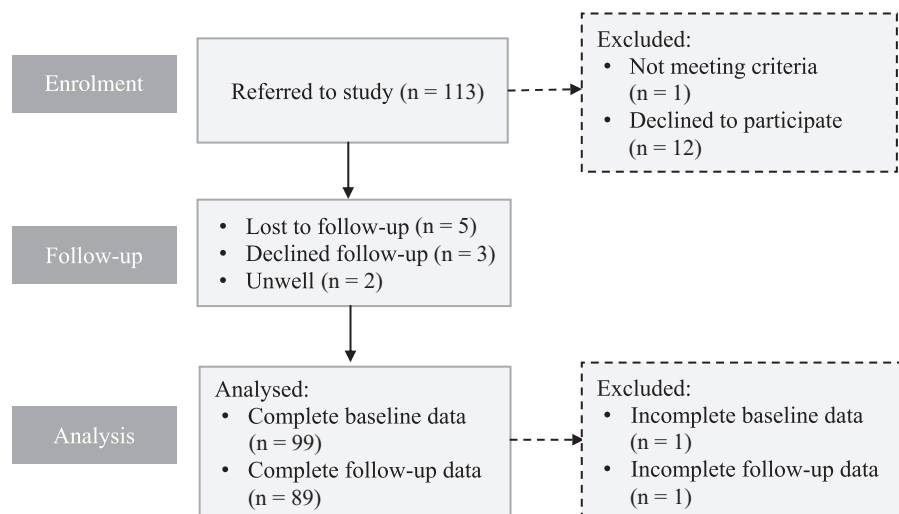


Fig. 1. Participant flow diagram.

Table 1. Demographic Characteristics for the Baseline and Follow-up Sample

Characteristic	Baseline Mean (SD); n (n = 100)	Follow-up Mean (SD); n (n = 90)	Range
Age (yrs)	41.07 (13.06); 100	41.30 (13.35); 89	19–75
Gender (identified as female)	80 (20); 100	75 (15); 90	
Ethnicity			
White British	73; 100	67; 89	
Black British	9; 100	8; 89	
Mixed race	3; 100	3; 89	
South Asian	6; 100	5; 89	
North African	1; 100	1; 89	
White other	8; 100	5; 89	
Occupation			
Unemployed	81; 100	73; 90	
Employed	4; 100	3; 90	
Student	4; 100	3; 90	
Volunteer	3; 100	4; 90	
Retired	8; 100	7; 90	
Education			
Primary education	13; 100	9; 89	
Secondary education	59; 100	55; 89	
Higher education	21; 100	19; 89	
Unknown	7; 100	6; 89	
Relationship status			
Single	79; 100	68; 89	
Married	8; 100	8; 89	
In a relationship	7; 100	9; 89	
Divorced	5; 100	4; 89	
Unknown	1; 100	0; 89	
Living arrangements			
Outpatient	58; 100	53; 90	
Supported housing	11; 100	13; 90	
Inpatient	31; 100	24; 90	
Case note diagnosis			
Schizophrenia	59; 100	52; 90	
Schizoaffective disorder	16; 100	15; 90	
Psychosis NOS	23; 100	21; 90	
Delusional disorder	2; 100	2; 90	
Antipsychotic medication			
Yes	91; 100	81; 89	
No	9; 100	8; 89	
Duration of contact with mental health services (yrs)	15.55 (11.60); median = 14; 91		1–51

Note: Psychosis NOS, psychosis not otherwise specified.

Results indicated that resilience was negatively correlated with suicidal thoughts and behaviors, hopelessness, defeat, entrapment, depression, hallucinations and delusions severity, and distress at baseline and follow-up. There were strong correlations between delusions severity and distress associated with delusions (baseline $r = .74$; follow-up $r = .66$) and between hallucinations severity and distress associated with hallucinations (baseline $r = .67$; follow-up $r = .80$). There were also strong correlations between defeat and entrapment at baseline ($r = .78$) and follow-up ($r = .77$), hopelessness and defeat at baseline ($r = .74$) and follow-up ($r = .75$), and hopelessness and entrapment at follow-up ($r = .68$). There was a moderate correlation between hopelessness and entrapment at baseline ($r = .64$).

Hypothesis 1: The Moderating Roles of Psychosis Symptoms and Resilience in the Relationships Between Defeat/Entrapment, Hopelessness, and Suicidal Thoughts and Behaviors

The moderated mediation analysis showed that the strongest, positive relationship was observed between defeat/entrapment at baseline and suicidal thoughts and behaviors at follow-up when resilience was at its lowest (see figure 2a). The strength of the direct effect was amplified when baseline delusions and hallucinations were of moderate ($P = .01$) and high ($P = .02$) severity, while resilience was at its lowest. There was a lack of an indirect effect between baseline defeat/entrapment and follow-up suicidal thoughts and behaviors via follow-up hopelessness.

Table 2. Summary Scores for Baseline and Follow-up Study Variables

Outcomes	Baseline Mean (<i>SD</i>); Median; <i>n</i>	Follow-up Mean (<i>SD</i>); Median; <i>n</i>	Baseline Range	Follow-up Range	Baseline vs Follow-up Scores <i>t</i> (<i>P</i> -value)
BSS total	8.63 (8.79); 4; 99	7.24 (8.03); 4; 89	0–36	0–33	2.17 (.04)
BHS total	9.00 (6.03); 9; 100	8.43 (6.15); 7; 90	0–20	0–20	1.14 (.29)
Defeat total	32.14 (15.51); 31; 99	32.25 (14.40); 32; 89	0–64	0–61	–.19 (.84)
Entrapment total	29.92 (17.58); 31; 99	26.64 (16.16); 28; 89	0–73	0–64	2.30 (.02)
PANSS delusions (item P1)	3.81 (1.57); 4.00; 100	3.51 (1.68); 3.50; 90	1–6	1–6	2.30 (.02)
PANSS hallucinations (item P3)	3.43 (1.77); 4.00; 100	3.18 (1.80); 4.00; 90	1–6	1–6	2.51 (.01)
PSYRATS delusions distress (items 4, 5)	3.43 (2.80); 2.50; 90	3.24 (2.91); 4.00; 90	0–8	0–8	.50 (.62)
PSYRATS hallucinations dis- tress (items 8, 9)	2.85 (2.92). 2.50; 90	2.70 (3.07); 2.50; 90	0–8	0–8	.00 (1.00)
RAS total	42.78 (8.37); 42; 99	41.47 (9.04); 43; 89	23–60	17–60	.68 (.51)
RAS emotion coping	12.75 (3.92); 13; 99	12.65 (3.78); 13; 89	4–20	4–20	.28 (.78)
RAS situation coping	13.42 (3.83); 14; 99	13.51 (3.75); 14; 89	5–20	5–20	–.07 (.95)
RAS social support	15.61 (3.35); 16; 99	15.31 (4.06); 16; 89	4–20	4–20	1.36 (.18)
CDS total	7.69 (5.39); 6; 100	8.03 (5.84); 7; 90	0–22	0–24	–.64 (.52)

Note: BSS, Beck Scale for Suicidal Ideation; BHS, Beck Hopelessness Scale; PANSS, Positive and Negative Syndrome Scale; PSYRATS, Psychotic Symptom Rating Scales; RAS, Resilience Appraisals Scale; CDS, Calgary Depression Scale. Bold values denote significant results.

Exploratory analyses revealed that these relationships remained significant when baseline delusions and hallucinations were entered as separate moderators in the model, with one exception. When baseline hallucinations severity was high and resilience was at its lowest, the relationship was not significant.

Furthermore, the model was tested with defeat and entrapment as separate predictors. The results showed the relationships remained significant, with one exception. Only baseline entrapment did not predict suicidal thoughts and behaviors at follow-up when baseline delusions and hallucinations severity was high, and resilience was low. Baseline defeat predicted suicidal thoughts and behaviors.

Hypothesis 2: The Moderating Roles of Psychosis Distress and Resilience in the Relationships Between Defeat/Entrapment, Hopelessness, and Suicidal Thoughts and Behaviors

The strength of the direct effect between baseline defeat/entrapment and follow-up suicidal thoughts and behaviors was amplified when baseline distress relating to delusions and hallucinations was of medium ($P = .02$) and high ($P = .04$) intensity, while resilience was at its lowest (see [figure 2b](#)). Similar to the first hypothesis, there was a lack of an indirect effect between baseline defeat/entrapment and follow-up suicidal thoughts and behaviors via follow-up hopelessness.

Exploratory analyses revealed that these relationships remained significant when baseline delusions distress

and hallucinations distress were entered as separate moderators in the model. The model was also tested with defeat and entrapment as separate predictors. The results followed the same pattern when baseline defeat was entered as a predictor. In addition, the relationship between baseline defeat and follow-up suicidal thoughts and behaviors was amplified when both baseline distress and resilience were moderate ($P = .05$). There was also a significant interaction between follow-up hopelessness and baseline resilience ($P = .03$). That is, baseline resilience weakened the strength of the relationship between hopelessness and suicidal thoughts and behaviors at follow-up, when baseline defeat was a predictor. There were no significant interactions when baseline entrapment was entered as a predictor in the model.

Discussion

There are 2 key, novel findings of this study. First, baseline delusions and hallucinations severity amplified the strength of the relationship between defeat/entrapment and suicidal thoughts and behaviors at follow-up. Second, baseline intensity of distress in relation to delusions and hallucinations amplified the strength of the relationship between defeat/entrapment and suicidal thoughts and behaviors at follow-up. These relationships were significant when the severity of baseline delusions and hallucinations and distress were moderate and high, and baseline resilience was low. These findings are consistent with studies reporting associations between psychosis and suicidal experiences^{5,17,65} and between distress and suicidal experiences.^{28,29}

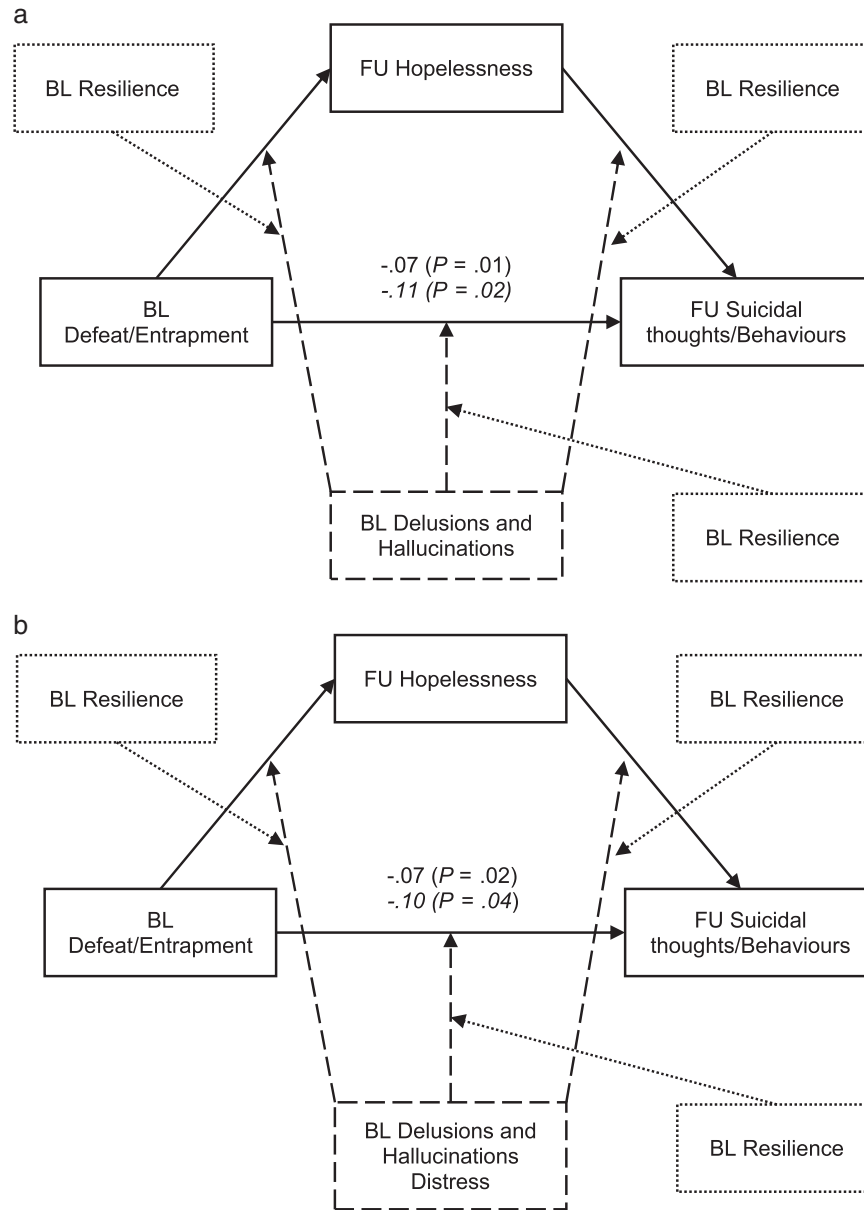


Fig. 2. (a) Moderated mediation model including baseline delusions and hallucinations, and resilience as moderators of the relationships between baseline defeat/entrapment and follow-up suicidal thoughts and behaviors (*italicized values*—high delusions and hallucinations severity; non-italicized values—moderate delusions and hallucinations severity). (b) Moderated mediation model including baseline distress and resilience as moderators of the relationships between baseline defeat/entrapment and follow-up suicidal thoughts and behaviors (*italicized values*—high distress; non-italicized values—moderate distress).

The co-occurrence of hallucinations and delusions⁶⁶ and their relationships with suicidal thoughts and behaviors have long been observed.^{25,67–72} However, the differential impact of hallucinations and delusions on suicidal thoughts and behaviors is not clear.^{68,70} One study found no evidence of a relationship between delusions and history of suicidal thoughts or suicide attempts.⁶⁸ The model tested in this study was significant when delusions and hallucinations were entered as a composite moderator and as separate moderators. These findings have potential clinical implications regarding the overall amplifying effect of delusions and

hallucinations severity in their relationships with suicidal experiences.

Most of the research demonstrating a buffering role of resilience against suicidal experiences has been cross-sectional.^{27,73,74} Positive self-appraisals have been implicated as a factor conferring resilience to suicidal experiences.^{27,34} An important, novel contribution of this study is that, over time, the strength of the relationships between defeat/entrapment, psychosis, distress, and suicidal thoughts and behaviors was amplified when resilience (conceptualized as positive self-appraisals) was low. It is plausible that individuals reporting low levels of baseline resilience may

be more susceptible to experiencing suicidal thoughts and behaviors as a result of defeat/entrapment, psychosis, and distress.

The current findings are consistent with the extant literature reporting a link between defeat, entrapment, and suicidal experiences.^{27,35,39-41} Our results showed that defeat/entrapment, together, predicted suicidal thoughts and behaviors. However, when defeat and entrapment were entered as separate predictors, the relationships remained significant with delusions and hallucinations severity as a moderator and with delusions and hallucinations distress as a moderator. The only exception was the model including entrapment as a predictor and delusions and hallucinations distress as a moderator, which was not significant. It is plausible that, as a separate construct, entrapment may not constitute a major suicide precursor, specifically in people experiencing psychosis distress. Alternatively, this outcome may be a result of an underpowered sample, since only about half of the participants scored on the amount and intensity of distress items (ie, the intensity of distress was low).

Hopelessness was not found to mediate the relationship between baseline defeat/entrapment and suicidal thoughts and behaviors at follow-up. This is contrary to previous studies that have identified hopelessness as a key precursor to suicidal thoughts and behaviors in people experiencing psychosis.^{47,75-77} A possible reason for this outcome is that defeat, entrapment, and hopelessness are overlapping constructs in the current sample.⁷⁸ In addition, it has been argued that perceptions of hopelessness could precede or succeed defeat and entrapment.^{27,42,79} Further research is necessary to provide conceptual clarity on the roles of defeat, entrapment, and hopelessness in suicidal experiences in people experiencing non-affective psychosis.

Limitations

There are 3 limitations to this study. First, a 3-month follow-up period was relatively short. While defeat/entrapment predicted suicidal thoughts and behaviors over 3 months, it is unclear whether defeat/entrapment would predict suicidal experiences in the long term. Second, hopelessness did not mediate the relationship between defeat/entrapment and suicidal thoughts and behaviors. To observe a mediation effect, it is necessary to establish whether changes in the mediator precede changes in the outcome variable.⁸⁰ Since there was no temporal delay in the measurement of these 2 variables, it was not possible to establish precedence. Third, the study had a comparatively small sample size. Future studies with larger samples would increase confidence in the results relating to the moderating roles of resilience, psychosis, and the associated distress in the relationships between defeat/entrapment and suicidal experiences. Nevertheless, this study contributes to the evidence base for psychological

mechanisms, which amplify or weaken suicidal experiences. The impact of defeat, entrapment, hallucinations and delusions, the associated distress, and resilience presents clear targets for psychological interventions aiming to alleviate suicidal thoughts and behaviors in people experiencing non-affective psychosis. It may be useful in clinical practice to investigate interactions between these constructs, rather than in isolation, in order to predict suicide deaths more accurately. For example, if perceptions of resilience are low, coupled with high levels of defeat, entrapment, hopelessness, psychosis, and distress, this may be an indicator of experiences of suicidal thoughts, behaviors, and, potentially, suicide death.

Supplementary Material

Supplementary data are available at *Schizophrenia Bulletin Open* online.

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