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Predictors of Current Functioning and Functional Decline in Schizophrenia

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Abstract

Positive, negative, and cognitive symptoms of schizophrenia may affect functional outcomes. However, these factors alone do not account for a large percentage of variance in outcomes. We investigated demographic, cognitive, symptom, and functional capacity predictors of current functional status in 280 outpatients with schizophrenia or schizoaffective disorder. Functional decline over the lifespan was also examined in a subset of participants. Stepwise regressions modeled predictors of current functional status and functional decline as measured by the Assessment of Lifespan Functioning Attainment (ALFA). ALFA functional domains included paid employment, independence in living situation, romantic relationships, close friendships, and recreational engagement. More severe depressive symptoms were consistently associated with worse current community integration (lower levels of close friendships and recreational engagement). Better working memory performance was associated with higher rates of current paid employment. There were no consistent modifiable predictors of decline in functioning, but women reported less functional decline in the domains of employment and close friendships than

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Contributors

E.W.T. designed the study, oversaw data analyses, and edited the manuscript. J. J. conducted literature searches, analyses and interpretation of data, and wrote the initial draft of the manuscript. J.v.d.L. assisted with statistical analyses and edited the manuscript. W.S.K., C.E.F., and S.J.G. provided assistance with data interpretation and edited the manuscript. S.D.C. and M.T.T. edited the manuscript.

Conflict of Interest

The authors report no conflicts of interest.

men. Better cognitive performance was associated with less decline in living independence and romantic relationships, but more decline in paid employment and recreational engagement. Increased assessment and treatment of comorbid depressive symptoms may improve functional outcomes in people with schizophrenia.

Keywords

psychosis; depression; cognition; lifespan functioning

1. Introduction

Schizophrenia is now largely considered to be a group of syndromes, rather than a single illness, due to significant genetic (Sebat et al., 2009; Stefansson et al., 2008; Walsh et al., 2008), symptom (Carpenter and Buchanan, 1994; Liddle and Morris, 1991; Wagman, 1988), and social risk factor (Cantor-Graae and Selten, 2005; Janssen et al., 2004; Zammit et al., 2004) heterogeneity. While different factors are associated with the various syndromes (Liddle, 1987; Liddle et al., 1992; Silverstein et al., 2000; Williams et al., 2000), schizophrenia spectrum disorders consistently lead to poor functional outcomes across multiple domains, including employment, living independence, and social functioning (Green et al., 2000; Green et al., 2004; Harvey et al., 1998).

Currently validated measures of real world functioning (Leifker et al., 2011) only consider a snapshot in time and do not provide a comprehensive lifespan perspective for outcomes relevant to schizophrenia. In addition, the factors predicting current functional status may be different from predictors of functional decline. Moreover, the factors associated with functional outcomes vary greatly (Barnes et al., 2008; Kolakowska et al., 1985; Marwaha and Johnson, 2004; Milev et al., 2005; Sabbag et al., 2012; Wölwer et al., 2014). Therefore, improved characterization of the set of factors that moderate functional outcomes in schizophrenia may be useful in developing and targeting treatments.

Studies of lifespan functioning in schizophrenia are very few and have been limited primarily to investigations of neurocognitive impairment (Friedman et al., 2001; Kalache et al., 2014; Kurtz, 2005) or qualitative assessments (Shepherd et al., 2012). A new scale, the Assessment of Lifespan Functioning Attainment (ALFA;(Joseph et al., 2015), enables the quantitative assessment of various stages in lifespan functioning including current status and post-psychosis decline for five different functional domains: paid employment, living independence, romantic relationships, close friendships, and recreational engagement.

The aim of this study was to model predictors of current functional status and post-psychosis functional decline using the ALFA scale in a large sample of individuals with schizophrenia-spectrum disorders. We predicted that demographic, illness burden, cognitive, and functional capacity factors would account for a significant amount of variance in functional outcomes.

2. Materials and Methods

2.1 Study Participants and Procedures

Outpatients with schizophrenia or schizoaffective disorder (n=280; 59% with schizophrenia, 41% with schizoaffective disorder) were recruited from the University of California, San Diego (UCSD) Outpatient Psychiatric Services clinic and the broader San Diego community and were enrolled in a study examining genetic predictors of cognitive and functional outcome in schizophrenia. The same sample was used in our initial descriptive and factor analytic study of the ALFA (Joseph et al., 2015). The study was approved by the Institutional Review Board and all participants provided written informed consent. Each participant completed the study assessments within a two-week period.

Participants were excluded if they: 1) had a DSM-IV TR (APA, 2000) diagnosis of substance abuse or dependence within six months of study entry; 2) had a diagnosis of intellectual disability or neurological disorders affecting cognitive functioning (including brain injury with loss of consciousness >10 minutes); 3) were not fluent English speakers. The demographic and symptom characteristics, as well as current functional status for the five ALFA domains, are shown in Table 1. Information regarding current functional status was available for all 280 participants, whereas information on decline in functioning was available for a subset of the sample with psychosis onset after age 18 (n=93; see Table 1).

2.2 Psychiatric and Substance History Measures

Psychiatric history indices were obtained from the Diagnostic Interview for Genetics Studies (Nurnberger et al., 1994). These indices included history of suicide attempts, history of heavy alcohol and substance use, history of smoking, and history of antisocial personality characteristics prior to age 15. Heavy alcohol use was defined as ≥8 drinks per week for women and ≥15 drinks per week for men (Dawson et al., 2005). Heavy substance use for cannabis, cocaine, and other stimulants was defined as 30 or more days of continuous substance use.

2.3 Current Symptom Assessments

Scale for Assessment of Positive Symptoms (SAPS)—(Andreasen, 1984). The SAPS was used to assess four positive symptom domains of psychopathology in schizophrenia: 1) hallucinations; 2) delusions; 3) bizarre behavior; and 4) formal thought disorder.

Scale for Assessment of Negative Symptoms (SANS)—(Andreasen, 1983). The SANS was used to assess negative symptoms of psychopathology in schizophrenia in five domains: 1) affective flattening or blunting; 2) alogia; 3) avolition-apathy; 4) attention; and 5) anhedonia-asociality.

Hamilton Depression Scale (HAMD)—(Hamilton, 1960). The HAMD was used to assess current depression symptoms.

2.4 Functional Capacity

UCSD Performance-based Skills Assessment 2 (UPSA-2)—(Patterson and Goldman, 2005). The UPSA-2 is a measure of functional capacity that assesses ability to perform tasks related to independent living skills in six domains: finance (e.g., write a check to pay a utilities bill), communication (e.g., call a doctor to reschedule an appointment), transportation, recreation planning, household chores (e.g., grocery shopping) and medication management. Prior studies suggest good test-retest reliability for the original UPSA (Leifker et al., 2010), which does not include the medication management ability assessment (MMAA). For the UPSA-2, raw subscale scores for all domains except the MMAA were converted to a composite score out of 100 (Patterson and Goldman, 2005). For the MMAA, a total raw score was computed.

2.5 Self-Reported Functioning

Assessment of Lifespan Functioning Attainment (ALFA)—(Joseph et al., 2015). The ALFA is a quantitative self-report measure of past and current functioning comprising five domains: 1) paid employment (including full-time post-secondary education); 2) living independence; 3) participation in romantic relationships; 4) maintenance of close friendships; and 5) engagement in recreational activities with non-family members. In part 1, current status for each domain was coded 0 for “not participating” and 1 for “currently participating.” In part 2, to determine variation in functioning for specific epochs of adulthood (i.e., age 18–20, 21–30, 31–40, 41–50, etc., up to the individual’s current age) participants were queried as to the number of years that they were engaged in activities corresponding to each ALFA domain. The percentage of years of engagement in each domain from age of 18 to age of psychosis onset was defined as “Pre-Psychosis Functioning,” and percentage of years of engagement in each domain from age of psychosis onset to current age was defined as “Post-Psychosis Functioning”; higher values represent better outcomes. The difference in percentages between Post-Psychosis and Pre-Psychosis Functioning was defined as “Post-Psychosis Decline”; higher values represent less decline, whereas lower values represent greater decline.

2.6 Cognitive Measures

Premorbid intellectual functioning was estimated with the Wide Range Achievement Test III (WRAT-III) reading subtest (Wilkinson, 1993). Current cognitive functioning was measured with the MATRICS Consensus Cognitive Battery (MCCB; Nuechterlein et al., 2008),which includes the following domains: 1) speed of processing (Symbol Coding, Animal Naming, Trail Making Test, Part A); 2) attention/vigilance (Continuous Performance Test-Identical Pairs); 3) working memory (Spatial Span, Letter-Number Span); 4) verbal learning (Hopkins Verbal Learning Test-Revised); 5) visual learning (Brief Visuospatial Memory Test-Revised); 6) reasoning and problem solving (Mazes); and 7) social cognition (Mayer-Salovey-Caruso Emotional Intelligence Test (Nuechterlein et al., 2008). The age- and sex-corrected T-scores for each domain were used as cognitive indices.

Additional cognitive tasks were administered to supplement the MCCB domains of attention and working memory and to measure speeded switching and planning, which are not measured by the MCCB. The Digit Span subtest from the Wechsler Adult Intelligence Scale,

Third Edition (Wechsler, 1997) was administered as an additional measure of attention. The longest digit sequence participants repeated correctly was designated as the maximum span score for the forward condition. Reading Span (Conklin et al., 2000; Kremen et al., 2007) was included as a supplemental measure of working memory ability. In this test, participants read groups of sentences of about 14 words aloud (beginning with two sentences, then increasing), and were then asked to recall the last word of each sentence in the set. The Delis-Kaplan Executive Function System (Delis et al., 2001) Trail Making and Tower Tests were also administered to measure speeded switching and planning abilities.

2.7 Statistical Analyses

To reduce the total number of predictor variables in our regression models, point biserial correlations were computed between the demographic, clinical, functional capacity, and cognitive measures and current functioning and post-psychosis decline for the five ALFA domains. All measures correlated with a p value of ≤.05 were included in the regression models.

Stepwise regressions were performed for current functional status and post-psychosis decline in the five ALFA domains. For the stepwise logistic regressions predicting current functional status, we included demographic, psychiatric history, current symptom severity, and current cognitive functioning in the model. For the post-psychosis decline regressions, demographic, psychiatric history, and cognitive scores were entered, given that demographic and history variables cannot change and cognitive performance is thought to be stable in schizophrenia patient populations (Palmer et al., 2009). We excluded current symptom severity factors from the post-psychosis decline regressions as symptom severity may change considerably over time.

3. Results

3.1 Correlates of Current Functioning and Post-Psychosis Decline in ALFA Domains

Significant bivariate correlates of current functioning are shown in Table 2. Cognitive measures were correlated with current functioning for all ALFA domains except romantic relationships. Higher levels of depressive symptoms were associated with worse current functioning in close friendships and recreational engagement. Other variables were less consistently predictive of current functioning and there were no significant correlates of current romantic relationships. The significant correlates of current functioning were modest, ranging from r = .12−.18.

Correlates of post-psychosis decline in functioning are shown in Table 2 and were generally stronger (r =.22- .39) compared to the correlates of current functioning. Female sex was associated with less decline in years of paid employment, close friendships and recreational engagement. Declines in all ALFA domains except close friendships were associated with several cognitive measures. Current cognitive performance was associated with greater decline in some domains and less decline in others. The remaining variables were less consistently predictive of functional decline.

3.2 Multivariate Predictors of Current Functioning

The stepwise logistic regressions modeling current ALFA domain functioning are shown in Table 3. Better working memory, as measured by the reading span task, predicted current paid employment. Together, the predictor variables explained 5.5% of the variance in current employment. Having a history of heavy stimulant use was significantly associated with living independently, in a model explaining 3.3% of the variance in current living independence. Slower number sequencing, less severe depressive symptoms, and a lack of prior heavy stimulant use predicted current participation in close friendships; together, the predictor variables explained 11.1% of the variance in close friendships. Less severe depressive symptoms, poorer visual learning scores, and a lack of prior heavy stimulant use predicted current recreational engagement; together, the predictor variables explained 8.8% of the variance in recreational engagement. None of the modeled variables predicted current participation in romantic relationships.

3.3 Multivariate Predictors of Post-Psychosis Decline in Functioning

Stepwise linear regressions used to model post-psychosis decline in ALFA domain functioning are shown in Table 4. In a multivariate context, lower premorbid IQ, worse planning (Tower test scores), and female sex predicted less decline in paid employment; together, the predictor variables explained 27.2% of the variance in employment decline. Female sex predicted less decline in close friendships in a multivariate model explaining 13.5% of the variance in friendship decline. Better performance on the motor speed condition of D-KEFS Trails predicted less decline in living independence in a multivariate model explaining 5.7% of the variance, and better performance on attention/vigilance tasks on the MCCB predicted less decline in romantic relationships in a model explaining 9.4% of the variance. Poorer verbal learning scores predicted less decline in recreational engagement; together, the predictor variables explained 8.1% of the variance in recreational decline.

Worse cognitive performance was associated with less decline in functioning in three cases, as described above; Figure 1 shows graphs of these unexpected results. In two of the three cases, it appeared that worse cognitive performance was associated with lower levels of pre-psychosis functioning. Thus, it may be the case that those with worse cognitive performance had lower levels of functioning early in life and had less room to decline; conversely, those with higher levels of cognitive performance may have functioned better early in life and had more room to decline.

4. Discussion

This study used demographic, clinical, functional capacity, and cognitive measures to model predictors of current functioning and post-psychosis decline in multiple domains relevant to schizophrenia-spectrum disorders. Regarding correlates of current functioning, in a multivariate context, severity of depression symptoms was associated with worse current functioning in the domains of recreational engagement and close friendships. Reducing depressive symptoms may deserve increased focus as a way to improve functional outcomes (Bowie et al., 2010; Sabbag et al., 2012). In addition, our study sample included a

substantial proportion of individuals with schizoaffective disorder, which may have influenced outcomes. Future studies including symptom assessment scales such as the Calgary Depression Scale (Addington et al., 1996; Addington et al., 1990) and Clinical Assessment Interview for Negative Symptoms (CAINS; Kring et al., 2013) may better disentangle the relationships among patient perceptions, negative and depressive symptoms, and functioning. The study of biological pathways that link depression and schizophrenia spectrum disorders (Frick et al., 2013; Jun et al., 2012; Ray et al., 2014; Walton et al., 2014; Yu et al., 2013) could also be important for improving our understanding of the role of depression in functional outcomes in schizophrenia.

Cognitive performance was not a consistent predictor of current functional status. Better working memory was associated with current paid employment, but slower number sequencing was associated with current close friendships, and worse visual learning was associated with recreational engagement. History of prior heavy stimulant use was also an inconsistent predictor of current functional status in various domains. Unlike a recent study (Depp et al., 2015), we did not find that smoking status was associated with functional outcomes in our multivariate models. It should be noted that the multivariate models predicting variance in current functional status did not reveal strong relationships in general; the highest percentage of variance explained across functional domains was 11%.

Regarding predictors of variance in functional decline, we found few significant predictors in multivariate models. Female sex was protective against decline in paid employment and close friendships, possibly due to the later age of onset of psychosis in women (Lindamer et al., 1997). Worse planning performance and lower premorbid IQ were associated with less decline in employment status. This relationship was an unexpected finding and requires replication with future longitudinal studies. It is possible that better executive functioning is related to successful navigation of the disability entitlement system, which could lead to lower rates of employment. However, further studies are needed to examine this hypothesis since very few study participants maintained employment across their lifespan. It is also possible that those with better cognitive performance had better pre-psychosis functioning and therefore more room to decline. Poorer verbal learning performance was associated with less decline in recreational engagement. On the other hand, better cognition in the domains of motor speed and attention/vigilance was associated with less decline in the domains of living independence and romantic relationships, respectively. It should be noted that our multivariate models explained less than 30% of the variance in functional decline across ALFA domains. Since longitudinal symptom severity ratings were unavailable, we did not include psychiatric symptom severity predictors in our post-psychosis decline models. Therefore, it is possible that psychiatric symptom severity over the lifespan is the largest contributor to functional decline. Indeed, a recent large-scale study found that amotivation, along with neurocognition, predicted functional change over time (Fervaha et al., 2014).

Our study has several limitations that must be considered. Our sample size was sufficient for the measurement of current functional status, but significantly smaller for indices of functional decline. Therefore, our results regarding functional decline require replication in a larger sample. The ALFA is a self-report measure (Joseph et al., 2015) and may be prone to inaccurate reporting (Kendler et al., 1996; Shiffman, 2000) due to recall bias. Gathering

information from long-term close contacts could add significantly to our understanding of variation in lifespan functioning, when reliable informants are available (Keefe and Fenton, 2007; Sabbag et al., 2011). In addition, our findings could not be corroborated with patient medical records since factors relevant to our study were not available in these reports. Therefore, there is a great need to include self-report lifespan measures to supplement patient medical records and informant reports in schizophrenia research studies. The ALFA measures functional domains dichotomously to reduce recall error, rather than allowing for a finer grained analysis of functioning (e.g., hours worked per week, number of close friends).We cannot interpret the direction of causality, especially for our subset of findings related to post psychosis decline in functioning, with a cross-sectional study. Unmeasured factors [e.g., metacognitive ability (Lysaker et al., 2013; Lysaker et al., 2010)] may also contribute to functional outcomes. We were only able to examine functional decline in adulthood, in a subset of outpatients with adult-onset psychosis. Thus, our results may not generalize to inpatients or individuals with childhood-onset psychosis. Finally, cross-sectional assessment of cognitive predictors may not capture periods of significant cognitive deterioration (Harvey, 2014) that could influence everyday functioning in schizophrenia.

This report represents the first assessment of predictors and correlates of adult lifespan functioning in schizophrenia using a quantitative scale. Our study included a measure of functional capacity, but future quantitative assessments of lifespan functioning may benefit from incorporation of real world performance factors (Gupta et al., 2012). While symptoms influence many functional outcomes, it will be important to replicate non-symptom modifiers, as symptom remission is not a consistent predictor functional recovery (Harvey et al., 2012). Although we found no consistent modifiable predictors of variance in functional decline across ALFA domains, depressive symptom severity was associated with current functional status in two of the five ALFA domains, and has previously been associated with both objective and subjective quality of life in people with schizophrenia (Narvaez et al., 2008). Increased assessment and treatment of comorbid depressive symptoms may improve functional outcomes and quality of life in people with schizophrenia.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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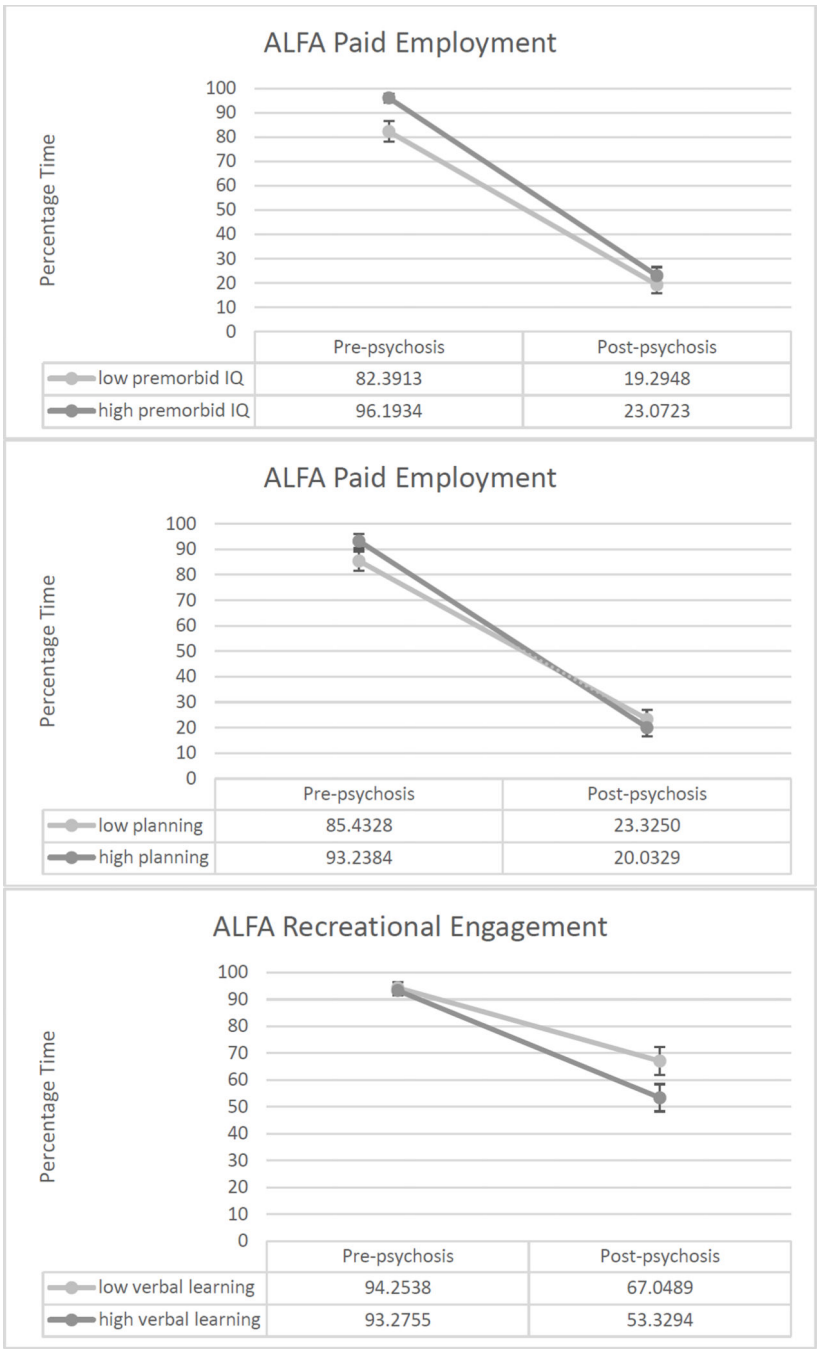

Figure 1.
Graphs of three results showing worse cognitive performance associated with less functional decline.

Table 1

Demographic and clinical characteristics of the study sample (n=280) and subsample (n=93) with decline in functioning data available.

	Sample (n=280)		Subsample (n=93)	
	%/M	*SD*	*%/M*	*SD*
Sex (% Male)	66.8	-	63.4	-
Race (% White)	46.8	-	38.7	-
Ethnicity (% Hispanic)	20.0	-	15.1	-
Suicide attempt (% reporting at least one lifetime attempt)	46.8	-	40.9	-
Current marital status (% Single, never married)	58.2	-	50.5	-
Current smoker (%)	61.8	-	59.1	-
Current paid employment (%)	7.9	-	5.4	-
Current living independence (%)	76.4	-	75.3	-
Current romantic relationships (%)	40.7	-	44.1	-
Current close friendships (%)	75.0	-	72.0	-
Current recreational engagement (%)	65.0	-	57.0	-
Age, years	48.1	10.2	49.0	8.9
Education, years	12.3	2.4	12.5	2.5
Age of psychosis onset, years	22.2	9.7	28.4	8.3
Duration of psychosis, years	25.9	12.2	20.7	9.4
Premorbid IQ estimate	92.8	15.4	92.6	13.4
HAMD depressive symptom severity	6.2	5.8	6.3	6.4
SANS negative symptom severity	29.2	17.3	21.5	16.7
SAPS positive symptom severity	27.6	16.9	19.4	13.0
Antisocial characteristics	1.7	2.4	1.3	2.0
Total chlorpromazine equivalent (mg)	386.8	249.9	380.9	206.7

Note. HAMD = Hamilton Depression Rating Scale, SANS = Scale for Assessment of Negative Symptoms, SAPS = Scale for the Assessment of Positive Symptoms.

Table 2

Point biserial correlates of current functioning and bivariate correlates of post-psychosis decline in functioning ($p < .05$).

ALFA Domain – Current Functioning	**Measures**	***r***	***P***
Paid employment	Antisocial characteristics	.178	.003
	Reading Span	.154	.013
	Premorbid IQ	.130	.036
	History of Heavy Marijuana Use	.123	.044
Living independence	D-KEFS Trails switching	−.127	.047
	Current smoker	−.120	.046
	History of Heavy Drinking	−.145	.026
	History of Heavy Stimulant Use	−.141	.020
Close friendships	D-KEFS Trails number sequencing	−.160	.014
	HAMD depressive symptom severity	−.125	.041
	History of Heavy Stimulant Use	.160	.010
Recreational engagement	MCCB visual learning	−.128	.042
	HAMD depressive symptom severity	−.156	.011
	History of Heavy Stimulant Use	.146	.018
ALFA Domain – Decline in Functioning	**Measures**	***r***	***P***
Paid employment	Participant Sex	.394	<.001
	Premorbid IQ	−.301	.005
	D-KEFS Tower test	−.375	<.001
Living independence	D-KEFS Trails motor speed	.238	.032
Close friendships	Participant Sex	.374	<.001
	Antisocial characteristics	−.221	.036
Recreational engagement	MCCB verbal learning	−.249	.021
	Participant Sex	.223	.034
	D-KEFS Trails number sequencing	−.226	.045
Romantic relationships	MCCB attention/vigilance	.306	.004
	Suicide attempt	.231	.027

Note. ALFA = Assessment of Lifespan Functioning Attainment; D-KEFS = Delis-Kaplan Executive Function System; HAMD = Hamilton Depression Rating Scale; MCCB = MATRICS Consensus Cognitive Battery

Table 3

Stepwise logistic regression models predicting current functioning.

ALFA Domain	Predictors	*B*	*SE B*	*Wald*	*P*	*Odds Ratio*	*95% CI*
Paid employment (N = 254)	Reading Span	.165	.069	5.757	.016	1.180	1.031 – 1.350
	Antisocial characteristics				.103		
	Premorbid IQ				.192		
	History of Heavy Marijuana Use				.159		
	Nagelkerke R^2			.055			
	Model χ^2			5.918	.015		
Living independence (N = 246)	History of Heavy Stimulant Use	.851	.398	4.572	.033	2.341	1.073 – 5.107
	History of Heavy Alcohol Use				.139		
	D-KEFS Trails switching				.064		
	Current smoker				.327		
	Nagelkerke R^2			.033			
	Model χ^2			4.345	.037		
Close friendships (N = 235)	D-KEFS Trails number sequencing	−.120	.057	4.383	.036	.887	.792 – .992
	HAMD depressive symptoms	−.055	.028	3.994	.046	.946	.897 – .999
	History of Heavy Stimulant Use	−1.588	.634	6.268	.012	.204	.059 – .708
	Nagelkerke R^2			.111			
	Model χ^2			17.112	.001		
Recreational engagement (N = 252)	MCCB visual learning	−.026	.011	5.393	.020	.974	.953 – .996
	HAMD depressive symptoms	−.055	.025	4.937	.026	.947	.902 – .994

ALFA Domain	Predictors	*B*	*SE B*	*Wald*	*P*	*Odds Ratio*	*95% CI*
	History of Heavy Stimulant Use	−1.025	.433	5.618	.018	.359	.154 – .837
	Nagelkerke R^2			.088			
	Model χ^2			16.042	.001		

Note. ALFA = Assessment of Lifespan Functioning Attainment; D-KEFS = Delis-Kaplan Executive Function System; HAMD = Hamilton Depression Rating Scale; MCCB = MATRICS Consensus Cognitive Battery

Table 4

Stepwise linear regression models predicting post-psychosis decline in functioning.

ALFA Domain	Predictor	*B*	*SE B*	*p*	*t*	*p*
Paid employment (N = 87)	Participant Sex	17.544	5.768	.300	3.041	.003
	Premorbid IQ	−.465	.203	−.224	−2.292	.024
	D-KEFS Tower test	−2. 353	1.048	−.231	−2.246	.027
	R^2	.272				
	F for R^2	5.251				.024
Living independence (N = 81)	D-KEFS Trails motor speed (5)	2.406	1.103	.238	2.182	.032
	R^2	.057				
	F for R^2	4.759				.032
Close friendships (N = 91)	Participant Sex	23.697	6.367	.367	3.722	<.001
	Antisocial characteristics			−.178	−1.820	.072
	R^2	.135				
	F for R^2	13.851				<.001
Recreational engagement (N = 79)	MCCB verbal learning	−1.010	.388	−.285	−2.605	.011
	Participant Sex			.181	1.591	.116
	D-KEFS Trails number sequencing (2)			−.170	−1.528	.131
	R^2	.081				
	F for R^2	6.787				.011
Romantic relationships (N = 87)	MCCB attention/vigilance	1.003	.338	.306	2.968	.004
	Suicide attempt			.089	.806	.422
	R^2	.094				
	F for R^2	8.808				.004

Note. ALFA = Assessment of Lifespan Functioning Attainment; D-KEFS = Delis-Kaplan Executive Function System; MCCB = MATRICS Consensus Cognitive Battery