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ORIGINAL ARTICLE

Relation of Callous-Unemotional Traits to Length of Stay Among Youth Hospitalized at a State Psychiatric Inpatient Facility

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Abstract We examined the association of callous-unemotional (C/U) traits with length of psychiatric hospitalization among two samples each with 50 participants: a group of 7–11 year-olds (39 males and 11 females) receiving services on a children's unit, and a group of 12–17 year-olds (27 males and 23 females) receiving services on an adolescent unit. Our analyses focused on the additionally predictive value of C/U traits above and beyond the influence of pre-established risk factors for length of stay, including age, gender, ethnicity, overall levels of functioning and psychopathology, and the diagnosis of a Conduct Disorder or Oppositional Defiant Disorder. In both samples, hierarchic regression analyses indicated that C/U traits were associated with longer lengths of stay, whereas none of the previously identified risk factors were significant. The discussion of these results focuses on the importance of developing non-coercive and non-confrontational therapeutic treatment regimens for youth with C/U traits receiving inpatient psychiatric services.

Keywords Length of stay · Callous-unemotional traits · Child behavior problems · Child psychiatry · Treatment

Introduction

In the United States there has been an recent emphasis on decreasing the lengths of stay of youth receiving psychiatric services for a variety of reasons that include the financial cost of such treatment [1–3], overcrowding on inpatient units [4], and the desire to better honor the legal principle of providing care within the least restrictive environment [5]. Given these concerns, there is a need to more accurately identify the clinical characteristics of the

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youth who have extended lengths of stay so as to better facilitate the development of intervention programs that will meet the needs of treatment-refractory inpatients. The expanding literature on callous-unemotional (C/U) traits in youth [6, 7] suggests a promising avenue of investigation. Youth with C/U traits typically are described as aggressive, without conscience and remorse, lacking a fear of punishment, and exhibiting bravado (e.g., refusing to apologize) when caught in misbehavior. Among youth hospitalized at a state psychiatric facility, we hypothesized that C/U traits would be associated with a chronic failure to adapt to ward behavioral standards and, consequently, with longer lengths of hospitalization.

A young person's length of stay in a psychiatric facility is determined by both their individual clinical characteristics as well as external factors such as the therapeutic philosophy of the treating facility, the stability of the home environment, the availability of outside placements, and the legal issues and entanglements that often accompany a psychiatric hospitalization. However, external factors are still subject to being mediated by the internal characteristics of hospitalized youth [8]. So what are the internal characteristics that are associated with longer length of stays among youth hospitalized at psychiatric facilities? Unfortunately, the available research on this question is largely contradictory. For example, male gender [9, 10], younger age [8, 11], overall levels of functioning and psychopathology [12], ethnic minority status [13], and the diagnosis of a Conduct Disorder or Oppositional Defiant Disorder [4, 8] all have been associated with length of stay in some studies, but for each of these factors there are also findings that indicate no significant association with length of stay [13–17]. Moreover, when significant results are found, the patterns of association (i.e., longer vs. shorter lengths of stay) often differ from study to study. One possibility that might help explain these paradoxical findings is that the specific mission, clinical characteristics, and financial model of a given facility may interact with a given patient's characteristics to determine the ultimate outcome. For example, extremely aggressive and destructive behavior may lead a private facility to transfer a youth to a public facility that provides acute care; however, the same aggressive behavior that shortened the length of stay in the private facility is likely to increase the length of stay at the public placement. In summary, researchers are currently at the beginning stages of understanding the clinical and demographic characteristics associated with longer lengths of stay among youth hospitalized at psychiatric facilities, and these characteristics are likely to depend—at least to a certain extent—upon the "type" of institution providing treatment (e.g., public vs. private).

The current study was designed to examine C/U traits as a predictor of length of stay in a state psychiatric facility providing crisis stabilization and long-term care. The study of C/U (or psychopathic) traits has been driven forward by the pioneering formulations of Paul Frick and his colleagues [6, 7, 18–20], who theorize that low temperamental fearfulness and/or dysfunctional parenting (e.g., neglect and punitive discipline) can lead to the development of shallow emotions, low levels of guilt, and a lack of interpersonal empathy (i.e., C/U traits). According to this model, C/U traits are then linked to chronic and severe conduct problems by increasing the child's propensity to ignore potential punishments and societal prohibitions while pursuing the rewards of antisocial behavior. To our knowledge, the relationship between C/U traits and length of stay among youth hospitalized in a psychiatric facility has not yet been empirically examined; however, research findings that link aggression to long lengths of stay among youth receiving psychiatric care [21, 22] suggest the possibility of a connection.

Currently in the United States, highly aggressive children are placed in psychiatric care because the state-based systems of mental health and education have long been under

intense pressure to cut expenditures to the bare minimum and, therefore, in many localities community-based interventions for antisocial youth are inadequate or unavailable [23]. Consequently, public psychiatric hospitalization is often the only viable emergency treatment option for dangerous youth [24]. In fact, in the United States youth receiving inpatient psychiatric services are typically just as aggressive as children detained in forensic settings [22] and the reduction of aggression and dangerousness is now the principal focus of inpatient psychiatric treatment in a majority of institutions nationwide [25]. Therefore, we believe that the current utilization trends for children's inpatient care in the United States suggest that clinical constructs like psychopathic traits that have previously been used to explain patterns of chronic aggression among adolescent offenders [26–28] may prove useful for understanding the clinical profiles of aggressive, treatment-refractory youth receiving public psychiatric services.

In summary, we hypothesized that C/U traits would be associated with longer lengths of stay because youth with C/U traits display recalcitrant patterns of antisocial behavior [6, 19, 20], and our participants were hospitalized on units that typically require patients to demonstrate the ability to follow ward rules and demonstrate appropriate social behaviors before being discharged. A second purpose of this study was to determine whether C/U traits provided additional predictive value for length of stay above and beyond the influence of previously identified risk factors. Therefore, our study included child characteristics that had been found to have an association with length of stay (in at least some of the literature). More specifically, age, gender, ethnicity, overall levels of functioning and psychopathology (Children's Global Assessment Scale) [29], and the diagnosis of a Conduct Disorder or Oppositional Defiant Disorder [29] were included in our statistical model.

Method

Participants

The study was conducted utilizing two samples each with 50 participants: a group of 7–11 year-olds (39 males and 11 females) receiving services on a children's unit, and a group of 12–17 year-olds (27 males and 23 females) receiving services on an adolescent unit. Both wards are located at a university-affiliated psychiatric hospital situated in a rural area of the southeastern United States. The child and adolescent wards of this facility specialize in the treatment of acutely ill, treatment-refractory youth and a prior study indicated that approximately 75% of the patients receiving services had been denied admittance to other facilities due to the severity of their behavior problems [30]. Youth could be admitted to the facility only after a psychiatric examination indicated that one or more of the three criteria for involuntary commitment (i.e., danger to self, danger to others, or grave disability) had been met.

The participating sample was recruited from a larger population of 130 consecutive admissions. Youth were excluded from the study if they had symptoms of psychosis (4 excluded), had been diagnosed with a pervasive developmental disorder (3 excluded), had a documented brain injury (2 excluded), or scored below 75 on a measure of verbal intelligence (12 excluded). Additionally, 2 youth were excluded because their parent(s) or legal guardian(s) (hereafter referred to as parents) declined consent, 2 were excluded because they declined to participate, and 4 were excluded because we were unable to contact their parents despite repeated attempts. The rationale for excluding psychotic,

developmentally delayed, and mentally handicapped youth was that these handicapping conditions are often associated with functional impairments (e.g., delusions, socially inappropriate behaviors, functional language deficits) that can increase hospitalization lengths for reasons that are unrelated to the presence of aggressive, antisocial behavior. Informed consent of legal guardians and assent of participating youth were obtained prior to patients' involvement in the study and the protocol was approved by the IRBs of John Umstead State Psychiatric Hospital and the University of North Carolina at Chapel Hill. All information obtained for this study was kept strictly confidential (e.g., not shared with hospital treatment team staff nor included in patient records).

Demographic and Diagnostic Information

Demographic information and descriptive statistics for the variables assessed are presented in Table 1. In both samples, the majority of the participants were European American (60% in the children's sample and 68% in the adolescent sample) with African American youth comprising the next largest ethnic group (34% of the children's sample and 26% of the adolescent sample). Because only a small number of ethnic minority participants fell outside the African-American category, all non-Caucasian participants were categorized as "ethnic minority." DSM-IV diagnoses [29] were assigned to participating youth by their attending psychiatrist. More than half of the participants in both groups received a diagnosis of Conduct Disorder or Oppositional Defiant Disorder (68% in the children's sample and 52% in the adolescent). Other common Axis I disorders included Attention-deficit Hyperactivity Disorder (60% in the children's sample and 42% in the adolescent), unipolar mood disorders (20% in the children's sample and 42% in the adolescent), and posttraumatic disorders (50% in the children's sample and 36% in the adolescent). As an index of comorbidity, we calculated the mean number of diagnoses participating youth had received. Participants generally carried more than two diagnoses (for children, $M = 2.94$, SD = 1.16, Range = 1–5; for adolescents, $M = 2.69$, SD = 1.18, Range = 1–5).

Table 1 Demographic information

Variable	Children			Adolescents		
	Mean	(SD)	Range	Mean	(SD)	Range
Age	9.43	(1.62)	7.1–11.9	14.41	(1.85)	12.0–17.8
Length of hospital stay (in days)	62.10	(43.91)	12–219	90.60	(77.84)	11–332
Children's global assessment scale	37.50	(12.35)	15–70	45.10	(13.65)	15–70
C/U traits	5.15	(2.01)	1–9	5.70	(1.98)	2–10
Percentage						
Ethnicity						
European American	60		68			
African American	34		26			
Hispanic	2		4			
Multiracial	4		2			
CD or ODD	68		52			

Note: CD or *ODD* A diagnosis of conduct disorder or oppositional defiant disorder

Reflecting the common practice in the United States of placing an emphasis on comorbidity when diagnosing psychiatric patients [31], "primary" (i.e., superseding) diagnoses were not assigned.

Measures

Children's Global Assessment Scale

Participating youth were rated by their psychiatrists on the *Children's Global Assessment Scale* (C-GAS) [29]. The C-GAS is a numerical scale (0–100) that is used by mental health professionals to rate the psychological and adaptive functioning of children and adolescents below the age of 18. In general, scores between 0 and 40 connote major impairments in functioning; scores between 41 and 60 connote moderate or intermittent impairments; and scores above 60 connote mild impairments.

Antisocial Process Screening Device

Each youth's psychiatrist rated the presence of C/U traits on the six-item Callous-unemotional dimension of the *Antisocial Process Screening Device* (APSD) [32]. Individual items on the APSD (e.g., "Does not show emotions") are scored on a three-point scale with 0 indicating *not at all true*, 1 indicating *sometimes true*, and 2 indicating *definitely true*. In the APSD's normative sample the internal consistency (Cronbach's alpha coefficient) of the C/U dimension was .79; in the present sample the internal consistency of the C/U dimension was .68. The gathering of APSD scores occurred specifically for this study and was not associated with admission or discharge decisions on either unit.

Length of Stay

Each youth's length of stay was determined from a review of their hospital records.

Post-hoc Question

Given the unusually high prevalence of posttraumatic disorders among the study participants, we examined the association of trauma with C/U traits in our samples to account for the possibility that traumatized youth were "switching off" their emotions as a coping mechanism [33]. More specifically, Porter has suggested that some severely traumatized individuals may present with a form of "secondary psychopathy" that develops when emotional functioning and conscience are deactivated as part of a distress reduction process (that is, for traumatized individuals "not feeling" can reduce pain).

Results

As shown in Table 1, the mean scores for C/U traits were 5.15 for the children's sample and 5.70 for the adolescent sample. A *t*-test indicated that these mean differences were statistically insignificant ($t = 1.43$). Both of these mean scores were substantially higher than the normative ratings of C/U traits (a mean of 3.27) found in the norming sample reported by the measure's developers [32]. In fact, the mean scores for both children and

adolescents were higher than the score (5.00) that roughly corresponded to the 75th percentile of the norming sample.

The mean C-GAS scores were 37.50 for the children's sample and 45.10 for the adolescent sample (Table 1), indicating sample populations that (predominately) demonstrated moderate to severe impairments in psychological and adaptive functioning. These levels of functioning are consistent with the general mission of both treatment units: to provide acute and long-term psychiatric services to children and adolescents that have failed to improve in less intensive treatment settings. A *t*-test indicted that the mean adaptive functioning level for the adolescent participants was significantly higher than the mean level for children ($t = 3.06$; $p < .01$).

The mean lengths of stay were 62.10 for children and 90.60 for adolescents (Table 1). A *t*-test indicted that the mean length of stay for the adolescents was significantly longer than the corresponding length for children ($t = 2.28$; $p < .05$).

A multivariate analysis of variance (MANOVA) conducted with the child group indicated that there were no significant main effects for gender (Wilks' Lambda = .99), ethnicity (Wilks' Lambda = .97), or the presence of a Conduct Disorder or Oppositional Defiant Disorder (Wilks' Lambda = .99). Similarly, a MANOVA conducted with the adolescents showed no significant main effects for gender (Wilks' Lambda = .92), ethnicity (Wilks' Lambda = .93), or the diagnosis of a Conduct Disorder or Oppositional Defiant Disorder (Wilks' Lambda = .92).

Table 2 presents the intercorrelations among the study variables for children and adolescents. As expected, C/U traits and length of stay were positively correlated in both samples; no other significant correlations were found in either group.

Table 3 presents the results of the regression analyses predicting length of stay among children and adolescents. For both groups, none of the child characteristics (age, gender, ethnicity, level of functioning, and the presence of Conduct Disorder or Oppositional Defiant Disorder) were significant at the first step, while C/U traits emerged as a significant predictor of length of stay on the second step.

To investigate the relationship between trauma and C/U traits, *t*-tests were conducted comparing the levels of C/U traits found among youth with, and without, diagnosed posttraumatic disorders. Results were not supportive of a relationship between the presence of a posttraumatic disorder and elevated C/U traits (Children's $t = .16$, NS; Adolescent $t = .09$, NS).

Table 2 Intercorrelation matrixes

	2	3	4
Children			
1. Length of stay	.31*	−.00	.03
2. C/U Traits	–	−.19	.12
3. Children's global assessment		–	.12
4. Age			–
Adolescents			
1. Length of stay	.36**	.11	.05
2. C/U Traits	–	−.08	−.12
3. Children's global assessment		–	.14
4. Age			–

* $p < .05$; ** $p < .01$

Table 3 Summary of hierarchical regression analysis for length of stay

	Variable	*B*	SE *B*	β	ΔR^2
Children					
Step 1	Age	.11	.35	.05	.02
	Gender	−5.95	16.01	−.06	
	Ethnicity	−5.64	13.23	−.06	
	Assessment of functioning	−.06	.54	−.02	
	CD or ODD	−10.80	13.94	−.12	
Step 2	C/U Traits	7.57	3.21	.35*	.11*
Adolescents					
Step 1	Age	.41	.55	.11	.06
	Gender	24.67	24.93	.16	
	Ethnicity	12.91	25.25	.08	
	Assessment of functioning	−.08	.97	−.01	
	CD or ODD	22.20	26.26	.14	
Step 2	C/U Traits	18.38	6.72	.41**	.14**

Note: CD or *ODD* A diagnosis of conduct disorder or oppositional defiant disorder

* $p < .05$; ** $p < .01$

Discussion

In the present study, the mean lengths of stay on both the children's ward (62.10 days) and the adolescent ward (90.60 days) were remarkably high for a children's psychiatric facility in the United States. For example, Heflinger et al. [2] reported that acute psychiatric care for children in the United States typically occurs during one-week hospitalizations, and Balkin [34] noted that in the current era of managed care 15-day psychiatric hospitalizations for children are considered lengthy. In our sample, the much longer hospitalization periods were consistent with the mission of a state facility providing acute, long-term psychiatric care for youth evidencing dangerous behavior. There was significant variability in length of stay between the units, however, with the average hospitalization length for adolescents significantly exceeding that for children, despite the fact that the children evidenced more severe levels of impairment. Based upon our clinical experience, we believe that the difference in the mean lengths of stay between the two wards can be at least partially traced to the general sentiment (shared by both families and clinical staff) that long lengths of stay in psychiatric facilities are only appropriate for pre-adolescent children when impairments in functioning are unusually severe. Additionally, our experience suggests that patients on the hospital's adolescent ward are more frequently discharged to group homes than patients on the children's ward, and group homes typically deny admittance to youth who display severe aggression. Illustrating the same point, Villani and Sharfsein [24] presented a case study of a dangerous adolescent in the United States who underwent a lengthy (4 month) psychiatric hospitalization because he was too old to be safely monitored in his home but too aggressive to be admitted to a group home. Finally, it should be noted that *within* each unit in this facility age did not function as a linear predictor of length of stay, suggesting that the difference in treatment duration between the two units were firmly linked to corresponding differences in the models utilized for treating children versus adolescents.

In this study, both the children's sample and adolescent sample displayed elevated levels of C/U traits and these traits predicted longer lengths of stay. In contrast, the majority of the previously established risk factors for longer lengths of stay (i.e., gender, ethnicity, overall level of adaptive functioning, and the presence of a Conduct Disorder or Oppositional Defiant Disorder) did not act as significant predictors. These findings can be placed within the context of the current trend for public psychiatric hospitalization in the United States to increasingly be utilized as a "last resort" placement for dangerous, aggressive children that lack other treatment options [35]. Because children with C/U traits comprise a distinct and important subgroup of the children who evidence the most dangerous, recalcitrant antisocial behavior [6, 19, 20], it is logical to assume that in children's public psychiatric facilities the number of youth with prominent C/U traits is increasing over time as more highly aggressive patients are admitted.

One particularly important finding was that C/U traits predicted length of stay over and above the influence of Conduct Disorder and Oppositional Defiant Disorder, suggesting the need for inpatient intervention programs that specifically target the needs of youth with elevated levels of C/U traits. Ideally, such treatment should be non-confrontational in nature, given that current evidence suggests that physiologically underaroused children are prone to becoming embroiled in escalating patterns of mutual coercion with authority figures [36]. In essence, this is the intervention approach Wong and Hare [37] propose using with psychopathic adults, with the goal of helping the psychopathic individual take personal responsibility for replacing self-defeating antisocial behavior with more effective prosocial behavior. This strategy is intended to reduce the power struggles that often ensue when the psychopathic individual (who typically views relationships in terms of power hierarchies and interpersonal dominance) encounters direct therapeutic confrontation or direction.

Developing non-confrontational hospital treatment regimens for aggressive youth with C/U traits may sound daunting, but there is an emerging set of collaborative treatment philosophies, strategies, and techniques that can be readily adapted for this purpose [38–40]. For example, conducting a motivational interview at the time of the hospital admission would immediately establish that clinical staff are empathetic, respect the patient's right to autonomy, and expect the patient to take personal responsibility for behavior change [38]. Ideally, throughout the course of a child's hospitalization clinicians and direct care workers will reinforce similar views by deemphasizing their institutional authority and instead stressing their willingness to help hospitalized youth take control of their own lives.

While enhancing motivation for self-directed change can serve as an overarching goal in the development of a behavior change program for aggressive inpatients, the provision of the cognitive-behavioral tools necessary for shaping a repertoire of adaptive coping skills constitutes the "nuts and bolts" of such a program. Along these lines, Collaborative Problem Solving (CPS) [39] is an innovative cognitive-behavioral approach that deemphasizes the strict imposition of adult will, instead reframing adult/child conflict as an opportunity to model and shape adaptive conflict resolution skills (e.g., mutual negotiation and compromise). When specifically applied to a child psychiatric setting [40], CPS stresses the development of individualized treatment plans (e.g., identifying patient-specific triggers for aggression) and the modification of unit policies and procedures that are associated with chronic patient frustration and anger. Perhaps the most novel feature of CPS is the emphasis on teaching problem solving and negotiation skills at the actual moment that patient/staff conflict begins to arise rather than isolating instruction within the confines of a scheduled treatment group. In summary, noncoercive psychological

treatments appear to provide a more appropriate fit for aggressive children with C/U traits than standard hospital treatment regimens, because psychopathic traits are associated with the propensity to become actively embroiled in mutually coercive power struggles and these programs help "sidestep" such conflict. Indeed, in an inpatient psychiatric ward for children and adolescents, the implementation of CPS was associated with dramatic reductions in the utilization of seclusions and restraints [40].

Finally, it is important to note that another important—but frequently neglected—aspect of providing hospital treatment to antisocial youth is the need for the provision of aftercare services [41]. Ideally, such services should include a wide array of community-based family outreach and support. In fact, the provision of such services should occur *before* an emergency psychiatric hospitalization is utilized, to help ensure that inpatient services are reserved for the most severely impaired, treatment-resistant youth. Unfortunately, in the United States such an array of services is rarely available before or after hospitalization, a state-of-affairs that is unlikely to change without increased political advocacy for the needs of at-risk youth [42]. In the meantime, public psychiatric facilities are left with the important task of finding effective ways to provide services to large numbers of young patients admitted due to dangerous aggression.

Summary

The results of this study indicated that for both pre-adolescent and adolescent children C/U traits predicted the overall length of psychiatric hospitalization. Moreover, for both groups this positive association was significant above and beyond the influence of a number of previously identified risk factors for longer lengths of stay. To meet the therapeutic needs of hospitalized youth with prominent C/U traits, we suggest utilizing non-coercive and non-confrontational treatment programs that encourage patients to take personal responsibility for improving their lives. Presumably, hospitalized youth would be motivated to modify their behavior in the interest of gaining more privileges and, ultimately, reducing the length of their hospitalization. Future research that examines the effectiveness of noncoercive strategies and techniques with psychiatrically hospitalized youth—particularly youth displaying C/U traits—has the potential to guide the development of new, more effective inpatient treatment regimens.

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