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Profiles of Psychological Strengths on Symptom Distress, Recovery, and Quality of Life Among Young Adults with a History of Adolescent Psychiatric Hospitalization

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Abstract

The current study surveyed 166 young adults (ages 20–35) with a history of adolescent psychiatric hospitalization to identify profiles of psychological strengths (self-determination, identity commitment, and low mental health self-stigma) and to examine their association with symptom distress, recovery, and quality of life in young adulthood. Over half of all participants (51%) reported a high quality of life, and over one-third (40%) were not experiencing clinically-significant psychiatric symptoms. *k*-means cluster analysis identified three distinct profiles: low psychological strengths, mixed, and high strengths. Multiple regression analyses indicated the high strengths profile was significantly associated with lower symptom distress, higher recovery, and higher quality of life after controlling for demographics, psychiatric history, treatment experience, and psychiatric interference in school and relationships during adolescence. Findings have implications for targeted support and services based on psychological profile, including family support, interventions to support medication management such as shared decision-making, and peer support.

Keywords Well-being · Self-stigma · Self-determination · Identity · Person-centered · Mental health

Over 700,000 adolescents received inpatient or residential services in 2017 intended to treat a psychiatric condition and reduce the risk and severity of future relapse (Substance Abuse and Mental Health Services Administration (SAMHSA), 2018). Studies have demonstrated a positive impact of residential treatment and hospitalization on managing mental health problems during this critical period (Bettmann & Jasperson, 2009; Hayes et al., 2018). However, hospitalization to stabilize symptoms may also come at a cost for young people (Blanz & Schmidt, 2000). For example, longitudinal evidence shows that adults with a history of adolescent psychiatric hospitalization have higher mortality, poorer mental health, and lower educational attainment than the general population (Best et al., 2004). For some, the restricted institutional environment of hospitalizations or family and friends' reaction to the hospitalization may interfere with the experiences necessary to develop autonomy,

connections to others, a sense of competency, and a pathway to well-being into adulthood. Alternatively, cultivating self-determination skills, a positive self-identity, and low mental health self-stigma may support an adult's positive well-being despite a history of mental health challenges.

Self-determination is associated with developing a sense of autonomy, acquiring the skills to establish healthy relationships, and building a sense of competency in one's knowledge and abilities (Deci & Ryan.,). Studies have found a relationship between a strong sense of self-identity (i.e., an individual has committed to a self-concept) and mental health and well-being among adolescents and college students (Hardy et al., 2013; Wiley & Berman, 2013). Prior research with adults receiving treatment for mental health problems also found individual associations between greater self-determination, positive identity, mental health symptoms, greater recovery, and quality of life (Buckley-Walker et al., 2010; Cruwys et al., 2020; Jochems et al., 2017; Mancini, 2007).

Healthy identity formation and self-determination may be complicated by experiences of mental health stigma among adolescents experiencing psychiatric hospitalization. In a study of 60 youth receiving mental health treatment,

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adolescents reported rejection or negative experiences with peers, family, and school personnel (Moses, 2010). These stigma experiences may become internalized when individuals apply these stereotypes to themselves (Corrigan et al., 2006). Self-stigma has been linked to diminished self-esteem, severity of psychiatric symptoms, and reduced social functioning and support in adults (Livingston & Boyd, 2010; Yanos et al., 2012). Adolescents and young adults with a history of psychiatric hospitalization may be particularly vulnerable to self-stigma due to stigmatizing experiences occurring during a critical developmental window for identity development (Erikson, 1994). Sajatovic et al. (2008), for example, found that some younger individuals and none of the older individuals with bipolar disorder struggled to communicate a self-identity separate from their mental health diagnosis. Contrary to the expectation that adolescents may be uniquely vulnerable to self-stigma, Moses (2009) found low mental health self-stigma among adolescents receiving outpatient mental health services. Elevated self-stigma was found in a later study among youth recently hospitalized for psychiatric reasons (Moses, 2015), indicating variability in self-stigma among adolescents may be partly influenced by differences in the stigma attached to the treatment setting (i.e., outpatient versus inpatient) (Mathison et al., 2021). Low mental health self-stigma has been associated with greater adaptive coping skills and social support among adolescents and has predicted positive mental health and quality of life among adults (Ilic et al., 2014; Moses, 2015).

Existing research on self-determination, positive identity, self-stigma, and well-being suggests that these constructs are related (Buckley-Walker et al., 2010; Jochems et al., 2017; Livingston & Boyd, 2010). As a result, we may expect that young adults form homogenous groups that share similar scores on all three constructs within groups but distinct patterns between groups. However, the evidence is based on research that examined the relationships between one or two of these constructs and primarily used samples of adults. No known studies have examined subgroups using all three constructs among young adults with a history of adolescent hospitalization. Furthermore, there is a paucity of studies that examine outcomes of well-being among young adults with a psychiatric history. Two decades following a landmark Institute of Medicine report calling for the mental healthcare system to pivot from a symptom-based focus to a broad person-centered recovery-oriented approach has yielded few studies focused on strengths and positive measures of well-being (Institute of Medicine Committee on Quality of Health Care in America, 2001).

The current study applies a person-centered analytic approach to understand how patterns of psychological strengths (self-determination, positive self-identity, low levels of mental health self-stigma) form distinct profiles and are associated with outcomes of well-being (i.e., symptom distress, recovery, and quality of life) among young adults with a history of adolescent psychiatric hospitalization. Identifying homogeneous groups based on psychological strengths has implications for intervention research that builds on strengths instead of deficits alone and focuses on outcomes that matter to young adults with a history of mental health use.

The diversity of experiences that contribute to well-being among young adults with a history of psychiatric hospitalization is complex and may be influenced by an individual's demographics, mental health treatment history, and treatment experiences during adolescence (Link et al., 2008; Ormel et al., 2017). Although we expect greater psychological strengths may be related to greater well-being, factors other than self-determination, positive identity, and self-stigma may influence well-being resulting in null findings.

The study tested two primary hypotheses: First, we hypothesized that across young adults, scores on self-determination, self-identity, and mental health self-stigma would cluster into distinct profiles. Second, we hypothesized that individuals with profiles reflecting greater psychological strengths would be associated with lower levels of symptom distress, higher levels of recovery, and greater quality of life than profiles of lower strengths after controlling for demographics (e.g., gender, employment/education, and relationship status), psychiatric history (e.g., diagnosis upon adolescent hospital admission), and treatment experiences (e.g., satisfaction with hospitalization treatment during adolescence and the degree to which the decision to be admitted to the hospital was their choice), and the degree to which psychiatric problems and treatment interfered with school attendance and relationships during adolescence.

Methods

Participant Characteristics

Eligible participants were 20–35 years with a history of adolescent psychiatric hospitalization, living within the United States, competent in English, and who had not been hospitalized within the past 6 months. Out of 962 completed screening questionnaires, 251 met inclusion criteria; of these 251 completed surveys, 62 were marked invalid (Bauermeister et al., 2012; Konstan et al., 2005). Twenty-three participants with diverse gender identities were excluded because the sample size within each group was too small for meaningful analysis of unique developmental and treatment issues for this population, resulting in a final sample of 166. As described in Table 1, the average age was 27.34 ($SD = 4.02$) and fit within the young adulthood window defined by the United States Census as ages 18–34 (U.S. Census Bureau, 2019). The majority were cisgender

Table 1 Demographic, psychiatric history, and treatment experiences of participants in adolescence and young adulthood ($n = 166$)

Variables	All participants	
Age	# Yes/*M*	%/*SD*
Current age	27.3	4.0
Age of first hospitalization	14.4	.95
Female	95	58.6
Race and ethnicity		
Non-multi-racial, non-Latinx, white	110	66.3
Hispanic/Latinx, any race	28	16.9
Black, any ethnicity	21	12.7
Asian	8	4.8
American Indian/Alaska native	5	3.0
Native Hawaiian or other pacific islander	4	4
I don't want to answer	4	2.4
Educational achievement in young adulthood	# Yes	%
Less than 12th grade	7	4.2
High school diploma/GED/trade certificate	41	24.7
Some college	44	26.5
College degree (associates or higher)	74	44.6
School/employment in young adulthood		
Work full or part time	131	78.8
Not employed, attending school, or a caregiver	16	9.6
Attending school full or part time	10	6.0
Caregiver or homemaker	9	5.4
Relationship status in young adulthood		
In a relationship	115	69.3
Single/divorced/widowed	51	30.7
Housing environment in young adulthood		
Living alone in an apartment, dorm, or house	82	49.4
Living with parents, other family members, legal guardian, or another caretaker	49	29.5
Living with a roommate or romantic partner	35	21.1
Reason for adolescent psychiatric hospitalization	# Yes	%
Anxiety disorders	75	45.3
Depressive disorders	60	36.1
Suicide or intentional self-harm	38	22.9
Bipolar disorder	23	13.9
Eating disorders	21	12.7
Behavior disorders	19	11.4
Psychotic disorders	17	10.2
Trauma related stress disorders	16	9.6
Obsessive Compulsive Disorders (OCD)	14	8.4
Non-suicidal self-harm	10	6.0
Hospitalization frequency, duration, and experience	*M*	*SD*
Number of hospitalizations ages 12–18	1.83	.95
Number of hospitalizations ages 19 +	1.49	2.68
Longest number of nights hospitalization/in a residential treatment in adolescence	24.21	72.08
Satisfaction with the adolescent hospitalization(s)	3.7	1.2
Treatment choice at first adolescent hospitalization	2.8	1.4
Psychiatric interference in adolescence	9.80	3.32
Most helpful services during adolescence	# Yes	%
Mental health therapy (group or individual)	108	65.1
Prescribed psychiatric medication	94	56.6
Inpatient psychiatric hospitalization	44	26.5

Table 1 (continued)

Variables	All participants	
Mental health peer support	44	26.5
School counseling services	25	15.1
Home-based services (e.g., ACT)	24	14.5
Residential treatment	21	12.7
Inpatient substance use treatment or detox	19	11.4
School or work accommodations (i.e. flexible schedule, alternate formats for testing)	18	10.8
Substance use peer support (individual/group AA, NA)	17	10.2
School or tutoring services	12	7.2
Crisis respite center	7	4.2
Job training/placement services	3	1.8
Housing support services	3	1.8
No services helped	12	7.2
Most helpful people or experiences during adolescence	# Yes	%
Family	117	70.5
Friends	83	50.0
People online through chat groups, Twitter, Tumbler, YouTube, etc.	41	24.7
Teacher, employer, or another adult	39	23.5
Participation in sports, activities, or hobbies	32	19.3
Working in a paid job, volunteer work	23	13.9
Religious/spiritual advisor (priest, minister, Iman, rabbi)	19	11.5
No person or experiences was helpful	9	5.4
Services used in the past year		
Prescribed psychiatric medication	77	46.4
Mental health therapy (group or individual)	70	42.2
Mental health related peer support	19	11.5
Inpatient psychiatric hospitalization	15	9.0
Residential treatment	10	6.0
Inpatient substance use treatment or detox	7	4.2
Crisis respite center	6	3.6
Home-based services (e.g., ACT)	5	3.0
School counseling services	4	2.4
None in the past year	46	27.7

female (58.6%), non-multi-racial, non-Hispanic, White (66.3%), and almost half had a bachelor's degree or higher (44.6%). The most common self-reported reason/diagnosis for the adolescent hospitalization was anxiety (45.3%), followed by depressive disorders (36.1%), and then suicide or intentional self-harm (22.9%). The number of hospitalization/residential treatment episodes during adolescence ranged from one to seven, with almost half experiencing only one hospitalization ($M = 1.82$, $SD = 0.95$). Half of the participants had not experienced a hospitalization since age 19 ($M = 1.49$, $SD = 2.68$). The longest length of stay varied widely, with some participants receiving residential treatment for over a year ($M = 24.21$, $SD = 72.08$). The median length of stay for participants was seven nights in the hospital or residential treatment.

Measures

Screener and Demographic Items

Eligibility screening items included: three questions testing 8th-grade English reading skills, age (20–35), and psychiatric hospitalization occurring from age 12–18. Exclusion criteria included responses from outside of the United States and receiving psychiatric inpatient treatment in the last 6 months. Additional demographic questions within the screener included race, gender identity, quality of the internet connection, ethnicity, educational achievement, employment status, relationships status, housing situation, and current residence.

Adolescent Psychiatric History, Treatment, and Support in Young Adulthood

Items included the number of hospitalizations during adolescence, age of first hospitalization, self-reported diagnosis at the time of initial hospitalization, and the number and longest length of psychiatric hospital stay. From a list of eleven check-boxes, participants selected one or more self-reported diagnoses for the adolescent hospitalization based on the categories from the Diagnostic and Statistical Manual-5 (American Psychiatric Association, 2013). One item was adapted from the MacArthur Admission Experience Scale (Gardner et al., 1993) to identify the degree to which participants perceived their adolescent hospitalization was their decision (on a 5-point Likert scale from "strongly disagree" to "strongly agree"). One item from the hospitalization scale (Zendjidjian et al., 2014) was adapted to measure inpatient treatment satisfaction from 1 = "the experience was negative and did not benefit me" to 5 = "treatment was positive overall and benefited me"). Client satisfaction is a known predictor of quality of care, influencing treatment outcomes (Druss et al., 1999; Wang et al., 2016). Items related to psychiatric and treatment history were included in the preliminary analysis for hypothesis two testing based on previous research that psychiatric history and treatment experience may influence long-term outcomes including symptom distress and quality of life (Link et al., 2008; Ormel et al., 2017).

Furthermore, participants checked off which services (e.g., mental health therapy), people (e.g., family), and experiences (e.g., participation in sports) were most helpful during adolescence, as well as treatment services they accessed in the past year (e.g., crisis respite center). In the current study, these items were included to explore differences between psychological profiles on services and support to inform a discussion of treatment implications. See the Analysis Plan section for additional details.

Psychiatric Interference in School and Relationships During Adolescence

We developed a 4-item Likert-type scale to measure how frequently the participant missed school or important events due to psychiatric hospitalization or symptoms: "When you were a teenager how often did you miss…" (1) "a school day because you were in the hospital for an emotional or mental health problem?" (2) "a school day because you were struggling with symptoms or problems related to an emotional or mental health problem?" (3) "important activities with friends or family because you were in the hospital for an emotional or mental health problem?" (4) "important activities with friends or family because you were struggling with symptoms or problems related for an emotional or mental health problem?" Responses ranged from "1" = Never to

4 = "Often. Items are summed to create a composite score ranging from 4 to 20. Since a mental health diagnosis and impairment in functioning in school and social relationships is associated with poor outcomes in adulthood such as lower educational attainment (Wagner & Newman, 2012), this item was included in preliminary analysis for hypothesis two testing.

Measures Defining Psychological Strengths

Self-determination: Basic Psychological Need Satisfaction and Frustration Scale (BPNSFS) We used the 12-item need satisfaction composite score from the Basic Psychological Need Satisfaction and Frustration Scale (BPNSFS) to measure self-determination (Chen et al., 2015). Items are rated on a 5-point Likert scale from "completely untrue" to "completely true." All items are summed to create a composite score ranging from 5 to 60. Chen et al. (2015) reported excellent internal consistency of 0.90 with a sample of 298 young adults. A sample item is "I feel competent to achieve my goals."

Identity Commitment: Dimensions of Identity Development Scale (DIDS) We used the 5-item commitment-making subscale from the Dimensions of Identity Development Scale (DIDS) to measure healthy identity commitment. Items are rated on a 5-point Likert scale from "strongly disagree" to "strongly agree." (Luyckx et al., 2008). The summed score ranges from 5 to 25 with larger scores. Luyckx et al. (2008) reported an internal consistency of 0.86 for adolescent and college-age samples. A sample item is "I know what I want to do with my future."

Mental Health Self-stigma: The Internalized Stigma of Mental Illness Scale (ISMI) Self-stigma was measured using the 29-item Internalized Stigma of Mental Illness Scale (ISMI) scale (Ritsher et al., 2003). ISMI is comprised of 29 items rated on a 4-point Likert scale from "strongly disagree" to "strongly agree." Summed composite scores range from 29 to 116. The scale has excellent internal consistency (0.90) with an adult sample living with mental health conditions (Ritsher et al., 2003). We modified the language of "mental illness" to mental health problems because the term mental illness is not used as extensively as it was in 2003. A sample item is "I am embarrassed or ashamed that I have experienced mental health problems."

Outcome Measures

Symptom Distress in Young Adulthood: The Colorado Symptom Index (CSI) The Colorado Symptom Index (CSI) measures self-reported emotional distress with excellent reported internal consistency (0.92) with a sample of 3874 adults,

of which 18.3% had a psychiatric disability (Boothroyd & Chen, 2008). Respondents indicate the frequency of 14 symptoms in the past month on a 5-point scale from "Not at all" to "At least every day." A sample item is "How often have you felt nervous, tense, worried, frustrated, or afraid?" The summed composite score ranges from 14 to 70. Scores above 30 may indicate clinically significant symptoms.

Recovery in Young Adulthood: The Recovery Assessment Scale (RAS) The Recovery Assessment Scale (RAS) measures an individual's perspective on their progress toward living a life they find meaningful within the limitations of mental health challenges (Corrigan et al., 1999; Giffort et al., 1995). Corrigan et al. (2004) identified five RAS factors among a sample of 1824 individuals experiencing mental health impairment. The current study used the "No domination of symptoms" subscale to measure the extent to which symptoms are no longer the focus of an individual's life, highlighted as the most relevant subscale for operationalizing the construct of personal recovery (Davidson, 2019). Participants respond on a 5-point Likert scale from "strongly disagree" to "strongly agree." Sample items included "Coping with mental health problems is no longer the main focus of my life." Internal consistency was adequate at 0.74. Summed items range from 3 to 15.

Quality of Life: Quality of Life Scale The 16-item Quality of Life scale (QOL) measures an individual's satisfaction (rated on a 7-point scale from "extremely dissatisfied" to "extremely satisfied") in areas of life such as health, relationships, and work (Flanagan, 1982). Summed scores range from 16 to 112. Scores for populations with chronic illness and post-traumatic stress disorder range between 50 and 80 with reliabilities ranging from 0.87 to 0.92 (Burckhardt & Anderson, 2003; Burckhardt et al., 1989, 2003; Kloep et al., 2017).

Procedure

Staff from a youth advocacy organization reviewed the survey and provided feedback to improve readability and promote recovery-oriented, identity-first language. We used five recruitment methods, including emails and social media posts sent by a youth advocacy mental health organization, national Facebook advertisements, Research Match, and Qualtrics's Marketplace. After screening, eligible participants completed an electronic informed consent and were directed to an online survey in March 2019. Participants received either an electronic $30 gift certificate or points through the Qualtrics marketplace.

Analysis Plan

We calculated frequencies, percentages, means, and standard deviations for demographic variables and scale scores, including inter-item reliabilities where appropriate. To test hypothesis one, we used k-means cluster analysis to classify each participant based on their pattern of z-scores on self-determination, identity commitment, and self-stigma. Cluster analysis is a commonly used statistical technique to identify profiles of patients who share the same disorder across a spectrum of presentations (Bergman & Magnusson, 1997; Everitt et al., 2011). The reliability of two, three, and four cluster solutions were evaluated through internal replication with a random half of the sample (50% of the sample), calculating the level of agreement (weighted kappa) between the random half and full datasets, and the silhouette index (scores closer to 1 represent a better fit) (Everitt et al., 2011). Next, we evaluated the pattern of z-scores for each profile to determine if the results were meaningful and aligned with previous findings in the research literature. After identifying the cluster solution (i.e., number of groups) with best fit, we conducted univariate analyses (chi-square tests, Fisher exact, and ANOVA) to identify the key characteristics and experiences of each psychological profile to support the interpretation of the profile differences on demographics, psychiatric history, and treatment experiences.

Prior to testing hypothesis two, we first examined the outcomes scale scores of all participants and scores by psychological profile. Second, we conducted preliminary analyses on demographics and characteristics related to adolescent hospitalization that may influence well-being in young adulthood to identify meaningful covariates. Specifically, we conducted bivariate correlations and MANOVAs to examine the relationship between demographics, psychiatric history, treatment experiences, psychiatric interference in school and relationships, and outcome variables (i.e., symptom distress, recovery, and quality of life). Categorical covariates (i.e., gender, race/ethnicity, employment/educational, relationship status) were aggregated into binary variables. Since participants selected more than one diagnosis, anxiety, depressive, and suicidal behaviors were analyzed as three separate binary variables. Thirdly, three multiple regressions were conducted to test hypothesis two, which examined the association of profiles on symptom distress, recovery, and quality of life after controlling for the covariates identified through the procedures described above.

No power analysis is available for k means cluster analysis. The sample of 166 had sufficient power (0.80) based on G*Power Sample Size Calculator version 3.1.92 (Faul et al., 2007) for multiple regression, which requires 131 participants for 13 predictors. The University's Institutional Review Board approved the study.

Results

Table 1 provides the demographics, psychiatric history, treatment experience, and degree of psychiatric interference in school and relationships during adolescence with a summary described earlier under Methods. In this section, we first provide the results of the cluster analysis and the results of univariate analysis comparing the psychological profiles on demographic, psychiatric history, and treatment experiences which identified the key characteristics and experiences for each psychological strength profile (hypothesis one). The final section describes the results of average ratings for each outcome and analyses related to the regression analyses (hypothesis two).

Cluster Analysis: Psychological Strengths Profiles

As described in the analytic plan, we compared the fit of two, three, and four cluster solutions using internal replication with a random half of the sample, testing the agreement between the random half and full datasets and the silhouette index. A three-cluster solution demonstrated the best fit based on explanatory power and reliability compared to two and four-group cluster solutions. Using internal replication, the three-group profiles replicated with six cases reassigned, demonstrated high agreement (weighted kappa = 0.89), and had an adequate silhouette index of 0.42. These consistency measures were higher than the two-cluster solution and comparable to the four-cluster solution. See the online supplement for a detailed description comparing two, three, and four cluster solutions.

The internal consistencies of self-determination, identity commitment, and self-stigma scales were good to excellent (0.87 to 0.93, see Table 2) and 0.84 for the new scale measuring psychiatric interference in school and relationships in adolescence. Figure 1 illustrates the mean z- scores for self-determination, identity commitment, and self-stigma and three distinct psychological strength profiles. The pattern of scale scores using the unstandardized mean scores is available in Table 2 and mirrors the patterns illustrated in Fig. 1. The group labeled "low psychological strengths" included 16 individuals who had the lowest mean z-scores for self-determination and identity commitment (about two *SD* below the mean) and the highest self-stigma scores (one *SD* above the mean). At the other end of the spectrum was a group was labeled "high psychological strengths." ($n = 73$) who had the highest self-determination and identity commitment (greater than half a *SD* above the mean) and the lowest self-stigma (approaching one *SD* below the mean). Approximately midpoint between the pattern of low and high profiles scores was the largest group ($n = 77$), labeled the "mixed" group due to their self-determination and identity commitment score around the mean but elevated self-stigma scores (greater than half a *SD* above the mean).

Key Characteristics and Treatment Experiences of Psychological Strength Profiles

To understand differences of psychological strength profiles on demographics, psychiatric history, and treatment experiences which may further guide interpretation and application of the psychological profiles, we conducted univariate analyses (chi-square tests, Fisher exact, and ANOVA). As seen

Table 2 Scale internal consistency, and differences in psychological strengths and outcome scales by psychological strength profiles ($n = 166$)
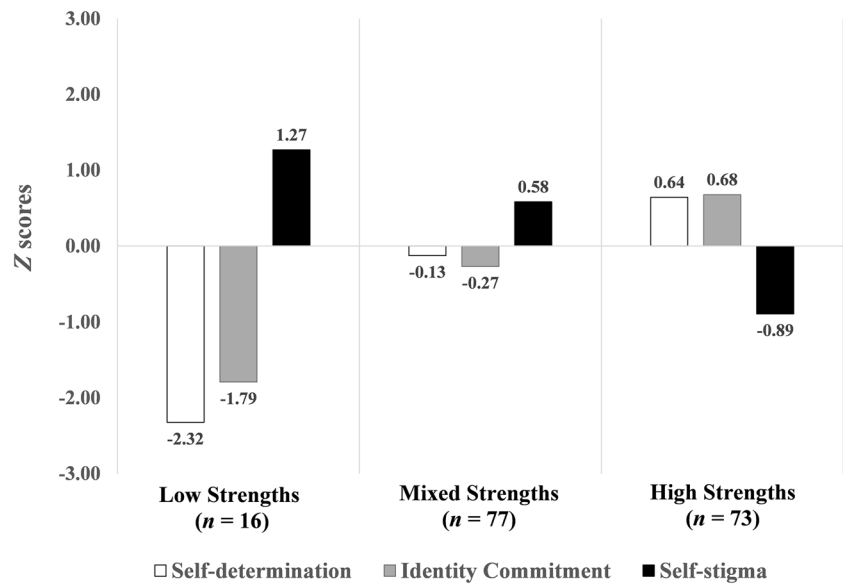
Variables	α	Low strengths $n = 16$		Mixed strengths $n = 77$		High strengths $n = 73$	
		M	*SD*	*M*	SD	*M*	*SD*
Psychological strengths							
Self-determination[a,b]	0.90	25.57	7.16	45.49	5.19	50.99	4.72
Identity commitment[a,b]	0.87	10.44	4.05	17.26	3.83	20.05	3.79
Self-stigma[a,c]	0.93	84.69	9.94	72.97	7.49	47.41	6.12
Outcomes							
Symptom distress[a,c]	0.93	48.00	5.09	41.45	9.94	23.95	10.17
Recovery[a,b]	0.77	5.88	3.03	10.36	2.25	12.15	2.23
Quality of life (QOL)[a,b]	0.89	52.50	10.94	74.36	12.12	87.04	10.00

[a]Scale scores using the unstandardized mean scores. MANOVAs and post hoc pairwise analyses were conducted to test for differences between profiles on psychological strengths and outcomes yielded a $p < .001$

[b]Pairwise comparisons found that low strengths was significantly lower than mixed; mixed was significantly lower than high; low was significantly lower than the high strengths profile

[c]Pairwise comparisons found that low strengths was significantly higher than mixed; mixed was significantly greater than high; low was significantly greater than the high strengths profile

Fig. 1 Three psychological strengths profiles based on the z scores for self-determination, identity commitment, and self-stigma ($N = 166$)

in Table 3, key characteristics and treatment experiences refer to the demographics, psychiatric history, and treatment experiences with the greatest proportion of participants for a specific psychological strength profile based on the univariate analyses.

Key Characteristics and Treatment Experiences of the Low Strengths Psychological Strength Profile

A higher proportion of individuals in the low strengths profile were single, divorced, or widowed, identified as Asian or American Indian/Alaskan Native, and were living alone. Three self-reported diagnoses/reasons for adolescent hospitalization occurred in different frequencies across psychological strengths profiles. More individuals who indicated anxiety, suicide or self-harm, or depressive disorder were clustered into the low strengths group compared to the mixed strengths and high psychological strengths. Twelve respondents reported that "no services" helped during adolescence, reflecting a larger proportion of the low strengths group compared to the mixed and high strengths. Almost half of all participants across profiles endorsed using medication to manage mental health problems in the past year, but a larger proportion was part of the low psychological strengths/profile compared to the mixed strengths and low strengths.

Key Characteristics and Treatment Experiences of the Mixed Strengths Psychological Strength Profile

The mixed strengths profile had a higher proportion of individuals that identified as Black, any ethnicity, used more formal and informal supports, and inpatient services in adulthood compared to the low and high strengths profiles.

Specifically, a higher proportion was living with family or other caregivers and used mental health peer support in the past year compared to the high and low profiles. They had the greatest number of psychiatric hospitalizations since age 19 compared to low strengths and high strengths. The same profile pattern emerged when looking at psychiatric hospitalization in the past year.

Key Characteristics and Treatment Experiences of the High Strengths Psychological Strength Profile

As illustrated in Table 3, more individuals in the high strengths profile were male, White, in a relationship, and living with a roommate or romantic partner than individuals with mixed and low psychological strengths. When describing their hospitalization experience, individuals in the high strengths profile reported significantly higher satisfaction with the treatment they received in the hospital during adolescence than the individuals in the mixed strengths profile. There was no difference between the high and low profiles and between mixed and low profiles. Similarly, the high strengths profile experienced a greater degree of choice in their decision to be admitted to the hospital during adolescence than the mixed and the low profiles. However, there was no significant difference between the mixed and low strengths profiles in this respect. Psychiatric interference in school and relationships was also significantly different by profile, with young adults with high strengths reporting significantly lower interference than the low and mixed strengths profile. There was no difference between the low and mixed strengths on psychiatric interference.

When asked what services and sources of support were most helpful in managing their mental health problems during adolescence, a larger proportion of individuals in the

Table 3 Key characteristics (demographic, psychiatric history, and treatment experiences) of each psychological strength profiles in young adulthood ($n = 166$)

Variables	Low strengths		Mixed strengths		High strengths		Differences between profiles
	$n = 16$		$n = 77$		$n = 73$		$n = 166$
	# Yes/M	%/SD	# Yes/M	%/SD	# Yes/M	%/SD	p value
Key characteristics and experiences of the low strengths profile							
Single/divorced/widowed	7	43.8	29	37.7	15	20.5	.036
Asian	2	12.5	6	7.8	0	0	.014
American Indian/Alaska native	3	18.8	0	0	2	2.7	.002
Living alone in an apartment, dorm, or house in young adulthood	4	25.0	16	20.8	15	20.5	.007
Anxiety disorders as the reason for adolescent hospitalization	9	56.3	41	53.2	25	34.2	.046
Suicide or intentional self-harm as the reason for adolescent hospitalization	9	56.3	14	18.2	15	20.5	.007
No services helped during adolescence	4	25.0	6	7.8	2	2.7	.014
Prescribed psychiatric medication in the past year	12	75	35	45.5	30	41.1	.048
Psychiatric interference in adolescence	11.13	3.18	10.44	3.08	8.82	3.37	.002
	# Yes/M	%/SD	# Yes/M	%/SD	# Yes/M	%/SD	p value
Key characteristics and experiences of the mixed strengths profile							
Black, any ethnicity	1	6.3	17	22.1	3	4.1	.003
Living with parents, other family members, legal guardian, or another caretaker in young adulthood	3	18.8	33	42.9	13	17.8	.002
Number of hospitalizations age 19+	1.50	2.28	2.38	3.08	.56	1.89	<.001

Table 3 (continued)

	Low strengths		Mixed strengths		High strengths		Differences between profiles
	n = 16		n = 77		n = 73		n = 166
Variables	# Yes/M	%/SD	# Yes/M	%/SD	# Yes/M	%/SD	p value
Key characteristics and experiences of the mixed strengths profile							
Mental health related peer support used in the past year	1	6.3	14	18.2	4	5.5	.047
Inpatient psychiatric hospitalization used in the past year	1	6.3	13	16.9	1	1.4	.003
Key characteristics and experiences of the high strengths profile							
Non-multi-racial, non-Latinx, White	10	62.5	40	54.8	60	82.2	.002
In a romantic relationship in young adulthood	9	56.3	48	62.3	58	79.5	.036
Living with a roommate or romantic partner in young adulthood	9	56.3	28	36.4	45	61.6	.008
Prescribed psychiatric medication was most helpful services during adolescence	9	56.3	35	45.3	50	68.5	.016
Home-based services (e.g., ACT) was most helpful services during adolescence	1	6.3	6	7.8	17	23.3	.017
Family were the most helpful people during adolescence	6	37.5	50	64.9	61	83.6	<.001
No services in the past year	3	18.8	9	11.7	34	46.6	<.001

high strengths group found family and home-based mental health services to be most beneficial, followed by the mixed profile and the smallest proportion in the low strengths group. In addition, more individuals with high strengths found psychiatric medication to be helpful compared to low, and mixed. Forty-six participants across profiles checked off "no mental health treatment" in the past year, with a greater proportion in the high strengths followed by low strengths and mixed strengths group. There were no other differences between profiles.

Regression Analysis: Association Between Psychological Strengths Profiles and Outcomes

Prior to conducting three multiple regressions, we computed the internal consistency for scales and conducted preliminary analyses (bivariate correlations and MANOVA) on demographics and characteristics related to the adolescent hospitalization to identify meaningful covariates. As described in Table 2, the internal consistency of the three outcome measures of symptom distress, recovery, and quality of life was adequate to excellent (0.77–0.93). The average symptom distress score was 34.38 ($SD = 13.50$) out of a possible score of 70. Applying the cutoff of 30 (Boothroyd & Chen, 2008), 40.1% of participants were not experiencing clinically significant symptoms in adulthood. The average recovery score was 10.72 ($SD = 2.93$) out of a possible 15. The average quality of life score was 77.83 ($SD = 15.08$) out of a possible score of 112. Applying the 80% threshold for a high quality of life among individuals with chronic conditions or treated PTSD, 51.2% of participants scored over 80.

Preliminary analysis using MANOVA and bivariate corrections indicated symptom distress, recovery, and quality of life varied by demographics, psychiatric history, and treatment experiences. Analysis indicated the following variables were associated with all three outcomes: suicide-related diagnosis versus not having the diagnosis, depressive disorder diagnosis versus not having the diagnosis, psychiatric interference in school/relationships in adolescence, and the degree of choice in hospitalization during adolescence. Cisgender men and participants without an anxiety diagnosis had lower symptom distress and higher quality of life than females and participants with an anxiety diagnosis, but there was no difference in recovery. Non-multi-racial, non-Latinx, White had lower symptom distress than BIPOC participants, but there were no racial/ethnic differences in recovery or quality of life. Greater satisfaction with adolescent hospitalization was associated with lower symptom distress and higher recovery, but there were no differences in quality of life. Employed participants had higher recovery and quality of life ratings than unemployed participants, but there were no differences in symptom distress. Participants in committed romantic relationships had a higher quality of life than those in committed relationships, but there was no difference in symptom distress or recovery. Statistically significant results are presented in Tables 4 and 5 and are included as covariates for hypothesis two testing.

Three independent multiple regression analysis was conducted to examine the relationship between psychological profiles and symptom distress, recovery, and quality of life after controlling for covariates. As illustrated in Table 6, results from multiple regressions support hypothesis two. After controlling for covariates, including demographics, adolescent psychiatric history, treatment experience, and psychiatric interference in school and relationships during adolescence, psychological strengths profiles were associated with lower symptom distress, greater recovery, and greater quality of life. The low psychological strength profile was associated with 18.78 greater ratings on symptom distress, 5.53 lower ratings on recovery, and 30.61 lower ratings in quality of life compared to the high profile after accounting for all other variables. The mixed psychological strength profile was associated with 13.08 greater symptom distress ratings, 1.33 lower recovery ratings, and 10.42 lower quality of life ratings compared to the high strengths profile after accounting for all other variables.

Discussion

Identifying the psychological strengths profiles that influence well-being in young adulthood among individuals who experienced a psychiatric hospitalization in adolescence furthers our understanding of how the pattern of psychological factors converges to support risk and resilience and provides implications for targeted services. In the current study, findings support study hypotheses and indicate that distinct psychological strength profiles based on self-determination, identity commitment, and mental health self-stigma were associated with well-being in young adulthood after adjusting for demographics, self-reported diagnosis, the individual's satisfaction with the treatment received in the hospital, the degree of choice in receiving hospitalization treatment, and psychiatric interference in school and relationships. Furthermore, over half of all participants reported a high quality of life in the current study, and over a third were not experiencing clinically significant psychiatric symptoms, underscoring that recovery and living a high quality of life are possible despite having experienced mental health challenges in adolescence.

Psychological Strengths Profiles

Supporting the study's first hypothesis, the current study found that all three psychological strengths of self-determination, identity commitment, and mental health self-stigma

clustered together within subgroups of individuals with a history of adolescent hospitalization. Individuals with the high strengths profile simultaneously report high self-determination and identity commitment and low self-stigma, while the low strengths profile reported the opposite: low self-determination, low identity commitment, and high self-stigma. The mixed strength profile scored midway between the low and high profiles and reflected average self-determination and identity commitment and an elevated self-stigma score. The low profile aligns with features of the illness identity model, which proposes that higher self-stigma leads to an identity centered on one's mental health diagnosis and adoption of the belief that recovery and high quality of life are not attainable. This hopelessness and low self-esteem lead to social isolation, lower vocational outcomes, greater symptom severity, and increased suicide risk (Yanos et al., 2020). Findings from this study may inform illness identity theory with individuals with adolescent hospitalization history, and future studies on the role of psychological profiles and the development of illness identity among this population.

Relationship Between Profiles and Well-being

Multiple regression analyses supported hypothesis two and indicated the high strengths profile was significantly associated with lower symptom distress, higher recovery, and higher quality of life after controlling for demographics, psychiatric history, treatment experience, and psychiatric interference in school and relationships during adolescence. Of note, despite simultaneously experiencing clinical symptoms (mean score above 30), the mixed strengths group scored high on recovery and quality of life. This group had average self-determination and identity commitment but somewhat elevated self-stigma in young adulthood, which was associated with measures of well-being closer to the high strength group than the low strengths group.

These findings extend previous literature that found independent relationships between self-determination (Jochems et al., 2017), identity commitment (Cruwys et al., 2020; Hardy et al., 2013; Wiley & Berman, 2013), and self-stigma (Livingston & Boyd, 2010; Mashiach-Eizenberg, et al., 2013) on either symptom distress, recovery, or quality of life. Assessing and intervening on psychological strengths may support the well-being of youth receiving inpatient services and young adults with a history of adolescent psychiatric hospitalization.

The current point-time study also found that many young adults with an adolescent psychiatric history experienced recovery and a high quality of life. This underscores that individuals may experience recovery and flourish despite ongoing or previous mental health challenges, aligning with classic longitudinal studies (Corrigan & Ralph, 2005;

Harding et al., 1987). Given the study findings indicating a relationship between profiles based on psychological strengths and well-being, the next section reviews service implications for adolescents and young adults based on key characteristics and treatment experiences of each psychological strength profile.

Improving Outcomes: Possible Role of Services and Support in Adolescence

A review of the key characteristics and treatment experiences of the psychological strength profiles found that more individuals with high strengths retrospectively rated family, home-based services, and psychiatric medication as most helpful during adolescence than other profiles. This finding related to family aligns with prior research on the role of family support in reducing depressive symptoms between adolescence and young adulthood (LeCloux et al., 2017). It is reasonable that supportive family environments, with or without the aid of home-based services, may foster self-determination skills and healthy identity development, keeping young people resilient to mental health self-stigma. Alternatively, fostering psychological strengths, promoting family support, and supporting medication management, when relevant, may improve outcomes.

Alternatively, more individuals in the low strength profile (18.8%) found no services helped them manage their mental health challenges in adolescence compared to the high and mixed strengths profiles. Future research on barriers to treatment, treatment-resistant mental health problems, and persistent psychiatric disorders may benefit from exploring the role of psychological strengths.

Improving Outcomes: Possible Role of Services in Young Adulthood

Although individuals with the high strengths profile were the most likely to report finding medication helpful during adolescence, the low strengths profile was most likely to report using psychiatric medication in adulthood. Deegan (2020) describes the challenges for individuals seeking optimal use of psychiatric medication to support mental health recovery. In particular, individuals face stigma and threats to self-identity when taking psychiatric medication long-term. Targeting interventions that support the complex issues of medication use, such as shared decision-making for psychiatric medication for individuals with low psychological strengths, may improve recovery and treatment engagement (Finnerty et al., 2018; MacDonald-Wilson et al., 2020).

Individuals with the mixed strength profile reported the greatest number of psychiatric hospitalizations in adulthood, suggesting the ongoing need for a high level of psychiatric services. These individuals were also more likely to use

Table 4 Preliminary analysis results of MANOVAS and follow-up tests examining significant differences on demographics, psychiatric history, and treatment experiences on outcomes (symptom distress, recovery, and quality of life)

Variable/outcome	Characteristic	N	M	SD	p value
Gender					
Symptom distress	Cisgender women	98	38.20	11.64	< .001
	Cisgender men	68	28.88	14.18	
Recovery	Cisgender women	98	10.37	3.09	0.065
	Cisgender men	68	11.22	2.63	
Quality of life	Cisgender women	98	75.48	16.07	0.015
	Cisgender men	68	81.22	12.91	
Race/ethnicity					
Symptom distress	BIPOC	52	39.44	12.83	< .001
	non-multi-racial, non-Hispanic, White	110	31.95	13.28	
Recovery	BIPOC	52	10.71	2.28	0.931
	non-multi-racial, non-Hispanic, White	110	10.75	3.23	
Quality of life	BPOC	52	76.33	14.22	0.31
	non-multi-racial, non-Hispanic, White	110	78.90	15.58	
Work status					
Symptom distress	Not employed/in school	25	37.80	11.62	0.171
	Employed/in school	141	33.78	13.76	
Recovery	Not employed/in school	25	9.64	3.38	0.046
	Employed/in school	141	10.91	2.82	
Quality of Life	Not employed/in school	25	69.12	15.97	0.002
	Employed/in school	141	79.38	14.44	
Relationship status					
Symptom distress	Single	51	36.61	12.94	0.159
	In a relationship(s)	115	33.40	13.69	
Recovery	Single	51	10.12	3.27	0.079
	In a relationship(s)	115	10.98	2.74	
Quality of life	Single	51	73.08	15.43	0.006
	In a relationship(s)	115	79.94	14.50	
Suicide self-harm self-reported diagnosis/reason for adolescent hospitalization					
Symptom distress	Not suicide or intentional self-harm	128	33.05	14.05	0.019
	Suicide or intentional self-harm	38	38.89	10.46	
Recovery	Not suicide or intentional self-harm	128	11.03	2.68	0.011
	Suicide or intentional self-harm	38	9.66	3.49	
Quality of life	Not suicide or intentional self-harm	128	79.21	14.13	0.030
	Suicide or intentional self-harm	38	73.18	17.32	
Anxiety self-reported diagnosis/reason for adolescent hospitalization					
Symptom distress	Not anxiety disorder	91	32.05	13.81	0.014
	Anxiety disorder	75	37.21	12.66	
Recovery	Not anxiety disorder	91	11.08	2.90	0.081
	Anxiety disorder	75	10.28	2.93	
Quality of life	Not anxiety disorder	91	81.21	14.80	0.001
	Anxiety disorder	75	73.73	14.48	
Depressive disorder self-reported diagnosis/reason for adolescent hospitalization					
Symptom distress	Not depressive disorder	106	31.82	13.82	0.001
	Depressive disorders	60	38.92	11.74	
Recovery	Not depressive disorder	106	11.18	2.58	0.007
	Depressive disorders	60	9.90	3.34	
Quality of life	Not depressive disorder	106	79.59	13.93	0.045
	Depressive disorders	60	74.72	16.59	

Table 5 Preliminary analysis, results of bivariate correlations between psychiatric history and treatment experiences on outcomes

Intercorrelations	1	2	3	4	5	6
1. Psychiatric interference in school/relationships in adolescence	1	− .17[*]	− .29[***]	.44[***]	− .24[**]	− .25[**]
2. Satisfaction with adolescent hospitalization experience	− .17[*]	1	.25[**]	− .32[***]	.20[**]	0.07
3. Degree of choice in hospitalization during adolescence	− .29[***]	.25[**]	1	− .28[***]	.35[***]	.31[***]
4. Symptom Distress	.44[***]	− .32[***]	− .28[***]	1	− .42[***]	− .50[***]
5. Recovery	− .24[**]	.201[**]	.35[***]	− .42[***]	1	.61[***]
6. Quality of life	− .25[**]	0.07	.31[***]	− .50[***]	.61[***]	1

*$p < .05$, **$p < .01$, ***$p < .001$

mental health peer support as adults. Peer support is mutual support provided by individuals with lived experience with mental health challenges through informal friendships or formal services provided by trained peer-support specialists (Austin et al., 2014). Although peer support outcomes are mixed, there is evidence for decreased rehospitalization, increased quality of life (Shalaby & Agyapong, 2020), decreased mental health self-stigma, and a positive shift in self-identity from passive mental health patients to self-determined independence (Vayshenker et al., 2016). These gains suggest that psychological strengths may be malleable in adulthood.

Limitations

The study has some limitations due to the sampling method, Internet survey administration design, and self-report methods, which relied on young adult participants to recall adolescent experiences retrospectively. The sampling method limits the generalizability of the findings outside of the sample. Internet research reaches a wide pool of participants and is an efficient and cost-effective means to collect data and minimize experimenter's expectancy effects (Buhrmester et al., 2011). The lack of representation by Black, Indigenous, and individuals of color further limits the study's generalizability.

Furthermore, the recruitment strategy may have limited the breadth of individuals with a history of adolescent psychiatric hospitalizations. The Facebook ad and recruitment through an advocacy organization may skew toward those who are comfortable disclosing their psychiatric history. Alternatively, Research Match and Qualtrics may recruit individuals who may have more diverse interests but are financially motivated to share their psychiatric history. All strategies may fail to capture the full scope of individuals with psychiatric hospitalization histories.

The survey relied on self-report introducing possible response bias, especially for recall of events in adolescence. However, previous research indicates that self-reported service utilization is a reliable and valid method for collecting mental health service use data (Leggett et al., 2016).

Finally, the study was a cross-sectional study of three correlated outcomes. Future longitudinal studies may investigate the causal connections between the development of psychological strengths and symptom relapse, achieving recovery, and higher quality of life.

Conclusion

Profiles of psychological strengths based on self-determination, identity commitment, and mental health self-stigma and how they relate to symptom distress, recovery, and quality of life in young adulthood among young adults hospitalized for psychiatric problems in adolescence has been an under-researched area of investigation. Our findings indicate three distinct profiles of young adults with low, mixed, and high psychological strengths. Groups with greater strengths are associated with lower mental health symptoms and greater well-being. These findings have implications for assessing psychological strengths and targeting services based on their strengths profile for youth receiving inpatient services and young adults with a history of adolescent psychiatric hospitalization. Furthermore, family supports, interventions to support psychiatric medication use such as shared decision-making, and peer support may be beneficial based on an individual's psychological strength profile and worthy of further investigation.

Table 6 Multiple regressions between psychological strengths profiles on symptoms distress, recovery, and quality of life

Variable[a,b]	B	SE	β	p value	R^2	F	p value
Symptoms distress							
Gender (cisgender female vs cisgender male)	2.40	1.54	0.09	0.12	.62	24.3	< .001
Race/ethnicity (Non-multi-racial, non-Latinx, White vs. BIPOC)	− 3.75	1.61	− 0.13	0.02			
Suicidal behaviors/self-harm[c] (versus not endorsing this diagnosis)	− 0.36	1.92	− 0.01	0.85			
Anxiety disorders[c] (versus not endorsing this diagnosis)	1.51	1.45	0.06	0.30			
Depressive disorders[c] (versus not endorsing this diagnosis)	2.74	1.53	0.10	0.08			
Psychiatric interference in school/relationships in adolescence	0.98	0.24	0.24	< .001			
Satisfaction with adolescent hospitalization experience	− 1.22	0.60	− 0.11	0.045			
Degree of choice in hospitalization during adolescence	− 0.03	0.53	− 0.003	0.96			
Mixed strengths profile (versus high strengths)	13.08	1.67	0.48	< .001			
Low strengths profile (versus high strengths)	18.78	2.67	0.41	< .001			
Recovery							
Employed/in school vs. not	.002	.46	−.0003	.997	.42	14.3	< .001
Suicidal behaviors/self-harm versus not[c]	.08	.49	.011	.876			
Depressive disorders versus not[c]	− .66	.39	− .108	.095			
Psychiatric interference in school/relationships in adolescence	− .07	.06	− .074	.286			
Satisfaction with adolescent hospitalization experience	.14	.16	.059	.372			
Degree of choice in hospitalization during adolescence	.25	.14	.124	.072			
Mixed strengths profile versus high strengths	− 1.33	.41	− .559	.001			
Low strengths profile (versus high strengths)	− 5.53	.68	− .559	< .001			
Quality of life							
Cisgender female vs cisgender male	− 0.77	1.92	− 0.03	0.69	.51	15.97	< .001
Employed/in school vs. not	3.59	2.23	0.10	0.11			
In a relationship vs. not	2.38	1.94	0.07	0.22			
Suicidal BEHAVIORS/self-harm versus not[c]	− 0.49	2.32	− 0.01	0.83			
Anxiety disorders versus not[c]	− 3.15	1.82	− 0.10	0.09			
Depressive disorders versus not[c]	− 0.51	1.90	− 0.02	0.79			
Psychiatric interference in school/relationships in adolescence	− 0.16	0.30	− 0.03	0.60			
Degree of choice in hospitalization during adolescence	0.60	0.66	0.06	0.36			
Mixed strengths profile versus high strengths	− 10.42	1.97	− 0.35	< .001			
Low strengths profile versus high strengths	− 30.61	3.31	− 0.60	< .001			

Variable information includes reference groups where relevant

[a]Participants demographics, employment/education status, relationships status, and measures on psychological strength profiles reflect current status as an adult. The self-reported diagnosis for the adolescent hospitalization, psychiatric interference in school and relationships, satisfaction with the adolescent hospitalization, and the degree to which the participant agreed to be hospitalized is a retrospective measure of the participant's experience during adolescence

[b]Covariates were restricted to the variables that were related to either symptom distress, recovery, and quality of life based on preliminary analysis (i.e. bivariate correlations and MANOVAs with post hoc ANOVAs) and varied by outcome

[c]Suicidal behaviors, anxiety disorders, depressive disorders are the self-reported diagnosis or reasons for adolescent hospitalization. Participants who indicated this the diagnosis or reason for their adolescent hospitalization were assigned a "1" and those who were did not indicate this was the reason were assigned a zero

Declarations

Conflict of interest The authors have no relevant financial or non-financial interests to disclose.

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