Schizophrenia Bulletin vol. 51 no. S2 pp. S107–S114, 2025
https://doi.org/10.1093/schbul/sbad158

SUPPLEMENT ARTICLE

Parent-Rated Schizotypy and Clinician-Rated Psychotic Experiences in Early Adolescence as Predictors of Schizophrenia Diagnosis by Middle Adulthood

Kirstie J. M. O'Hare[1], Richie Poulton[2], and Richard J. Linscott[*,1]

[1]Department of Psychology, University of Otago, Dunedin, New Zealand; [2]Dunedin Multidisciplinary Health and Development Research Unit, Department of Psychology, University of Otago, Dunedin, New Zealand

[*]To whom correspondence should be addressed; Department of Psychology, University of Otago, P. O. Box 56, Dunedin 9054, New Zealand; tel: +64 3 479 5689, e-mail: linscott@psy.otago.ac.nz

***Background and Hypothesis*: Subclinical psychotic symptoms (also known as *psychotic experiences* comprising positive features only, and *schizotypy* comprising positive, negative, and disorganized features) are important markers of schizophrenia liability. Different assessment methods detect different sources of meaningful variance and are vulnerable to different biases and sources of measurement error. Whereas interview-rated psychotic symptoms in childhood are known to predict adult schizophrenia diagnosis, the predictive value of parent-rated psychotic symptoms remains unknown. We tested whether clinician-rated psychotic symptoms and parent-rated positive, negative, and disorganized schizotypy in early adolescence are nonredundant predictors of schizophrenia diagnosis by age 38 years. *Study Design*: In a representative birth cohort (n = 1037) from Dunedin, New Zealand, psychotic symptoms were assessed by clinical interview at age 11 years, schizotypy was assessed by parent or caregiver ratings at ages 13- and 15 years, and lifetime schizophrenia diagnosis was assessed throughout adulthood until age 38 years. We tested for redundancy using bootstrapped multivariable logistic regression. *Study Results*: Clinician-rated psychotic symptoms at age 11 predicted adult schizophrenia diagnosis (*OR* = 2.68, 95% *CI* = 1.42, 5.06), as did parent-rated total schizotypy (*OR* = 1.83, 95% *CI* = 1.42, 2.36). In univariable models, clinician-rated psychotic experiences and parent-rated positive, negative, and disorganized schizotypy were significant predictors of schizophrenia diagnosis. In multivariable models where clinician- and parent-rated scores were entered, only parent-rated negative and disorganized schizotypy did not predict adult schizophrenia diagnosis. *Conclusions*: Parent-rated schizotypy and clinician-rated subclinical psychotic symptoms are valid, nonredundant indicators of lifetime risk for schizophrenia.**

Key words: observer ratings/psychometrics/longitudinal/psychosis proneness

Introduction

The experience of subclinical psychotic symptoms in childhood predicts the diagnosis of schizophrenia in adulthood.[1,2] Several terms are used to refer to subclinical psychotic symptoms including (but not limited to) *psychotic experiences* and *schizotypy. Schizotypy* refers to a broader concept that includes more stable individual differences in negative and disorganized features alongside positive features,[3] whereas *psychotic experiences* refers only to positive features of psychosis that are more often transient in nature. Typically, psychotic experiences are assessed using interview or self-report measures whereas schizotypy is predominantly assessed by self-report.[4,5] In assessment, positive features of schizotypy are typically inferred from psychotic experiences. That is, measures of positive schizotypy and psychotic experiences are typically the same or similar, despite the associated constructs being conceptually distinct. Therefore, measures of psychotic experiences reflect the positive component of schizotypy. Whereas there is extensive evidence on outcomes associated with self-reported schizotypy,[6,7] the use of lay observer-rated measures to assess schizotypy or psychotic experiences is uncommon[8] and there is little research into the utility and validity of observer-rated measures in this context.

Different modes of assessment tap different perspectives and expressions of psychotic experience and schizotypy. Interview ratings reflect self-reported symptoms and, to a lesser extent, observed behavior, whereas observer ratings more commonly reflect observed behavior. Self-report, whether filtered by an interviewer or not, reflects generalized recall, inferences, social desirability, or traits whereas observable behavior may not be typical and will almost certainly reflect a current or desired state. Self-report is inherently more sensitive to intraindividual differences (ie, differences in self compared with previous or ideal self) whereas observer ratings are more sensitive to interindividual differences (ie, differences in an individual compared with others). Different observers or interviewers may be differently aware of or sensitive to specific signs, have different thresholds for endorsement of specific items, have different proximities or exposure to the subject of observation, and have different background knowledge or experience. Consequently, different modes of assessment may convey different information; they may be differently sensitive to environmental and genetic influences on psychopathology.[9] Therefore, self-report, interview, and observation assessments are vulnerable to different sources of bias and measurement error.

Relative to self-report, schizotypy, and psychotic experiences are infrequently assessed by parent report. Nevertheless, studies show parent report of schizotypy features or psychotic experiences predict clinical high risk or other clinical psychosis outcomes[10,11] (although not always[12,13]) and are predicted by schizophrenia-related environmental exposures[14] and polygenic risk scores.[15] Parent report has been found to be better than self-report in predicting conversion to psychosis.[16] In some of this research, however, parent reporting is very likely to have been affected by recall or other biases,[13,17] not sufficiently independent of the outcome of interest,[10] or integrated with self-report from offspring.[10,18,19] Childhood psychotic experiences assessed using structured diagnostic interviews have been shown to predict adult schizophrenia diagnoses,[1,2] but whether parent-rated schizotypy also predicts adult schizophrenia diagnosis is unknown.

Discrepancies exist between parent-reported and child-reported subclinical psychotic symptoms,[16] and parent–child agreement rates tend to be lower for adolescents than younger children.[20] Such age-related differences in agreement are evident across internalized and externalized symptoms in children.[21] Agreement between parents and clinicians also varies. Parent–clinician agreement is greater for externalized than internalized symptoms,[21] and may be greater for maladaptive personality traits[22] than for specific psychotic experiences.[23] Achenbach et al.[21] reported that parent–clinician agreement averaged about $r = 0.24$ across 5 child psychopathology studies (total $n = 378$).

Informant discrepancies do not necessarily imply that parent-reported symptoms, relative to clinician ratings, are less-valid indicators of liability for schizophrenia.[21] Different indicators may capture or reflect different manifestations of schizophrenia liability. There is little understanding of what discrepancies in measurement between different informants may represent.[24] Testing whether parent- and clinician-rated measures predict the same or different schizophrenia-related liability factors is important for understanding whether these measures should be used in combination or whether they are redundant and can be used interchangeably. Therefore, our aim was to test whether parent-rated schizotypy and clinician-rated psychotic experiences obtained during childhood are nonredundant predictors of adult schizophrenia outcomes. We hypothesized that these 2 approaches to assessment would make specific contributions to the prediction of schizophrenia diagnosis. A finding that parent-rated schizotypy is not redundant with clinician-rated psychotic experiences would reinforce the informational value of caregiver insights in clinical and research settings, and promote research into developmental trajectories through childhood and adolescence.

Method

Participants

Participants were members of the Dunedin Multidisciplinary Health and Development Study (Dunedin Study), a longitudinal investigation of health and behavior in a population-representative birth cohort of 1037 individuals (91% of eligible births; 52% male) born between April 1, 1972 and March 31, 1973 in Dunedin, New Zealand (NZ). The longitudinal study was established at age 3 years based on residence in the province.[25] Assessments were conducted at birth and at ages 3, 5, 7, 9, 11, 13, 15, 18, 21, 26, 32, and 38 years, where 961 (95%) of the 1007 participants who were still alive took part. Each study member attended the research unit for a day of interviews and examinations. The cohort represents the full range of socioeconomic status on NZ's South Island, and as adults match the national adult health indicators (eg, body mass index, smoking, primary care visits).[26] Study participants are primarily of NZ European ethnicity (approximately 93%). Written informed consent was obtained from participants, and the study was approved by the NZ Health and Disability Ethics Committee.

Measures

Schizotypy attributes, including psychotic experiences, were measured by parent report at age 13- and 15 years using a scale created from items from the Revised Behavior Problem Checklist (RBPC).[27] The schizotypy item subset, which included items aligned with Meehl's definition of schizotypy,[28,29] is described by O'Hare et al.[30] The RBPC is an informant-report scale containing 77

items that describe problem behaviors, with each item requiring a rating on a 3-point scale (0 = *no, does not apply,* 1 = *yes, applies somewhat*, 2 = *yes, certainly applies*). Parents or caregivers, who had not been informed of results of diagnostic interviews that their child completed at these or any prior timepoints, completed the RBPC in reference to the child's behavior over the past 12 months. We selected RBPC items based on the alignment of item content with descriptions of schizotypy[31,32] to form 3 a priori subscales: Positive cognitive-perceptual features ("Expresses strange, far-fetched ideas," "Expresses beliefs that are clearly untrue (delusions)," and "Tells imaginary things as though true; unable to tell real from imagined"); negative interpersonal features ("Shy, bashful," and "Not liked by others; is a 'loner' because of aggressive behaviour"); and disorganized features ("Repetitive speech; says same thing over and over," "Incoherent speech, what is said doesn't make sense," and "Repeats what is said to him or her; 'parrots' others' speech"). Subscale and total scores were standardized for analyses. McDonald's omega for the 8 RBPC items was 0.70 at age 13, and 0.62 at age 15. For positive features, McDonald's omega coefficients were 0.72 (age 13) and 0.52 (age 15); for disorganized features, omega coefficients were 0.57 and 0.59, respectively. As omega requires at least 3 indicators, internal consistency for the negative component could not be estimated. Data were missing for 1.85% of RBPC item ratings; item-level missing data were imputed using the expectation-maximization algorithm and subsequently constrained to have integer values.

Psychotic experiences at age 11 years were measured with the schizophrenia section of the Diagnostic Interview Schedule for Children (DISC-C)[33] administered by a child psychiatrist. Items were: (1) "Some people believe in mind reading or being psychic. Have other people ever read your mind?"; (2) "Have you ever had messages sent just to you through television or radio"; (3) "Have you ever thought that people are following you or spying on you?"; (4) "Have you ever heard voices other people can't hear?"; and (5) "Has something ever gotten inside your body or has your body changed in some strange way?" Items were rated as *not present* (0), *possibly present* (1), or *definitely present* (2). Children were classified as having *strong* symptoms (scores of 1 on 2 or more symptoms, or a score of 2 on 1 or more symptoms), *weak* symptoms (score of 1 on 1 symptom), or no symptoms.[1,2] Previously, scale ratings have been dichotomized (none or weak symptoms vs strong symptoms); in the current study, we use the ordinal scale.

Psychiatric diagnoses of schizophrenia were made according to symptom and impairment criteria from the *DSM-III-R*[34] at ages 18- and 21 years, or the *DSM-IV.* Participants were interviewed by an experienced mental health professional using the Diagnostic Interview Schedule[35,36] during study visits. The interviewer recorded notes on observable symptoms. Diagnosis of schizophrenia was made if participants met symptom and impairment criteria from the relevant *DSM*. Additionally, several extra steps were taken to ensure validity of the diagnosis.[1,2] First, hallucinations were required to be present in addition to at least 2 other positive symptoms. Second, objective evidence of impairment from psychosis was required from informants. Third, study members brought their medications to the assessment for classification by a pharmacist. Fourth, informants provided information on positive and negative symptoms via postal questionnaire. Last, parents of study members were interviewed about their child's psychotic symptoms and treatment. These data were compiled and reviewed by 4 clinicians to achieve best-estimate diagnosis.

Statistical Analyses

Bivariate correlations were tested with Pearson coefficients obtained using all available data, with significance determined from bootstrapped bias-corrected accelerated confidence intervals (5000 replications). Logistic regression was used to test whether clinician-rated psychotic experiences, parent-rated schizotypy scores, or both, predicted schizophrenia diagnosis by age 38. Regression models were tested using those with RBPC, DISC-C, and schizophrenia diagnosis data. The first model involved the regression of diagnosis onto DISC-C psychotic experience and RBPC total schizotypy scores, and the second, the regression of diagnosis onto psychotic experience and positive, negative, and disorganized subscale scores. Both models were tested in univariable and multivariable analyses, and the latter were conducted with and without adjustment for sex. For interest, nonparametric bootstrapped receiver-operating characteristic (ROC) curves and the areas under the curves (AUC) were estimated for univariable prediction of diagnosis from parent-rated total schizotypy and clinician-rated psychosis experience, also with 5000 replications. All analyses were completed using Stata/SE 17.0. We used a significance criterion of $P < .05$.

Results

Descriptive Statistics and Bivariate Correlations

Of the total sample ($n = 1037$), $n = 831$ had data for the RBPC at age 13, and $n = 952$ had RBPC data at age 15. There were no significant group differences between those who had data for the age 13 RBPC ($n = 804$) and those who did not ($n = 148$) in total RBPC schizotypy scores at age 15, with $t(950) = 0.39$, $P = .70$. Given this, RBPC scores from age 13 and 15 assessments were averaged to increase the sample size to $n = 979$ (ie, where participants had RBPC scores for 1 time-point only, just that score was used), of which $n = 923$ also had information on psychiatric diagnosis by age 38. At age 11, 25% of the cohort completed assessment at school and did not see the

psychiatrist, so psychotic experience ratings are available for $n = 789$ cohort members, of which $n = 751$ also had adult psychiatric diagnosis data. Those who did not have DISC-C data available did not differ significantly from those who did in terms of schizophrenia diagnosis or any other psychiatric diagnosis by age 38.[1,2]

Table 1 gives descriptive information on schizotypy and psychotic experience measures, and schizophrenia diagnosis outcomes, as well as bivariate correlations among these variables for the whole cohort. There were small significant correlations of total, positive, and disorganized schizotypy ratings with age 11 psychotic experiences, whereas there was no evidence negative schizotypy predicted psychotic experiences. Schizotypy ratings and psychotic experiences all predicted schizophrenia diagnosis. Figure 1 shows raw DISC-C PE total scores and standardized RBPC schizotypy scores by schizophrenia diagnosis outcome.

Relationship with Adult Schizophrenia Diagnosis

Table 2 shows results of the logistic regression analyses. There was evidence that clinician-rated psychotic experiences and parent-rated schizotypy predicted adult schizophrenia diagnosis by age 38. Psychotic experience, total schizotypy, and each of the schizotypy subscales predicted schizophrenia diagnosis when tested in univariable analyses. In multivariable analyses, clinician-rated psychotic experiences and parent-rated total schizotypy each contributed to the prediction of schizophrenia diagnosis, with the magnitudes of their odds ratios diminished only slightly from the univariable results. The RBPC subscales for positive, negative, and disorganized schizotypy were all significant as single predictors of schizophrenia diagnosis. When entered into multivariable analyses, with DISC-C psychotic experiences, negative and disorganized schizotypy did not predict schizophrenia diagnosis whereas positive schizotypy remained a significant predictor alongside psychotic experience. Adjustment for sex did not affect findings.

Supplementary figure 1 shows the ROC curves for the prediction of diagnosis from RBPC total schizotypy and DISC-C psychotic experiences. The estimated AUC coefficients and their 95% bias-corrected bootstrapped confidence intervals indicate that, while the AUC coefficient for the RBPC total schizotypy was greater in magnitude ($AUC = 0.677$, 95% $CI = 0.579, 0.763$) than that for the DISC-C psychotic experiences ($AUC = 0.586$, 95% $CI = 0.506, 0.686$), these were not significantly different.

Discussion

In a longitudinal birth cohort study, we found evidence that clinician-rated psychotic experience and parent-rated

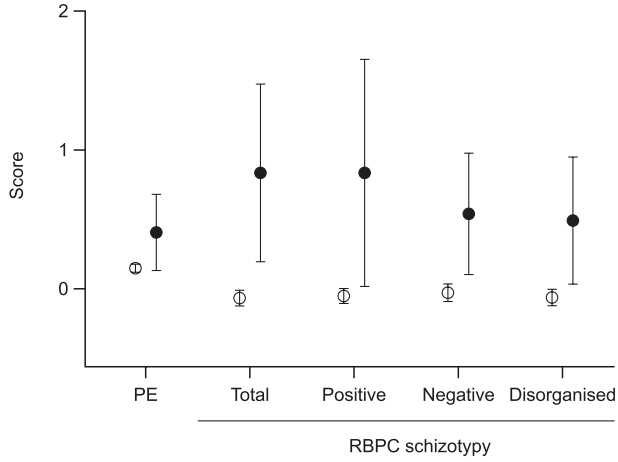

Fig. 1. Raw psychotic experience and standardized schizotypy scores for those with (filled circles) and without (empty circles) schizophrenia diagnoses by middle adulthood. PE, Diagnostic Interview Schedule for Children, psychotic experience sum score. RBPC, Revised Behavior Problem Checklist schizotypy scores (total schizotypy and positive, negative, and disorganized components). Error bars are (standard normal) 95% confidence intervals.

Table 1. Descriptive Statistics and Bivariate Correlations Among Schizotypy, Psychotic Experience, and Schizophrenia Diagnosis at Age 38 Years

Variable		*M* (*SD*)/*n* (%)	1	2	3	4	5
	RBPC schizotypy ($n = 979$)						
1	Total	0.92 (1.21)					
2	Positive	0.20 (0.49)	0.72***				
3	Negative	0.41 (0.51)	0.64***	0.23***			
4	Disorganized	0.31 (0.65)	0.80***	0.40***	0.24***		
5	DISC-C PE ($n = 789$)		0.12**	0.13***	0.04	0.09*	
	No PE	673 (85.3%)					
	Weak PE	103 (13.1%)					
	Strong PE	13 (1.7%)					
6	Schizophrenia ($n = 957$)	37 (3.9%)	0.19***	0.18**	0.11**	0.12**	0.12*

Note. DISC-C, Diagnostic Interview Schedule for Children; PE, psychotic experience; RBPC, Revised Behavior Problem Checklist.
*$P = .05$, **$P = .01$, ***$P = .001$ (bias-corrected accelerated bootstrapped confidence intervals).

Table 2. Regression of Schizophrenia Diagnosis at 38 Years onto Psychotic Experience and Parent-Rated Schizotypy (n = 746)

	Univariable			Multivariable, unadjusted			Multivariable, adjusted		
Predictors	*OR*	95% CI	R^2	*OR*	95% CI	R^2	*OR*	95% CI	R^2
Model 1: PE + total schizotypy									
PE	2.68**	1.42, 5.06	0.032	2.17*	1.09, 4.33	0.098	2.22*	1.10, 4.44	0.099
Schizotypy	1.83***	1.42, 2.36	0.080	1.76***	1.35, 2.30		1.76***	1.35, 2.30	
Model 2: PE + schizotypy components									
PE	2.68**	1.42, 5.06	0.032	2.14*	1.06, 4.32	0.106	2.20*	1.08, 4.46	0.108
Positive	1.68***	1.34, 2.10	0.076	1.47*	1.09, 2.00		1.49*	1.10, 2.01	
Negative	1.69**	1.22, 2.34	0.040	1.35	0.94, 1.93		1.34	0.94, 1.93	
Disorganized	1.57**	1.18, 2.10	0.033	1.07	0.72, 1.59		1.06	0.71, 1.58	

Note. Adjusted analyses included sex. R^2 values are pseudo R^2. PE, psychotic experience.
*P = .05, **P = .01, ***P = .001.

schizotypy in childhood and adolescence each make distinct contributions to the prediction of adulthood schizophrenia diagnosis. Mean parent-rated schizotypy was a significant predictor of schizophrenia diagnosis by age 38 and, when clinician-rated psychotic experiences were included in the model, the size of the relationship between parent-rated schizotypy and schizophrenia diagnosis did not diminish. This pattern of effects indicates that parent-rated schizotypy and clinician-rated psychotic symptoms in early adolescence are not redundant indicators of schizophrenia liability.

Our findings extend those in earlier reports on the same cohort that showed subclinical psychotic experiences in childhood predict schizophreniform diagnosis by age 26 years,[2] and predict schizophrenia, posttraumatic stress disorder, and suicide attempts by age 38 years.[1] Our findings suggest that parent-rated schizotypy and clinician-rated subclinical psychotic experiences capture different aspects of schizophrenia liability. Consistent with this view, parent- and clinician-rated measures were weakly correlated (r = 0.09–0.12). Others have likewise observed small (and even negative) parent–clinician correlations. Small negative coefficients (r = −0.13 to −0.01) were observed in 1 study of disturbances in behavior, communication, and socialization,[37] and in a study of psychotic experience among 5- to 13-year-olds receiving counseling, correlations of parents' and clinicians' ratings ranged from r = 0.01 to 0.07.[23]

When positive, negative, and disorganized components of parent-reported schizotypy were considered simultaneously with psychotic experience, only positive schizotypy and psychotic experience remained significant predictors of schizophrenia diagnosis. That is, positive schizotypy predicted schizophrenia diagnosis when adjusted for clinician-rated psychotic experiences. This outcome indicates that the difference in findings between RBPC and DISC-C does not solely reflect the broader phenotype measured by the RBPC. Indeed, the RBPC positive component item content overlapped significantly with that of the psychotic experience items from the DISC-C; the disorganization and negative components did not carry the effect of the PBPC total score. With respect to disorganization, given the item content and that there were no exclusion criteria for participants in this study, the disorganized schizotypy score may have been capturing developmental delays rather than specifically psychosis-related cognitive disorganization.

The findings add significantly to evidence on the informational value of parents' reports. Salcedo et al.[10] recently reported that parents' ratings of children's psychotic experiences predicted concurrent classifications by clinicians of "clinically concerning" psychosis. However, that research was cross-sectional, and unlike in the Dunedin Study, predictors were not assessed independently of outcomes; parents' reports were not blind to service presentation or help-seeking in adulthood, and clinicians' classifications were based on joint child and parent interviews. Other studies of prediction from parents' ratings entailed use of composite scores with content diluted by other phenomena (such as the Thinking Problems scale from the Child Behavior Checklist, for which only half to a third of items clearly correspond to schizotypy[11,12]) or parents having to cast their minds back a decade or 2 to recall their child's behavior.[13,17]

Thus, our observations imply that informant discrepancies do not solely represent measurement error.[38] Had measurement error been the sole cause of discrepancies in clinicians' and parents' reports, the effect of one of these would have been suppressed in the multivariable regression model. Instead, different types of observers provide meaningful, nonredundant information about subclinical psychotic experiences. Consequently, the findings are not congruent with the view that clinical interviewer observation is more valid than parental observation as a predictor of diagnosis outcome. Our observations are consistent with Achenbach et al.'s assertion that there is no such thing as a gold standard for assessment.[21]

There are several limitations of this study. First, the difference of age at time of measurement of clinician-rated

(age 11 years) and parent-rated (mean rating over age 13 and 15) leaves open the possibility that the specific contributions of informants may be conflated with age or developmental effects, and that by taking the mean rating, important variability may have been obscured. The use of ratings obtained during adolescence only may limit the generalizability of findings to other age groups. Meta-analyses have shown there are greater discrepancies in cross-informant ratings for older adolescents than younger children,[21] though several studies have found no age differences.[24]

Second, the results describe differences between clinician- and parent-rated measures in a research context and cannot necessarily be extrapolated to other contexts (eg, clinical assessment). In clinical contexts, parents often initiate treatment[24] and, so, help-seeking motivation may bias answers in relation to the goal of the assessment process. For example, parents may be more likely to answer affirmatively in a clinical context than a research context, whereas in a research context there may be a greater likelihood of defensive responding. However, whether these response tendencies would make parent-reported symptoms more- or less-valid predictors of schizophrenia liability is unclear.

Other limitations include that the psychometric properties of the RBPC schizotypy scores were not examined in an independent sample. Whereas the RBPC schizotypy scores had low to moderate internal consistency, the nonunitary nature of the measured construct means that low internal consistency does not necessarily imply low reliability.[39] Independent psychometric data on the RBPC schizotypy scores would have strengthened the study. Furthermore, while items of the RBPC were selected based on semantic content (eg, alignment with Meehl's[28,29] definition of schizotypy), 2 items we selected have been used by others to assess acting out ("Not liked by others; is a 'loner' because of aggressive behaviour") and anxious withdrawal ("Shy, bashful"). More generally, the RBPC items we used to index schizotypy do not provide good coverage of the range of phenomena that comprise schizotypy; and the component scores are from items that have limited content validity. We note, in particular, that social anxiety and acting out are problematic as indicators of negative schizotypy. Nevertheless, the negative item subset predicted schizophrenia diagnosis in adulthood, indicating it is a valid measure of liability for schizophrenia. Last, while psychotic experiences were relatively common in the sample (~15%), the total number of individuals diagnosed with schizophrenia was relatively small (n = 37).

Strengths of the study include the length of follow-up and that the birth cohort, which has a very low rate of attrition, is representative of the general population.[25] The low attrition rate is particularly important because individuals that drop out of longitudinal research tend to have more severe psychopathology.[40] Although the rates of missing data at the age 11 and age 13 assessments were greater than desired, the high retention rate (>95%) from baseline at all subsequent assessments allowed us to test for sampling bias.

In conclusion, clinician-rated psychotic symptoms and parent-rated schizotypy in early adolescence are valid, nonredundant indicators of schizophrenia liability. Furthermore, individually, parent-rated positive, negative, and disorganized schizotypy in early adolescence predicted adult schizophrenia diagnosis. In future research, use of multiple sources of information about schizotypy and psychotic symptoms may improve the predictive value findings and the richness of schizotypy samples. Investigators could consider whether the phenomena distinguished by clinical interview, self-report, and parent rating behave similarly in respect of sensitivity to the prediction of schizophrenia outcomes, alignment with the genetics and neurobiology of schizophrenia,[41] the pathogenic pathways to clinical outcomes, and theoretical mechanisms underlying schizophrenia. The importance of understanding trajectories of change during key developmental phases, and the possibility that different informants are differently sensitive to different risk phenomena, cannot be overemphasized.

Supplementary Material

Supplementary material is available at https://academic.oup.com/schizophreniabulletin/.

Acknowledgments

We thank the Dunedin Study members, their families and friends for their long-term involvement, and study founder, Phil A Silva, PhD. We also thank Professors Terrie E. Moffitt and Avshalom Caspi for mental health data used in this project, and the Dunedin Multidisciplinary Health and Development Research Unit staff.

Funding

The Dunedin Multidisciplinary Health and Development Research Unit is supported by the New Zealand Health Research Council, and has also received funding from the New Zealand Ministry of Business, Innovation and Employment. Funding support was also received from the US National Institute of Aging (grant AGO32282) and the UK Medical Research Council (grant MR/KOO38IX). Additional support was provided by the Jacobs Foundation. The granting bodies had no role in the study design, analysis, interpretation of results, or in the writing and submitting of this report.

Conflicts of Interest

The authors have declared that there are no conflicts of interest in relation to the subject of this study.

Author Contribution

K.O.: Data analyses and writing original draft. R.P.: funding acquisition, data curation, study design and methods, data collection. R.J.L.: Conceptualization, supervision, data analysis, and editing. All authors contributed to and have approved the final manuscript.

References

1. Fisher HL, Caspi A, Poulton R, *et al*. Specificity of childhood psychotic symptoms for predicting schizophrenia by 38 years of age: a birth cohort study. *Psychol Med.* 2013;43:2077–2086. doi:10.1017/S0033291712003091.
2. Poulton R, Caspi A, Moffitt TE, Cannon M, Murray R, Harrington H. Children's self-reported psychotic symptoms and adult schizophreniform disorder: a 15-year longitudinal study. *Arch Gen Psychiatry.* 2000;57:1053–1058.
3. Kwapil TR, Barrantes-Vidal N. Schizotypy: looking back and moving forward. *Schizophr Bull.* 2015;41:S366–S373. doi:10.1093/schbul/sbu186.
4. Lenzenweger MF. *Schizotypy and Schizophrenia: A View from Experimental Psychopathology*. New York: Guilford; 2010.
5. Lenzenweger MF. Psychometric high-risk paradigm, perceptual aberrations, and schizotypy: an update. *Schizophr Bull.* 1994;20:121–135. doi:10.1093/schbul/20.1.121.
6. Lenzenweger MF. Schizotypy 17 years on: psychotic symptoms in midlife. *J Abnorm Psychol.* 2021;130:399–412. doi:10.1037/abn0000680.
7. Kwapil TR, Gross GM, Silvia PJ, Barrantes-Vidal N. Prediction of psychopathology and functional impairment by positive and negative schizotypy in the Chapmans' ten-year longitudinal study. *J Abnorm Psychol.* 2013;122:807–815. doi:10.1037/a0033759.
8. Kline E, Thompson E, Schimunek C, *et al*. Parent–adolescent agreement on psychosis risk symptoms. *Schizophr Res.* 2013;147:147–152. doi:10.1016/j.schres.2013.03.007.
9. Kendler KS, Myers J, Torgersen S, Neale MC, Reichborn-Kjennerud T. The heritability of cluster A personality disorders assessed by both personal interview and questionnaire. *Psychol Med.* 2007;37:655–665. doi:10.1017/S0033291706009755.
10. Salcedo S, Rizvi SH, Freeman LK, Youngstrom JK, Findling RL, Youngstrom EA. Diagnostic efficiency of the CBCL thought problems and DSM-oriented psychotic symptoms scales for pediatric psychotic symptoms. *Eur Child Adolesc Psychiatry.* 2018;27:1491–1498. doi:10.1007/s00787-018-1140-1.
11. Simeonova DI, Nguyen T, Walker EF. Psychosis risk screening in clinical high-risk adolescents: a longitudinal investigation using the Child Behavior Checklist. *Schizophr Res.* 2014;159:7–13. doi:10.1016/j.schres.2014.07.046.
12. Simeonova DI, Attalla A, Trotman H, Esterberg M, Walker EF. Does a parent-report measure of behavioral problems enhance prediction of conversion to psychosis in clinical high-risk adolescents? *Schizophr Res.* 2011;130:157–163. doi:10.1016/j.schres.2011.03.034.
13. Miller PM, Byrne M, Hodges A, Lawrie SM, Johnstone EC. Childhood behaviour, psychotic symptoms and psychosis onset in young people at high risk of schizophrenia: early findings from the Edinburgh High Risk Study. *Psychol Med.* 2002;32:173–179. doi:10.1017/S0033291701004779.
14. Paul SE, Hatoum AS, Fine JD, *et al*. Associations between prenatal cannabis exposure and childhood outcomes: results from the ABCD Study. *JAMA Psychiatry*. 2021;78:64–76. doi:10.1001/jamapsychiatry.2020.2902.
15. Jansen PR, Polderman TJC, Bolhuis K, *et al*. Polygenic scores for schizophrenia and educational attainment are associated with behavioural problems in early childhood in the general population. *J Child Psychol Psychiatry.* 2018;59:39–47. doi:10.1111/jcpp.12759.
16. Golembo-Smith S, Bachman P, Senturk D, Cannon TD, Bearden CE. Youth-caregiver agreement on clinical high-risk symptoms of psychosis. *J Abnorm Child Psychol.* 2014;42:649–658. doi:10.1007/s10802-013-9809-x.
17. Hamasaki Y, Nakayama T, Hikida T, Murai T. Combined pattern of childhood psycho-behavioral characteristics in patients with schizophrenia: a retrospective study in Japan. *BMC Psychiatry*. 2021;21:57. doi:10.1186/s12888-021-03049-w.
18. Calkins ME, Merikangas KR, Moore TM, *et al*. The Philadelphia Neurodevelopmental Cohort: constructing a deep phenotyping collaborative. *J Child Psychol Psychiatry.* 2015;56:1356–1369. doi:10.1111/jcpp.12416.
19. Calkins ME, Moore TM, Satterthwaite TD, *et al*. Persistence of psychosis spectrum symptoms in the Philadelphia Neurodevelopmental Cohort: a prospective two-year follow-up. *World Psychiatry*. 2017;16:62–76. doi:10.1002/wps.20386.
20. Handwerk ML, Larzelere RE, Soper SH, Friman PC. Parent and child discrepancies in reporting severity of problem behaviors in three out-of-home settings. *Psychol Assess.* 1999;11:14–23. doi:10.1037/1040-3590.11.1.14.
21. Achenbach TM, McConaughy SH, Howell CT. Child/adolescent behavioral and emotional problems: implications of cross-informant correlations for situational specificity. *Psychol Bull.* 1987;101:213–232. doi:10.1037/0033-2909.101.2.213.
22. Miller LC. Q-sort agreement among observers of children. *Am J Orthopsychiatry.* 1964;34:71–75. doi:10.1111/j.1939-0025.1964.tb02193.x.
23. Lindholm BW, Touliatos J. Checklist agreement among observers of children. *Psychol Sch*. 1982;19:548–551. doi:10.1002/1520-6807(198210)19:4<548::AID-PITS2310190424>3.0.CO;2-M.
24. De Los Reyes A, Kazdin AE. Informant discrepancies in the assessment of childhood psychopathology: a critical review, theoretical framework, and recommendations for further study. *Psychol Bull.* 2005;131:483–509. doi:10.1037/0033-2909.131.4.483.
25. Poulton R, Moffitt TE, Silva PA. The Dunedin Multidisciplinary Health and Development Study: overview of the first 40 years, with an eye to the future. *Soc Psychiatry Psychiatr Epidemiol.* 2015;50:679–693. doi:10.1007/s00127-015-1048-8.
26. Poulton R, Hancox R, Milne B, *et al*. The Dunedin Multidisciplinary Health and Development Study: are its findings consistent with the overall New Zealand population? *N Z Med J.* 2006;119:45–55.

27. Quay HC, Peterson DR. *Manual for the Revised Problem Behavior Checklist*. Coral Gables, FL: University of Miami; 1987.
28. Meehl PE. *Manual for Use With Checklist of Schizotypic Signs*. Minneapolis, MN: Psychiatric Research Unit, University of Minnesota Medical School; 1964.
29. Meehl PE. Toward an integrated theory of schizotaxia, schizotypy, and schizophrenia. *J Personal Disord.* 1990;4:1–99. doi:10.1521/pedi.1990.4.1.1.
30. O'Hare KJM, Poulton R, Linscott RJ. Psychotic experiences and schizotypy in early adolescence predict subsequent suicidal ideation trajectories and suicide attempt outcomes from age 18 to 38 years. *Schizophr Bull.* 2021;47:456–464. doi:10.1093/schbul/sbaa151.
31. Fonseca-Pedrero E, Ortuño J, Debbané M, *et al*. The network structure of schizotypal personality traits. *Schizophr Bull.* 2018;44:S468–S479. doi:10.1093/schbul/sby044.
32. Raine A, Reynolds C, Lencz T, Scerbo A, Triphon N, Kim D. Cognitive-perceptual, interpersonal, and disorganized features of schizotypal personality. *Schizophr Bull.* 1994;20:191–201. doi:10.1093/schbul/20.1.191.
33. Costello A, Edelbrock C, Kalas R, Kessler M, Klaric S. *NIMH Diagnostic Interview for Children: Child Version*. Rockville, MD: National Institute of Mental Health; 1982.
34. American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders: DSM-III-R*. 3rd Rev. ed. Washington, DC: American Psychiatric Association; 1987.
35. Robins LN, Helzer JE, Croughan J, Ratcliff KS. National Institute of Mental Health Diagnostic Interview Schedule: its history, characteristics, and validity. *Arch Gen Psychiatry.* 1981;38:381–389. doi:10.1001/archpsyc.1981.01780290015001.
36. Robins LN, Cottler L, Bucholz K, Compton W. *Diagnostic Interview Schedule for DSM-IV (DIS-IV)*. St. Louis, MO: Washington University School of Medicine; 1995.
37. Morris JD, Arrant D. Behavior ratings of emotionally disturbed children by teachers, parents, and school psychologists. *Psychol Sch*. 1978;15:450–455. doi:10.1002/1520-6807(197807)15:3<450::AID-PITS2310150327>3.0.CO;2-P.
38. De Los Reyes A. More than measurement error: discovering meaning behind informant discrepancies in clinical assessments of children and adolescents. *J Clin Child Adolesc Psychol.* 2011;40:1–9. doi:10.1080/15374416.2011.533405.
39. Nunnally JC, Bernstein IH. *Psychometric Theory*. 3rd ed. New York: McGraw-Hill; 1994.
40. de Graaf R, Bijl RV, Smit F, Ravelli A, Vollebergh WAM. Psychiatric and sociodemographic predictors of attrition in a longitudinal study: the Netherlands Mental Health Survey and Incidence Study (NEMESIS). *Am J Epidemiol.* 2000;152:1039–1047. doi:10.1093/aje/152.11.1039.
41. Ettinger U, Meyhöfer I, Steffens M, Wagner M, Koutsouleris N. Genetics, cognition, and neurobiology of schizotypal personality: a review of the overlap with schizophrenia. *Front Psychiatry.* 2014;5:18. doi:10.3389/fpsyt.2014.00018.