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Major depression, substance use, and resilience among female adolescents in institutional care

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ABSTRACT

Objective: This study compared female adolescents in institutional care (AICs) diagnosed with major depression (MD) or substance use disorder (SUD) with those who were not. In addition, we examined the protective effects of resilience, coping skills, and social support on SUD and MD.

Methods: Participants included 49 female AICs (11–18 years) and a control group of 49 girls of similar age. Psychiatric diagnoses were made using the Kiddie Schedule for Affective Disorders and Schizophrenia-Present and Lifetime Version (K-SADS-PL). In addition, participants completed self-report questionnaires: Screen for Child Anxiety Related Emotional Disorders Child Version (SCARED), The Child and Youth Psychological Resilience Scale, KIDCOPE, Social Support Appraisals Scale (SSAS), Children's Depression Inventory (CDI).

Results: AICs were found to have more psychopathologies than the control group. Higher resilience, SSAS-friends scores, and more positive coping styles were associated with lower CDI scores in AICs with MD. CDI and SCARED scores were higher, and SSAS- family, friends, teacher scores, and positive coping styles were lower in the AICs with SUD.

Conclusions: Resilience, increased social support from friends, and positive coping styles showed negative relationships with MD and SUD in AICs. Social support from teachers and family was negatively associated with SUD in AICs.

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KEYWORDS
Adolescents; coping styles; perceived social support; depression; substance use; resilience

Introduction

Adolescence is a critical developmental stage that includes significant physical, cognitive, emotional, social, and behavioral changes (Dahl, 2004). The neurobiological changes underlying adolescents' developmental processes may predispose them to develop substance use disorder (SUD) and experience severe adverse substance-related outcomes (Gray & Squeglia, 2018). Given the high prevalence shown in SUD studies, the importance of preventing, evaluating, and treating SUD becomes apparent (Young et al., 2002). Risk factors for SUD include adverse life events, dysfunctional family environment, substance use among siblings, lack of parental warmth, parent-child conflict, low attachment, harsh discipline, and child abuse/maltreatment (Griesler et al., 2021; Shanahan et al., 2021; Swedo et al., 2020).

According to the Epidemiological Capture Area (ECA) study, approximately 3 out of 4 participants with psychiatric comorbidity stated that the SUD started after the comorbid condition (Christie et al., 1988). A review of adolescent substance abuse treatment samples reported comorbid mood disorders (depression or bipolar disorder) rates ranging from 3% to 48% (Couwenbergh et al., 2006). Comorbid depression may adversely affect adolescent substance abuse treatment and treatment outcomes (Hersh et al., 2014). Therefore, diagnosis and treatment of MD in adolescents with SUD are of great importance because of the potential adverse effects of comorbidity on substance use outcomes (Hersh et al., 2014).

Studies involving children in institutional care are often related to developmental and psychiatric problems (Merz et al., 2016; Troller-Renfree et al., 2016). Previous research indicates that children in institutional care have more mental health disorders than children living with families, including foster families (Bos et al., 2011; Mccann et al., 1996). Considering that adolescents staying in institutional care are at higher risk for developing psychopathology than adolescents living with their families, evaluating the prevalence of MD and SUD and determining protective factors is apparent.

One of the protective factors against psychopathology is resilience. The founder of the resilience theory is Norman Garmezy (1991), and many people have worked on this theory since then (Carlson, 2001; Garmezy, 1991; Mandiü et al., 2020). Some sub-components of resilience include optimism, acceptance, focus on problem-solving, responsibility, and planning for the future (Carlson, 2001; Ellis et al., 2017; Mandiü et al., 2020; Meng et al., 2018). Resilient people tend to be optimistic and view their problems as valuable experiences. In addition, they try to develop close relationships with others. Conversely, individuals with poor psychological well-being have few family relationships, are less educated, have lower intelligence levels, are addicted to drugs, and have chronic physical or mental health problems (Gilligan et al.,

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2017; Thomson et al., 2018; Webber et al., 2016). Perceived social support, which involves asking for help from relatives or others close to the individual, may protect children from psychopathology (Rueger et al., 2016; Skok et al., 2006).

Coping ability, one of the parts of resilience, can be defined as an individual's cognitive, emotional, and behavioral responses to resist stressful events or situations (Folkman, 1984). Coping responses can be considered problem-oriented and emotion-oriented. Problem-oriented coping involves coping with the primary source of the problem, and emotion-oriented coping deals with the emotional impact caused by the problem (Cooper et al., 1997). Recent studies have shown an inverse relationship between adolescents' behavioral and cognitive coping skills and drug use (Cooper et al., 1997). For example, a longitudinal study of 1700 adolescents found that adolescents' positive behavioral and cognitive coping levels are inversely associated with SUD (Wills et al., 1995).

In recent years, the study of protective factors against psychiatric disorders has gained importance. This study examines the effects of coping styles, resilience, and perceived social support as the possible protective factors on depression and substance use in female adolescents in institutional care (AIC). We hypothesize that this population's coping styles, resilience, and perceived social support are protective factors against depression and substance use.

Materials and methods

Participants and procedure

The places where children in need of protection stay in Turkey vary according to the age group. Children aged 0–12 years and girls over 12 years dwell, according to their physical, educational, and psychosocial development with trained caregivers and teachers in places where several house-like houses, called kindergartens, form one location. Adolescents aged 13–18 stay in areas called orphanages to be protected, cared for, have a job or occupation, and grow up as people accustomed to society (Aile ve Sosyal Politikalar Bakanligi, 2020)

This cross-sectional study included female 49 AICs between the ages of 12 and 18 who agreed to participate and were interviewed. The Children in Institutional care (AIC) group consisted of 49 girls aged 11–18 years (M = 15.20, SD = 2.13). The control group consisted of 49 girls matched in age to the AIC group (M = 15.21, SD = 2.13). Since there was no institution for male children over 12 in the study's location, male children were excluded from the sample. The control group consisted of age-matched female adolescents who lived with their families and had applied to pediatrics outpatient clinics.

The heads of the institutions, teachers, and adolescents were informed about the objectives and methods of the study and how to complete the questionnaires. Several measures were taken to ensure compliance with ethical standards. We obtained written informed consent from the adolescents and their legal guardians. Both adolescents and their legal guardians could withdraw from participation at any time. The research procedures were under the universal ethical standards and the principles of the Helsinki Declaration of 1975, revised in 2000. The Research Ethics Committee approved the study (IRB: 2019/01–09).

Initially, child and adolescent psychiatrists conducted face-to-face interviews with adolescents and their legal guardians. After gathering sociodemographic information of the individuals, they were asked if they had used prescription and over-the-counter drugs, stimulants such as methamphetamine or speed, heroin, inhalants, solvents, or hallucinogens in the past six months. The Kiddie Schedule for Affective Disorders and Schizophrenia-Present and Lifetime Version (K-SADS-PL) was conducted by a child psychiatrist to identify current psychiatric diagnoses. Then, the questionnaires were fulfilled by adolescents and their legal guardians. The interview with each adolescent lasted approximately 2 hours. Exclusion criteria were the presence of a neurological disorder, psychotic disorder, autism spectrum disorder, or intellectual disability; age older than 18 years; submission of a questionnaire missing more than 10% of the items; and lack of consent to participate in the study

Measures

The Kiddie Schedule for Affective Disorders and Schizophrenia-Present and Lifetime Version (K-SADS-PL) is a semi-structured interview administered separately to parents and children to identify current psychiatric diagnoses (Kaufman et al., 1997).

All subjects completed five self-report questionnaires as indicated below.

Children's Depression Inventory (CDI) is a scale used by mental health professionals to measure symptoms of depression in young people aged 7 to 17 years. Kovacs has recommended cutoff score is 19 (Kovacs, 1981).

Screen for Child Anxiety Related Emotional Disorders Child Version (SCARED) is a 41-item questionnaire. It is scored on a Likert scale, with scores ranging from 0 to 2 (0 = rarely, 1 = sometimes, and 2 = often). This questionnaire measures anxiety using four domains: panic/somatic, separation anxiety, generalized anxiety, and school phobia (Birmaher et al., 1999).

The Child and Youth Psychological Resilience Scale will determine the psychological resilience of individuals participating in the study. Liebenberg et al. (2012) summarized the scale study and obtained a 12-item structure (Liebenberg et al., 2012). A high score indicates a high level of robustness. The total score to be achieved is 60. Arslan & Balkis (2016) adapted the scale for the Turkish population and conducted a reliability validity study (Arslan & Balkıs, 2016).

KIDCOPE is a 15-item scale first developed by Spirito et al. (1988) to measure coping strategies in children and adolescents (Spirito et al., 1988). The scale was adapted to Turkish in 2001, and validity and reliability studies were conducted by Bedel (Bedel et al., 2014). The questionnaire consists of 15 items and three subscales. There were eight questions on positive coping strategies, four items on anger and blame, and two questions on avoidance.

Social Support Appraisals Scale (SSAS) was developed by Dubow and Ullman (1989) to assess children's perceptions of social support from their families, friends (close friends and

classmates), and teachers (Dubow & Ullman, 1989). The items measure how much the child feels loved, cared for, valued, and accepted by his or her social network. In the scale, support from friends is summarized in 19 items, support from family in 12 items, and support from teachers in 10 items. Since some items contain negative statements, they are reverse scored. Gökler (2007) conducted a validity and reliability study in Turkey (Gökler, 2007).

Statistical methods

Data were analyzed using the Statistical Program for the Social Sciences (IBM SPSS 21.0). Descriptive statistics (frequency, percentage, mean, standard deviation) were used to analyze the study data. The normal distribution of the continuous variables was assessed using the Shapiro – Wilk test. Mann – Whitney U and MANOVA were used to analyze scales. Linear regression analyzes were performed to determine the relationship between resilience and other scales. A significance level of $p < .05$ was assumed for all analyses.

Results

Demographic and clinical-psychiatric findings

The Children in Institutional care (AIC) group consisted of 49 girls aged 11–18 years ($M = 15.20$, SD = 2.13). The control group consisted of 49 girls matched in age to the AIC group ($M = 15.21$, SD = 2.13). The majority of the AIC group (71.4%, $n = 35$) had at least one psychiatric diagnosis, and 53.1% of cases ($n = 26$) had multiple psychiatric diagnoses. Individuals in the AIC group diagnosed with MD exceeded those in the control group (28.6% vs. 6.1%) ($p < .05$). Six (12.2%) of the adolescents in institutional care had SUD. Marijuana, methamphetamine, hallucinogen, and inhalants were among the substances used. The adolescents in the control group did not have a history of SUD (12.2% vs. 0.0%) ($p < .05$) (Table 1).

When separation anxiety disorder, generalized anxiety disorder, specific phobia, and social anxiety disorder were grouped under one anxiety disorder heading, they were more common in the AIC group (42.9%) than in the control group (14.3%) ($p < .001$), as shown in Table 1. Individuals in the AIC group diagnosed with post-traumatic stress disorder (PTSD) exceeded those in the control group (16.3% vs. 0.0%) ($p < .05$) (Table 1).

When externalizing behavior problems such as Attention Deficit and Hyperactivity Disorder (ADHD), Oppositional Defiant Disorder (ODD), and Conduct Disorder (CD) were examined, The prevalence of ADHD (40.8% and 8.2%, respectively) ($p < .001$) and CD (22.4% and 6.1%, respectively) ($p < .05$), were higher in the AIC group than in the control group (Table 1).

The percentage of children admitted to a psychiatry clinic before the study and diagnosed with a psychiatric disorder was higher in the AIC with substance use ($p < .05$) (Table 2). In addition, the school dropout rate and duration of stay in the institution were higher among the AICs with substance use ($p < .05$) (Table 2). When the answers to the questions in the sociodemographic form were evaluated, such as the reason for staying in the institution and whether the interviews with the biological family were continued, no statistical difference was found between those with depressive symptoms and those without depressive symptoms, and those with and without a history of substance use ($p > .05$) (Table 2).

Analysis of variables and scales

SSAS- friend ($p = .011$), SSAS- family ($p < .001$), SSAS- total scores ($p < .05$) differed significantly between the AIC and control groups (Table 3). Some participants reported that while filling out the SSAS- family, they filled it by thinking of their own families. In contrast, some said they considered the institution′s staff their parents and filled it in this way. Those in the institution with their siblings stated that they thought of their siblings when filling out ($p > .05$) (Table 3). The adolescent who had dropped out of school filled out the SSAS-teacher by thinking of their teachers who worked in the facility. CDI ($p < .05$), SCARED ($p = .001$) scores were significantly high in AIC. Resilience scores were low in AIC ($p < .05$). Adolescents in control groups had high scores in positive COPE subscales ($p < .05$) (Table 3).

When the AIC group was divided into groups with and without MD, it was found that CDI, SCARED scores were

Table 1. Distribution of comorbid current psychiatric disorders according to groups.

Psychiatric Diagnosis	Adolescent in Institutional Care ($n = 49$)	Control ($n = 49$)	*P*
Major Depressive Disorder	14 (28.6%)	3 (6.1%)	$p < .01$
Separation Anxiety Disorder	1 (2.0%)	0 (0.0%)	$p > .05$
Social Anxiety Disorder	11 (22.4%)	3 (6.1%)	$p < .05$
Specific Phobia	5 (10.2%)	4 (8.2%)	$p > .05$
Generalized Anxiety Disorder	13 (26.5%)	4 (8.2%)	$p < .05$
Obsessive Compulsive Disorder	1 (2.0%)	0 (0.0%)	$p > .05$
Post-Traumatic Stress Disorder	8 (16.3%)	0 (0.0%)	$p < .01$
Nocturnal Enuresis	7 (14.3%)	1 (2.0%)	$p < .05$
Attention Deficit and Hyperactivity Disorder	20 (40.8%)	4 (8.2%)	$p < .001$
Oppositional Defiant Disorder	4 (8.2%)	3 (6.1%)	$p > .05$
Conduct Disorder	11 (22.4%)	3 (6.1%)	$p < .05$
Smoking	6 (12.2%)	3 (6.1%)	$p > .05$
Alcohol-Substance Abuse	6 (12.2%)	0 (0.0%)	$p < .05$
Any Psychiatric Disorder	35 (71.4%)	14 (28.6%)	$p < .001$
Multiple Psychiatric Diagnoses	26 (53.1%)	8 (16.3%)	$p < .001$
Anxiety Disorder	21 (42.9%)	7 (14.3%)	$p < .001$

Values are reported as n (%).
P-values calculated using Fisher's Exact Test and Pearson Chi-Square.

Table 2. Evaluation of variables in adolescent in institutional care.

	Adolescent in Institutional Care with depression ($n = 14$)	Adolescent in Institutional Care without depression ($n = 35$)	P^	Adolescent in Institutional Care with substance use history ($n = 6$)	Adolescent in Institutional Care without substance use history ($n = 43$)	P^^
[a]Age	15.35 ± 2.02	15.14 ± 2.19	.754	16.67 ± 0.52	15.00 ± 2.19	$p > .05$
Having applied to the Psychiatry Outpatient Clinic	9 (64.3%)	16 (45.7%)	.345	6 (100.0%)	19 (44.2%)	$p < .05$
Having been diagnosed with psychiatric illness before	9 (64.3%)	16 (45.7%)	.345	6 (100.0%)	19 (44.2%)	$p < .05$
[b]Leaving school	7 (5.0%)	8 (22.9%)	.089	5 (83.3%)	10 (23.3%)	$p < .01$
[a]Duration of stay in the institution	5.92 ± 5.88	4.22 ± 4.38	.436	8.75 ± 7.25	4.14 ± 4.25	$p < .05$
[b]Meeting with the family	7 (5.0%)	11 (31.4%)	.326	3 (50.0%)	15 (83.3%)	$p > .05$
Reason for admission to the institution						
[b]Being abandoned	6 (42.9%)	10 (28.6%)		3 (50.0%)	13 (30.2%)	
[b]Decision of social services	4 (28.6%)	16 (45.7%)	.503	2 (33.3%)	18 (41.9%)	$p > .05$
[b]Escaping from home	4 (28.6%)	9 (25.7%)		1 (16.7%)	12 (27.9%)	

Values are reported as mean ± standard deviation, and n (%).
P-values calculated using, [b]Fisher's Exact Test, Pearson Chi-Square and, [a]Mann-Whitney U test.
P^ comparison of Adolescent in Institutional Care with and without depression.
P^^ comparison of Adolescent in Institutional Care with and without substance use history.

Table 3. Evaluation of scales between adolescent in institutional care and control groups.

	Adolescent in Institutional Care		Control				
	mean	Std. Deviation	mean	Std. Deviation	F	p	Pillai's Trace p
Child and Youth Resilience Scale	44.61	10.69	49.55	7.73	6.867	0.010*	$p < .001$
COPE Positive	8.73	3.65	10.73	4.30	6.153	0.015*	
COPE-Anger	2.88	2.39	3.31	2.02	.920	0.340	
COPE-Blame	1.82	1.35	1.41	1.15	2.592	0.111	
CDI scores	19.31	9.99	13.88	7.69	9.082	0.003**	
SCARED scores	35.31	11.74	25.98	14.68	12.066	0.001**	
SSAS- Friend	35.31	11.74	25.98	14.68	6.718	0.011*	
SSAS- Family	69.00	16.70	75.98	8.74	24.384	<0.001**	
SSAS- Teacher	40.88	14.28	52.35	7.77	2.658	0.106	
Total SSAS	36.04	9.63	38.55	4.84	5.130	0.026*	

P-values calculated MANOVA.
CDI; Adolescent's Depression Inventory; SCARED, Screen for Child Anxiety and Related Disorders; SSAS, Social Support Appraisal Scale; KIDCOPE, Coping Inventory for Adolescent.

higher, and SSAS- friend ($p < .001$), SSAS- teacher ($p = .002$), SSAS- family ($p < .05$), SSAS- total scores ($p < .001$) were lower in the AIC with depression (Table 4). Resilience scores were found to be higher in AIC without MD ($p < .001$) (Table 4). AIC without MD had high scores in positive COPE ($p < .001$) and low in angry ($p < .001$) and blame COPE ($p < .05$) subscales (Table 4).

When the AIC group was divided into groups with and without SUD, it was found that CDI, SCARED scores were higher, and SSAS- friend, SSAS- teacher, SSAS- family, SSAS-total scores were lower in AIC with substance use problems ($p < .001$) (Table 4). AIC without SUD had high scores in positive COPE and low in angry and blame COPE subscales ($p < .001$) (Table 4).

Table 5 presents the correlation between the resilience scale and other scales was examined. The resilience scale showed a significant negative correlation with CDI, SCARED scales, and anger and blame subscales of the COPE scale in AIC ($p < .05$) (Table 5). However, the resilience scale showed a significant positive correlation with the positive COPE subscale and all subscales of the SSAS ($p < .05$) (Table 5). Unlike the AIC, no significant correlation was found between the subscales of the COPE and the resilience scale in the control group ($p > 0.05$) (Table 5).

The relationship between the resilience scale and other scales was evaluated by linear regression analysis in AIC (Table 6). There was a significant negative relationship between the resilience scale and CDI scale ($p < .05$) (Table 6). Furthermore, a significant negative correlation was found between the resilience scale and the SCARED scale in the adolescents in the control group ($p < .05$) (Table 6). In addition, a significant positive correlation was found between the SSAS-friend ($p < .05$), SSAS-family ($p < .05$), and the resilience scale (Table 6).

Discussion

This study compared female AIC diagnosed with SUD or MD with those not diagnosed. In addition, we examined resilience,

Table 4. Evaluation of variables in adolescent in institutional care.

	Adolescent in Institutional Care with depression ($n = 14$)				Adolescent in Institutional Care without depression ($n = 35$)				
	Mean	SD	Min.	Max.	Mean	SD	Min.	Max.	p
CDI	31.57	6.22	24.00	42.00	14.40	6.27	6.00	43.00	$p < .001$
SCARED	46.79	9.74	27.00	58.00	30.71	9.07	11.00	43.00	$p < .001$
Positive	5.50	3.48	2.00	12.00	10.03	2.85	4.00	15.00	$p < .001$
Anger	5.29	2.13	1.00	8.00	1.91	1.72	0.00	5.00	$p < .001$
Blame	2.71	1.49	1.00	6.00	1.46	1.12	0.00	4.00	$p < .01$
SSAS- Friend	53.00	13.85	29.00	79.00	75.40	13.14	40.00	91.00	$p < .001$
SSAS- Family	31.14	13.46	12.00	51.00	44.77	12.80	16.00	60.00	$p < .01$
SSAS- Teacher	28.93	8.87	10.00	43.00	38.89	8.47	10.00	50.00	$p < .01$
Total SSAS	113.07	31.88	51.00	160.00	158.80	25.34	100.00	199.00	$p < .001$
Resilience	34.43	11.64	18.00	51.00	48.69	7.06	35.00	60.00	$p < .001$
	Adolescent in Institutional Care with substance use history ($n = 6$)				Adolescent in Institutional Care without substance use history ($n = 43$)				
CDI	34.33	7.58	24.00	42.00	17.21	8.39	6.00	43.00	$p < .01$
SCARED	48.17	6.65	41.00	56.00	33.51	11.19	11.00	58.00	$p < .01$
Positive	2.50	0.84	2.00	4.00	9.60	2.97	4.00	15.00	$p < .001$
Anger	6.83	0.75	6.00	8.00	2.33	1.97	0.00	7.00	$p < .001$
Blame	4.00	1.10	3.00	6.00	1.51	1.08	0.00	4.00	$p < .001$
SSAS- Friend	43.33	7.97	29.00	51.00	72.58	14.28	40.00	91.00	$p < .001$
SSAS- Family	18.17	4.02	12.00	24.00	44.05	12.13	16.00	60.00	$p < .001$
SSAS- Teacher	22.50	6.53	10.00	28.00	37.93	8.43	10.00	50.00	$p < .001$
Total SSAS	84.00	18.29	51.00	103.00	154.35	25.93	100.00	199.00	$p < .001$
Resilience	27.83	7.88	18.00	39.00	46.95	8.80	21.00	60.00	$p < .001$

Values are reported as mean ± standard deviation. Min-max.
P-values calculated using Mann-Whitney U.
CDI; Adolescent's Depression Inventory; SCARED, Screen for Child Anxiety and Related Disorders; SSAS, Social Support Appraisal Scale.

Table 5. Correlation analysis of resilience scale with other scales.

			CDI	SCARED	Positive COPE	Anger COPE	Blame COPE	SSAS-Friend	SSAS-Family	SSAS-Teacher	Total SSAS
Resilience	**Adolescent in Institutional Care**	**r**	−.673**	−.488**	.528**	−0.574**	−0.485**	0.460**	0.685**	0.555**	0.667**
		p	$p < .001$	$p < .01$	$p < .001$	$p < .001$	$p < .001$	$p < .01$	$p < .001$	$p < .001$	$p < 0.001$
	Control	**r**	−0.666**	−.551**	−.121	−.335*	−0.288*	0.672**	0.682**	0.484**	0.581**
		p	$p < .001$	$p < .001$	$p > .05$	$p < .05$	$p < .05$	$p < .001$	$p < .001$	$p < .001$	$p < .001$

P-values calculated Spearman's correlation.
CDI; Adolescent's Depression Inventory; SCARED. Screen for Child Anxiety and Related Disorders; SSAS. Social Support Appraisal Scale; KIDCOPE. Coping Inventory for Adolescent.

Table 6. Linear regression analysis of resilience with other scales.

		Adolescent in Institutional Care					Control				
					95.0% Confidence Interval					95.0% Confidence Interval	
		B	t	p	Lower Bound	Upper Bound	B	t	p	Lower Bound	Upper Bound
Child and Youth Resilience Scale	**CDI scores**	−0.383	−3.082	$p < .01$	−0.680	−0.141	0.168	0.897	$p > .05$	−0.211	0.547
	SCARED scores	−0.060	−0.502	$p > .05$	−0.275	0.166	−0.452	−3.367	$p < .01$	−0.380	−0.095
	Positive	0.101	0.849	$p > .05$	−0.408	0.998					
	Anger	0.018	0.135	$p > .05$	−1.146	1.311	0.140	1.546	$p > .05$	−0.164	1.234
	Blame	−0.092	−0.749	$p > .05$	−2.687	1.235	0.003	0.032	$p > .05$	−1.213	1.253
	SSAS- Friend	−0.897	−0.720	$p > .05$	−2.188	1.039	0.250	2.449	$p < .01$	0.039	0.403
	SSAS- Family	−0.265	−0.245	$p > .05$	−1.837	1.439	0.436	3.132	$p < .01$	0.154	0.712
	SSAS- Teacher	−0.177	−0.224	$p > .05$	−1.968	1.576	0.119	1.312	$p > .05$	−0.103	0.483

P-values calculated by linear regression analysis.
CDI; Adolescent's Depression Inventory; SSAS. Social Support Appraisal Scale; SCARED. Screen for Child Anxiety and Related Disorders.

coping skills, and perceived social support, which have been shown in various studies to be protective against adolescent MD and SUD (Beyers et al., 2004; Cooper et al., 1997; Webber et al., 2016). The results provided several notable findings.

Many studies show that AICs have more mental health disorders than children and adolescents living with their families and foster families (Bos et al., 2011; Mccann et al., 1996). In the study of Schmid et al. with 689 children aged 4–18 years, the prevalence of mental disorders was found to be 59.9% (Schmid et al., 2008). Comorbidity was detected in 37% of the participants (Schmid et al., 2008). The most common disorders in the study group were: conduct disorder ($n = 115$), combined ADHD and CD ($n = 95$), simple ADHD ($n = 9$), dysthymia/depression ($n = 40$), addiction to alcohol and drugs ($n = 39$) (Schmid et al., 2008). Consistent with the literature, MD, SUD, and CD comorbidities were statistically significant among AIC in our study. Negative life events such as sexual and physical abuse were noted in six AICs with SUD. When the adolescents were assessed for individual risk factors, six adolescents with SUD had major depression, conduct disorders, and PTSD.

When examining family-related factors that are among the risk factors for SUD, parental substance use, poor parenting, family dysfunction/dysfunctional family environment stood out (Griesler et al., 2021; Shanahan et al., 2021; Swedo et al., 2020). Three of the AICs with SUD were institutionalized in the first year of their lives. An examination of the family histories of these three AICs with SUD revealed a history of parental substance use, unintended pregnancy, and substance use during pregnancy. School attendance is also an important prevention tool for SUD. It is known that adolescents with SUD are more likely to drop out of school due to the physiological effects of the substance, drug-seeking behaviors, and favoritism toward friends who use substances (Engberg & Morral, 2006). In our study, six AICs with SUD dropped out of school.

The child's age at institutionalization is an essential factor in psychiatric disorders (Almas et al., 2015). Our study found no difference between AICs with and without MD regarding the length of stay in the institution. However, AICs with SUD had a long history of staying in the institution than non-users.

In our study, resilience scores were higher in AIC without a diagnosis of MD or SUD showed a significant negative correlation with CDI scores. Recent studies have shown that individuals with high resilience have high self-esteem, self-control, cognitive flexibility, cope with difficulties, and recover from shocks (Ryff, 1995).

Studies have reported that adolescents' social support during their developmental stages may vary (Chu et al., 2010). The determination to strengthen the relationship between social support and welfare with age concludes that adolescents can benefit more from social support (Colarossi & Eccles, 2003; Rueger et al., 2016). It has been shown that peers become increasingly important sources of support during early adolescence (Bukowski et al., 1998). It is argued that parent and teacher support continues throughout youth (Colarossi & Eccles, 2003). Adolescents with social support experience less risk for substance use (Beyers et al., 2004). In the AIC group, adolescents without MD or SUD had a higher social support score from friends. Conversely, perceived social support scores from friends, family, and parents were significantly lower in AIC diagnosed with SUD. Social support scores also seem to affect resilience scores in the control group. However, the effect of social support on resilience was not found in AIC.

Coping behavior is one factor that influences psychopathology (Mehri & Bakhtiarpoor, 2016; Rosewall et al., 2019). A study conducted by Pederson et al. with more than 1500 adolescents showed that substance use is more common in adolescents who use negative coping styles (Pederson et al., 1997). These data suggest that deficits in coping skills may be a risk factor for SUD. Our study found that AICs with MD and SUD have used more anger and blame mechanisms and fewer positive coping skills than non-users.

Limitations of the study include the small sample size and the inclusion of only female participants. In psychiatric disorders, gender is one factor that influences the development of the disease. The fact that only girls participated in the study prevents the generalization of the results. It is essential to identify the protective factors for psychiatric illness in disadvantaged children. Staying in institutional care should be better explored with larger sample sizes and both genders. Another limitation was the study's cross-sectional nature; if the psychiatric status of children can be evaluated from the time they arrive at the first institution, we can obtain more accurate information about the developmental process of mental illness. As a result, we can establish a stronger relationship with protective factors.

Conclusions

Resilience, increased social support from friends, and positive coping styles in AIC showed negative relationships with MD. Resilience, social support from friends, teachers, and family, more positive coping styles, and reduced use of negative coping techniques were negatively associated with SUD. When the factors that have a significant relationship with resilience in terms of AIC and adolescents staying with their families were examined, the increase in resilience in AIC was negatively associated with depressive symptoms and negatively associated with anxiety symptoms in the control group. The relationship between perceived social support and resilience in the control group was not found in AIC. AICs are more disadvantaged than their peers. They are more vulnerable to psychiatric illness, so these adolescents need to be monitored further without waiting for symptoms to allow early diagnosis and treatment. In addition to recognizing and treating the disease, assessing the factors that protect the illness and supporting the adolescent in these areas will reduce the burden of psychiatric illness.

Authors contributions

U.G. collected the data, conceived of the study, performed the statistical analyses, and drafted the manuscript; M.E. collected the data and critically revised the manuscript. All authors read and approved the final manuscript.

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Ethical approval

Research procedures complied with universal ethical standards and the tenets of the Helsinki Declaration of 1975, as revised in 2000. The Nigde Omer Halisdemir University Research Ethics Committee approved the study by the protocol number 2019/01–09.

Informed consent

A number of measures were taken in order to ensure compliance with ethical standards. Children were informed at institution about the research and gave written consent. Both children and children's legal guardians could withdraw children from participation at any time. Children who did not want to participate themselves, or who were unable to fill in the questionnaire, did not participate.

Data sharing and declaration

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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