Character strengths of individuals with first episode psychosis in Individual Resiliency Training

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ABSTRACT

Positive psychology interventions that integrate a person's strengths into treatment result in improvements in life satisfaction and well-being. Character strengths classified within six core virtues (wisdom/knowledge, courage, humanity, justice, temperance, and transcendence) have been the subject of substantial research. Though a number of studies have been conducted in the general population, little is known about the character strengths of individuals with first episode psychosis (FEP). Moreover, positive psychology principles, in particular a focus on personal strengths, have been increasingly integrated into FEP treatment and was a core component of Individual Resiliency Training (IRT), the individual therapy component of NAVIGATE tested in the Recovery After an Initial Schizophrenia Episode Early Treatment Program. As such, the present study offers an examination of character strengths among 105 FEP clients in specialized early intervention treatment. The present study included two primary aims: 1) to conduct a descriptive analysis of character strengths of FEP individuals and 2) to examine exploratory associations between character strengths and changes in symptomatic and recovery variables over six months. Results revealed that the most commonly identified strengths were: Honesty, Authenticity, and Genuineness (40.95%), Kindness and generosity (37.14%), Fairness, equity, and justice (29.52%), Gratitude (29.52%), and Humor and playfulness (29.52%). Three virtues (Humanity, Justice, and Transcendence) were significantly associated with improvements in symptoms, psychological well-being, and interpersonal relations over six months. Overall, the present study offers a glimpse into how persons with FEP view their strengths and how certain clusters of strengths are related to important outcomes.

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1. Introduction

Positive psychology interventions (PPIs) strive to improve well-being and life satisfaction in part through the realization and utilization of one's strengths (Duckworth et al., 2005; Seligman et al., 2005). The strengths-based treatment approach facilitates the development of self-efficacy, hope for the future, and meaning in life, all of which are critical features of recovery from mental illness (Resnick and Rosenheck, 2006; Sin and Lyubomirsky, 2009; Tse et al., 2016; Wood and Tarrier, 2010). PPIs that incorporate strengths-based principles align with the view that recovery transcends symptom alleviation and include the experience of positive emotions, satisfaction, and purpose to promote well-being (Anthony,

1993; Bellack, 2006; Deegan, 1988; Schrank et al., 2013). These interventions hold promise for individuals with first episode psychosis (FEP) given the loss of hope and purpose that accompanies experiencing psychosis (McGorry et al., 1996). Further, given that initial symptoms emerge in late adolescence/early adulthood, individuals with FEP often experience a significant disruption in their developmental trajectory (e.g., graduating high school, beginning college, starting work), possibly clouding awareness of personal strengths (Kessler et al., 2007; McGorry et al., 1996). Positive psychology principles, specifically a focus on client strengths, have been successfully integrated into treatment for FEP (e.g., Alvarez-Jimenez et al., 2013 [Horyzons]; Meyer et al., 2015 [Individual Resiliency Training]) and for schizophrenia (Meyer et al., 2012; Schrank et al., 2016) to foster personal recovery and enrich well-being.

Character strengths, defined as "positive traits reflected in thoughts, feelings, and behaviors," (Park et al., 2004, p. 603) are most commonly assessed through the Values in Action (VIA) Classification of Strengths. The VIA includes 24 character strengths organized within six core virtues:

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wisdom/knowledge, courage, humanity, justice, temperance, and transcendence (Park et al., 2004; Park et al., 2006; see Table 1). Empirical work examining character strengths has focused on three main research questions. First, descriptive studies have highlighted similarities in strength endorsement across individuals from the United States and different countries (McGrath, 2015; Park et al., 2006). Second, correlational studies have examined the extent to which character strengths are related to areas of subjective satisfaction in the general population. These studies have shown that certain character strengths (e.g., hope, zest, gratitude, love, and curiosity) are more strongly associated with life satisfaction and well-being than other strengths (e.g., modesty, appreciation of beauty, creativity, judgment, and love of learning; Park et al., 2004; Proctor et al., 2011). Third, cross-sectional and longitudinal studies have investigated the impact of using one's strengths on outcomes. This work has illustrated that self-reported use of one's strengths is related to subjective well-being, perceived stress, and positive affect in the general population (Proctor et al., 2011; Wood et al., 2011). Though numerous studies on character strengths have been conducted in the general population, less is known about the specific character strengths of individuals with FEP.

An examination of character strengths and their relationship to outcomes in FEP may be valuable given the growing interest in adapting strengths-based PPIs for this population. Specifically, PPIs focus on helping individuals identify their strengths as well as use them in new ways to facilitate achieving personally meaningful goals and to discover new ways of coping with symptoms (Mitchell et al., 2009; Seligman et al., 2005). PPIs also focus on encouraging individuals to use the specific strengths that are most strongly related to life satisfaction and well-being (e.g., practicing gratitude through counting your blessings) even if they are not identified as a person's top strengths (Proyer et al., 2013; Sheldon and Lyubomirsky, 2006). As a result, understanding the relationship between specific strengths and outcomes in FEP could enhance treatment.

The present study provides an examination of character strengths among a sample of FEP clients in the context of the largest FEP treatment study in the United States: The Recovery After an Initial Schizophrenia Episode Early Treatment Program (RAISE-ETP). The primary findings of this cluster randomized controlled trial involving 34 mental health centers found that NAVIGATE, a multicomponent coordinated specialty care program for FEP, led to greater improvements in quality of life, symptoms, and role functioning than Community Care (Kane et al., 2016; Kane et al., 2015).

The present study included two primary aims: 1) to conduct a descriptive analysis of character strengths of FEP individuals, and 2) to examine exploratory associations between character strengths and changes in symptomatic and recovery outcomes after six months of treatment.

2. Method

2.1. Participants

The RAISE ETP study sample included 404 individuals who had experienced a single episode of non-affective psychosis (Kane et al., 2016). A subsample of FEP clients who participated in Individual Resiliency Training (IRT), the individual therapy component of NAVIGATE, was included in the current study (n = 105). Because the character strengths assessment was utilized as a clinical tool rather than as part of overall study data collection, we obtained strengths data via audiotaped sessions of IRT module two when the strengths assessment occurred. Consequently, only participants with available audio of this module (and whose strength selections were said aloud) comprised this subsample (Table 2).

Table 1
Classification of six virtues and 24 character strengths.

Wisdom and Knowledge: Cognitive strengths that entail the acquisition and use of knowledge.
    Creativity, ingenuity, and originality: Thinking of new ways to do things is a crucial part of who you are. You are never content with doing something the conventional way if a better way is possible.
    Curiosity and interest in the world: You are curious about everything. You are always asking questions, and you find all subjects and topics fascinating.
    Judgment, critical thinking, and open-mindedness: Thinking things through and examining them from all sides are important aspects of who you are.
    Love of learning: You love learning new things, whether in a class or on your own. You have always loved school, reading, and museums—anywhere and everywhere there is an opportunity to learn.
    Perspective (wisdom): Although you may not think of yourself as wise, your friends hold this view of you. They value your perspective on matters and turn to you for advice.
Courage: Emotional strengths that involve the exercise of will to accomplish goals in the face of opposition, external or internal.
    Honesty, authenticity, and genuineness: You are an honest person, not only by speaking the truth, but by living your life in a genuine and authentic way.
    Bravery and valor: You are a courageous person who does not shrink from threat, challenge, difficulty, or pain.
    Industry, diligence, and perseverance: You work hard to finish what you start.
    Zest, enthusiasm, and energy: Regardless of what you do, you approach it with excitement and energy.
Humanity: Interpersonal strengths that involve "tending and befriending" others.
    Kindness and generosity: You are kind and generous to others, and you are never too busy to do a favor.
    Capacity to love or be loved: You value close relations with others, in particular those in which sharing and caring are reciprocated.
    Social intelligence: You are aware of the motives and feelings of other people.
Justice: Civic strengths that underlie healthy community life.
    Fairness, equity, and justice: Treating all people fairly is one of your abiding principles.
    Leadership: You excel at the tasks of leadership: encouraging a group to get things done and preserving harmony within the group by making everyone feel included.
    Citizenship, teamwork, and loyalty: You excel as a member of a group. You are a loyal and dedicated teammate, you always do your share, and you work hard for the success of your group.
Temperance: Strengths that protect against excess.
    Forgiveness and mercy: You forgive those who have done you wrong. You always give people a second chance.
    Modesty and humility: You do not seek the spotlight, preferring to let your accomplishments speak for themselves.
    Caution, prudence, and discretion: You are a careful person, and your choices are consistently prudent ones.
    Self-control and self-regulation: You self-consciously regulate what you feel and what you do.
Transcendence: Strengths that forge connections to the larger universe and provide meaning.
    Appreciation of beauty and excellence: You notice and appreciated beauty, excellence, and/or skilled performance in all domains of life, from nature to art to mathematics to science to everyday experience.
    Gratitude: You are aware of the good things that happen to you, and you never take them for granted.
    Hope, optimism, and future-mindedness: You expect the best in the future, and you work to achieve it.
    Humor and playfulness: You like to laugh and tease. Bringing smiles to other people is important to you.
    Spirituality, sense of purpose, and faith: You have strong and coherent beliefs about the higher purpose and meaning of the universe.

Note. Virtue classification and virtue descriptions are from Park et al. (2006). Character strength descriptions are from IRT Manual (http://navigateconsultants.org/materials/).

Table 2
Demographic, clinical, and baseline characteristics of participants.

	Participants (n = 105)
Demographic characteristics	
Male, n (%)	81 (77)
Age (years), M (SD)	23.55 (5.44)
Race/ethnicity, n (%)	
Caucasian	64 (61)
African American	34 (32)
Other	7 (7)
Ethnicity, n (%)	
Hispanic	24 (23)
Education, n (%)	
Completed college or higher	4 (4)
Some college, no degree	30 (29)
Completed high school	36 (34)
Some high school	32 (31)
Some or completed grade school	2 (2)
Current student, n (%)	19 (18)
Currently employed, n (%)	14 (13)
Clinical characteristics	
Diagnosis, n (%)	
Schizophrenia	58 (55)
Schizoaffective bipolar	8 (8)
Schizoaffective depressive	10 (9)
Schizophreniform	20 (19)
Brief psychotic disorder	1 (1)
Psychotic disorder NOS	8 (8)
DUP (weeks), M (SD)	161.52 (239.27)
Baseline characteristics, M (SD)	
SPWB total average	4.11 (0.84)
MHRM total average	5.15 (1.19)
QLS total score	51.42 (19.17)
QLS instrumental role functioning	4.75 (6.32)
QLS intrapsychic foundations	20.68 (6.87)
QLS common objects and activities	6.40 (2.42)
QLS interpersonal relations	19.59 (9.20)
STIGMA total average[a]	3.92 (1.13)
CDSS total score	4.09 (3.85)
PANSS total score	76.75 (14.64)
PANSS positive	12.52 (3.81)
PANSS negative	16.30 (5.48)
PANSS disorganized/concrete	7.99 (2.96)
PANSS excited	6.74 (2.86)
PANSS depressed	7.84 (3.13)

Note. NOS = not otherwise specified; DUP = duration of untreated psychosis; SPWB = Scales of Psychological Well-Being; MHRM = Mental Health Recovery Measure; QLS = Quality of Life Scale; STIGMA = Stigma Scale; PANSS = Positive and Negative Syndrome Scale.

[a] n = 103.

2.2. Intervention

NAVIGATE is a multi-component treatment comprising medication management, family psychoeducation, individual therapy, and supported employment and education (Meyer et al., 2015; Mueser et al., 2015). In line with positive psychology principles, NAVIGATE emphasized personal strengths and resilience in all aspects of treatment to support the regrowth of self-determination and to promote personal well-being (Mueser et al., 2015). IRT was designed to facilitate clients' achievement of personally meaningful goals and foster resiliency, improvements in quality of life, and well-being (Meyer et al., 2015). It is organized into 14 modules including standard core modules applicable to all clients (e.g., education about psychosis) and individualized modules, which are utilized to address specific problems/goals of the client (e.g., substance use; Meyer et al., 2015).

Clients are introduced to the topics of resiliency and strengths in module two, which is typically started in session two or three after completing orientation (Module one). Module two (Assessment and Goal Setting) includes a discussion of wellness and resiliency, completion of the Brief Strengths Test (see supplemental material), and an assessment of satisfaction with areas of one's life (Meyer et al., 2015). As part of

subsequent sessions (in particular module six on resiliency), clients worked with their therapists to identify new ways to use their strengths in everyday life and to use their strengths to achieve personally meaningful goals (Penn et al., 2014).

2.3. Measures

Participants completed the Brief Strengths Test once during IRT, self-report measures at baseline, 3, 6, 12, 18, and 24 months, and interview measures at baseline, 6, 12, 18, and 24 months. Baseline and six-month outcomes were used in analyses.

As part of module two, clients completed the 24-item Brief Strengths Test, a modified version of the 240-item Values-in-Action (VIA) Classification of Strengths (Peterson and Seligman, 2004). The Brief Strengths Test assesses the extent to which an individual reports using each of the 24 character strengths in the past month on a 1–10 scale (see supplemental material). Items include prompts such as: "Think of actual situations in which you had the opportunity to learn more about some topic. How often did you show love of learning in these situations?" In addition to the questionnaire, clients reviewed a list of the 24 character strengths and their descriptions (Table 1). Clients then selected their top five character strengths (or more than five if they preferred) using their ratings and accompanying strengths descriptions.

The first author (JB) extracted these data from audiotaped IRT sessions. Because the numerical ratings written on the Brief Strengths Test were not collected (given that this assessment was not part of formal data collection), the top strengths identified by clients and discussed with the therapist (rather than ratings of all 24 strengths) were utilized in the present analyses.

Three self-report measures were included in the present analyses: the Scales of Psychological Well-Being (SPWB; Ryff, 1989), the Mental Health Recovery Measure (MHRM; Young and Bullock, 2003), and the Stigma Scale (King et al., 2007). Modified, briefer versions of the full

Table 3
Character strengths of the sample (n = 105).

Strength (organized by virtue)	N	%	Rank order
Wisdom and knowledge			
Creativity, ingenuity, and originality	17	16.19	18
Curiosity and interest in the world	21	20.00	14
Judgment, critical thinking, and open-mindedness	27	25.71	7*
Love of learning	25	23.81	9*
Perspective (wisdom)	13	12.38	22
Courage			
Honesty, authenticity, and genuineness	43	40.95	1
Bravery and valor	16	15.24	19*
Industry, diligence, and perseverance	15	14.29	21
Zest, enthusiasm, and energy	11	10.48	23
Humanity			
Kindness and generosity	39	37.14	2
Capacity to love or be loved	20	19.05	15*
Social intelligence	10	9.52	24
Justice			
Fairness, equity, and justice	31	29.52	3*
Leadership	23	21.90	11*
Citizenship, teamwork, and loyalty	28	26.67	6
Temperance			
Forgiveness and mercy	25	23.81	9*
Modesty and humility	20	19.05	15*
Caution, prudence, and discretion	16	15.24	19*
Self-control and self-regulation	22	20.95	13
Transcendence			
Appreciation of beauty and excellence	18	17.14	17
Gratitude	31	29.52	3*
Hope, optimism, and future-mindedness	27	25.71	7*
Humor and playfulness	31	29.52	3*
Spirituality, sense of purpose, and faith	23	21.90	11*

Note. N, %, and rank order represent the number of individuals who endorsed each strength as one of their top strengths. Rank order ties (i.e., strengths that had the same number of people endorsing them) are shown with an asterisk (*).

scales were utilized in the RAISE ETP study (18 item subset of SPWB, 15-item subset of MHRM, and 7-item subset of Stigma Scale). Mean total scores were used in analyses.

Three interview measures were included in the present analyses: the Quality of Life Scale (QLS; Heinrichs et al., 1984), the Positive and Negative Syndrome Scale (PANSS; Kay et al., 1992), and the Calgary Depression Scale for Schizophrenia (CDSS; Addington et al., 1993). The QLS produces a total score and four domain scores: interpersonal relations, instrumental role functioning, intrapsychic foundations, and common objects and activities, all of which were used in analyses. The PANSS produces a total score and five factor scores: positive, negative, disorganized/concrete, excited, and depressed (Wallwork et al., 2012), all of which were used in analyses. Finally, the CDSS total score was used in analyses.

2.4. Procedure

Enrollment in RAISE ETP occurred between July 2010 and July 2012 and all participants were offered the NAVIGATE treatment package for at least 2 years. All participants were offered IRT upon initiation of NAVIGATE treatment but were not excluded from the other program components if they declined or discontinued IRT. The final participant completed two years of treatment in July 2014.

2.5. Data analysis

Analyses were conducted using SPSS (Version 24). Chi-square tests and t-tests were conducted on demographic characteristics (age, race [White or Racial Minority], and gender) and baseline PANSS total scores to compare the subsample of individuals for whom strengths data were obtained ($n = 105$) from the individuals who received IRT but whose strengths data were not obtained ($n = 103$). Differences in duration of untreated psychosis between the two groups were assessed with the Mann-Whitney U Test.

Frequencies, percentages, and rank order were used to conduct a descriptive analysis of the selected character strengths (Aim 1). To examine the relationship between strengths and client variables (Aim 2), we utilized six-month assessments because the Brief Strengths Test was typically completed within the first five months. Clients who completed the strengths assessment after their fifth month in the RAISE ETP study were excluded from these analyses ($n = 10$). As a result, we examined the extent to which strengths chosen by the remaining subsample ($n = 95$) were related to changes in symptomatic and recovery outcomes from baseline to six months.

To conduct exploratory regression analyses, we recoded selection of any strength within each of the virtues as either present or absent, resulting in one binary coded variable for each of the six virtues. We fit separate multiple linear regression models for six-month outcomes, with the baseline measure of the outcome variable and the six binary virtue variables as predictors. Finally, we conducted a sensitivity

analysis to examine whether controlling for how long a client had been enrolled in the study at the strengths assessment affected the overall results.

3. Results

None of the tests were significant comparing individuals whose strength data were obtained ($n = 105$) to the individuals who received IRT but whose strengths data were not obtained ($n = 103$).

3.1. Descriptive analysis

The most frequently endorsed strengths were: *Honesty, authenticity, and genuineness* (40.95%), *Kindness and generosity* (37.14%), *Fairness, equity, and justice* (29.52%), *Gratitude* (29.52%), and *Humor and playfulness* (29.52%). The least endorsed strengths were: *Social intelligence* (9.52%), *Zest, enthusiasm, and energy* (10.48%), *Perspective and wisdom* (12.38%), *Industry, diligence, and perseverance* (14.29%), *Bravery and valor* (15.24%), and *Caution, prudence, and discretion* (15.24%; Tables 3 and 4).

3.2. Exploratory regression analyses

Three virtues (Humanity, Justice, and Transcendence) were significantly associated with changes in outcomes over six months (Tables 5 and 6). Specifically, selecting a strength in the Humanity virtue (kindness, love, social intelligence) was significantly associated with improved psychological well-being ($b = 0.247$, p $= 0.013$) and reductions in PANSS positive symptoms.

($b = -0.281$, p $= 0.011$). Selecting a strength in the Justice virtue (fairness, leadership, citizenship) was significantly associated with improvements in QLS interpersonal relations ($b = 0.220$, p $= 0.019$). Finally, selecting a strength in the Transcendence virtue (appreciation of beauty, gratitude, hope, humor, spirituality) was significantly associated with improved PANSS total symptoms.

($b = -0.255$, p $= 0.030$). All other analyses were not significant. The overall pattern of results remained unchanged when we included the length of study enrollment at the strengths assessment as an additional predictor. Therefore, the results are reported without this variable.

4. Discussion

The goals of the present study were to provide a descriptive analysis of character strengths among individuals with FEP and to examine the relationships between strength selection and changes in outcomes over six months of treatment. The most commonly endorsed strengths among FEP clients were: honesty, kindness, fairness, gratitude, and humor. Large studies that examined character strength profiles of 100,000 to 1 million individuals showed that the most highly rated strengths were: honesty, kindness, gratitude, fairness, curiosity, and

Table 4
Frequencies of virtue endorsement.

Virtue	Full sample (n = 105)		Multiple regression sample for QLS, CDSS, PANSS data (n = 81)		Multiple regression sample for MHRM, SPWB data (n = 88)		Multiple regression sample for STIGMA data (n = 87)	
	n	%	n	%	n	%	n	%
Wisdom and knowledge	69	65.7	52	64.2	59	67	58	66.7
Courage	68	64.8	51	63	54	61.4	54	62.1
Humanity	55	52.4	44	54.3	47	53.4	46	52.9
Justice	60	57.1	50	61.7	53	60.2	53	60.9
Temperance	60	57.1	48	59.3	50	56.8	50	57.5
Transcendence	81	77.1	63	77.8	69	78.4	68	78.2

Note. QLS = Quality of Life Scale; CDSS = Calgary Depression Scale for Schizophrenia; PANSS = Positive and Negative Syndrome Scale; MHRM = Mental Health Recovery Measure; SPWB = Scales of Psychological Well-Being; STIGMA = Stigma Scale. Frequencies listed above reflect the number of people who endorsed at least 1 strength within a given virtue. Samples sizes are different from each other based on inclusion criteria for regression analyses (i.e., having strengths assessment within first five months in study) and missing data.

Table 5
Exploratory Regression Models Predicting 6-month Recovery Outcomes from Virtues.

	SPWB Total Average		MHRM Total Average		STIGMA Total Average		QLS Total Score	
	b^*	sr^2	sr^2	sr^2	b^*	sr^2	b^*	sr^2
Baseline measure	.483***	.214***	.622***	.339***	.411***	.162***	.611***	.329***
Wisdom and knowledge	.107	.010	-.107	.010	.046	.002	-.040	.001
Courage	.175	.025	.170	.023	-.009	<.001	.088	.006
Humanity	.247*	.053*	.142	.017	-.150	.020	.155	.022
Justice	.002	<.001	-.023	<.001	-.031	.001	.166	.026
Temperance	.174	.023	.114	.010	-.032	.001	.031	.001
Transcendence	.175	.023	.102	.008	-.070	.004	.150	.017
Overall Model Adjusted R^2	.290***		.406***		.134**		.377***	

Note. SPWB = Scales of Psychological Well-Being; MHRM = Mental Health Recovery Measure; STIGMA = Stigma Scale; QLS = Quality of Life Scale. b^* = standardized coefficient; sr^2 = squared semi-partial correlation.
*p<.05, **p<.01; ***p<.001.

	QLS Instrumental Role Functioning		QLS Intrapsychic Foundations		QLS Common Objects and Activities		QLS Interpersonal Relations	
	b^*	sr^2	b^*	sr^2	b^*	sr^2	b^*	sr^2
Baseline measure	.478***	.205***	.531***	.249***	.553***	.279***	.611***	.336***
Wisdom and knowledge	-.035	.001	-.019	<.001	.124	.013	-.068	.004
Courage	-.058	.003	.077	.004	.037	.001	.117	.010
Humanity	.187	.031	.096	.008	.133	.016	.111	.011
Justice	.162	.024	.063	.004	.049	.002	.220*	.046*
Temperance	-.047	.002	.012	<.001	.058	.003	.070	.004
Transcendence	.111	.009	.089	.006	.127	.012	.156	.018
Overall Model Adjusted R^2	.252***		.232***		.309***		.367***	

Note. QLS = Quality of Life Scale b^* = standardized coefficient; sr^2 = squared semi-partial correlation.
*p<.05, **p<.01, ***p<.001

judgment, which share substantial similarities with our results (McGrath, 2015; Park et al., 2006). FEP individuals differed from those in the general population in terms of the least endorsed strength of social intelligence as this strength is typically ranked in the middle (between 10 and 12 out of 24) for those in the general population (McGrath, 2015; Park et al., 2006). The fact that very few individuals in our sample (n = 10) selected social intelligence as a strength may reflect unique characteristics of this population (e.g., impairments in

social cognition; Penn et al., 2008). It is also interesting to note that social intelligence was one of the lowest rated strengths among individuals with autism spectrum disorders (Kirchner et al., 2016), possibly reflecting similarities in social cognitive deficits between schizophrenia and autism populations (Couture et al., 2010). Yet, these findings may also reflect gender differences in strength endorsement given that our sample and the autism sample (Kirchner et al., 2016) had majority male participants (77% and 66%, respectively) as compared to the two

Table 6
Exploratory Regression Models Predicting 6-month Symptomatic Outcomes from Virtues.

	CDSS Total Score		PANSS Total Score		PANSS Positive		PANSS Negative	
	b^*	sr^2	b^*	sr^2	b^*	sr^2	b^*	sr^2
Baseline Measure	.360**	.119**	.480***	.212***	.339**	.108**	.569***	.305***
Wisdom and knowledge	.075	.005	.074	.005	.143	.018	.046	.002
Courage	-.057	.003	-.065	.003	-.043	.001	-.078	.005
Humanity	.018	<.001	-.158	.022	-.281*	.070*	-.042	.002
Justice	.016	<.001	.019	<.001	-.040	.002	.086	.007
Temperance	-.047	.002	-.044	.002	-.048	.002	-.079	.005
Transcendence	-.210	.033	-.255*	.048*	-.156	.018	-.210	.032
Overall Model Adjusted R^2	.113*		.212**		.177**		.258***	

Note. CDSS = Calgary Depression Scale for Schizophrenia; PANSS = Positive and Negative Syndrome Scale. b^* = standardized coefficient; sr^2 = squared semi-partial correlation.
*p<.05, **p<.01, ***p<.001.

	PANSS Disorganized		PANSS Excited		PANSS Depressed	
	b^*	sr^2	b^*	sr^2	b^*	sr^2
Baseline Measure	.509***	.230***	.352**	.120**	.413***	.154***
Wisdom and knowledge	.047	.002	.140	.017	-.010	<.001
Courage	.043	.001	-.008	<.001	-.025	<.001
Humanity	-.027	.001	-.161	.023	-.055	.003
Justice	.113	.012	-.098	.009	-.076	.005
Temperance	.047	.002	-.075	.004	.045	.002
Transcendence	-.040	.001	-.107	.008	-.164	.020
Overall Model Adjusted R^2	.176**		.122*		.148**	

Note. PANSS = Positive and Negative Syndrome Scale. b^* = standardized coefficient; sr^2 = squared semi-partial correlation.
*p<.05, **p<.01, ***p<.001

large studies in the general population, which included majority female participants (~67%; McGrath, 2015; Park et al., 2006).

The regression analyses offer some insight into the relationships between strengths and changes in symptomatic and recovery variables. First, FEP individuals who viewed themselves as kind, capable of being loved, and/or socially intelligent had greater improvements in psychological well-being and positive symptoms. Interestingly, within this humanity virtue, kindness was the second most commonly endorsed strength whereas social intelligence was the least endorsed. Though this analysis did not separate the effects of particular strengths, it seems that individuals who value relationships and believe they are worthy of being loved experienced greater improvements in well-being and positive symptoms. Second, FEP clients who viewed themselves as having strengths of fairness, leadership, and/or citizenship reported greater improvements in interpersonal relations. Third, individuals with strengths of appreciation of beauty, gratitude, hope, humor, and/or spirituality had greater improvements in total symptoms, thus highlighting the value of connecting to a larger purpose and meaning in life. Further, prior research found that gratitude was the most robust predictor of life satisfaction in the general population (Peterson et al., 2007) and that appreciation of beauty and love of learning were most strongly associated with greater life satisfaction for those recovering from a psychological disorder (Peterson et al., 2006). Taken together, these findings highlight the importance of noticing, valuing, and being connected to social, aesthetic, and emotional dimensions of the larger world.

The present study had a number of limitations. First, a modified version of the (VIA) Classification of Strengths (Peterson and Seligman, 2004) with unknown psychometric properties was used. Second, we were unable to obtain numerical ratings of strengths endorsement given that we obtained top strengths from audiotapes. As a result, we could not examine how strongly individuals endorsed character strengths, which is common in prior research (McGrath, 2015; Park et al., 2006). Therefore, comparisons between the most/least commonly selected strengths from our study with the highest/lowest ranked strengths of prior studies should be done with caution. Third, because the strengths assessment was conducted with the therapist as part of individual therapy, the strengths chosen by clients may have been impacted by this collaborative process. Fourth, because we recoded virtues as binary variables for regression analyses, we were not able to determine whether certain strengths within a virtue were more closely associated with outcomes than others. Fifth, given the correlational nature of this study, directionality cannot be inferred. Sixth, we did not utilize multilevel modeling given the exploratory nature of this study. Finally, there were only a few significant findings and strengths accounted for only a small portion of variance in the outcomes. As a result, discussion of these findings should be considered speculative.

Despite these limitations, the present study makes a valuable contribution to FEP research. The results offer a glimpse into the way FEP clients view their own character strengths. Further, this study showed that certain clusters of strengths, namely those in the humanity, justice, and transcendence virtues, were associated with greater improvements in symptoms, interpersonal relations, and psychological well-being over six months. The present results are consistent with prior work illustrating positive benefits of completing a strengths assessment among those with FEP (Sims et al., 2015) and psychiatrically hospitalized youth (Toback et al., 2016). As importantly, our findings reveal that the moral and social sensibilities of these individuals are active, salient, and deserving of recognition and nourishment as part of their pathways to recovering from psychosis. Future research may consider examining how levels of strength endorsement (using numerical ratings) are related to outcomes utilizing the published short measure of character strengths (Furnham and Lester, 2012).

Clinically, it may be beneficial to include exercises that encourage and create opportunities to use strengths within the humanity, justice, and transcendence virtues in addition to a client's top strengths. This addition is consistent with PPIs that focus on encouraging people to use strengths that are most closely tied to improved outcomes (e.g., gratitude, zest) in addition to their top strengths (Gander et al., 2013; Mitchell et al., 2009; Proyer et al., 2013; Seligman et al., 2005; Sheldon and Lyubomirsky, 2006; Sin and Lyubomirsky, 2009). Taken together, the present study offers preliminary work on the clusters of strengths most tied to improvements in well-being, interpersonal relations, and symptoms in an FEP population.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.schres.2017.09.036.

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