



## Mental Health Symptoms of Incarcerated Juvenile Offenders: Change and Continuity during the First Three Months in a Secure Facility

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In California, juveniles (ages 10-17) accounted for approximately 14% of all arrests (Puzzanchera, Adams, Snyder, & Kang, 2007) and 2,531 youth were housed in the state of California, Division of Juvenile Justice (DJJ) (California Department of Corrections and Rehabilitation Summary Fact Sheet, 2007). Past research demonstrates that a majority of youth who come into contact with the juvenile justice system present with numerous mental health problems (e.g., Cauffman, 2004; Cauffman et al., 1998; Cauffman et al., 2007; Coccozza & Skowrya, 2000; Grisso et al., 2001; Teplin et al., 2002; Wasserman et al., 2003). Specifically, in the CA DJJ, 70% of youth have mental health treatment needs and 80% have histories of substance abuse (Center of Juvenile and Criminal Justice, California Juvenile Justice Reentry Partnership, 2007). However, these data provide only a snapshot of juvenile offenders' mental health, as they are usually derived from psychological assessments completed at intake. We still know very little about how adolescents adjust to being incarcerated over weeks and months of secure confinement.

There is reason to believe that mental health symptoms will change over time as youth become familiar with a particular incarceration setting. Previous research on adult prisoners suggests mental health may be poorest during the earliest period of incarceration, when prisoners are first transitioning into their new environment (MacKenzie & Goodstein, 1985; Walker, 1983; Wormith, 1984). Similarly, in the one previous study looking at adjustment to incarceration among juvenile offenders, youth exhibited higher rates of depression and anxiety during the initial period of incarceration than they did several weeks later (Brown & Ireland, 2006). Ours is the first study to examine change in juvenile offenders' mental health symptoms over longer periods of secure confinement; we assessed mental health symptoms at six points during the first 11 weeks in high

security juvenile facility. In addition, as it is often the case that youths' problem behaviors are linked to a mental health disorder that has gone untreated (Lepler, Skowrya & Coccozza, 2006) we investigate whether particular patterns of adjustment are related to violent behavior within the incarceration setting.

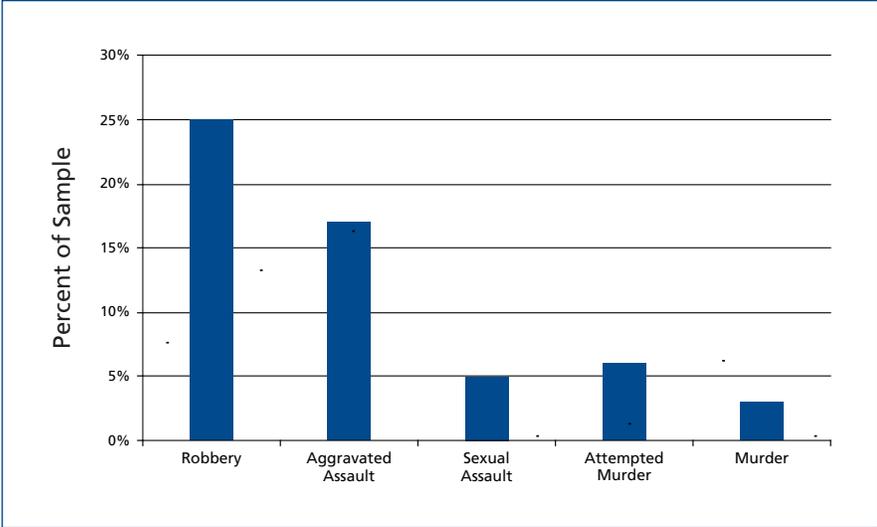
### The aims of the current study are to:

- 1) characterize the progression of juvenile offenders' mental health symptoms across their first three months in a high security facility,
- 2) examine how patterns of mental health adjustment relate to violent behavior within a secure institution.

A better understanding of the patterns of psychological adjustment among incarcerated juveniles would potentially benefit researchers, policymakers, juvenile justice staff and juvenile wards. First, it would allow researchers and policymakers to assess whether juvenile justice facilities are rehabilitative with regard to mental health problems (some of which contribute to criminal and delinquent behavior). Second, it could help juvenile justice facilities make more accurate, cost-effective decisions in the allocation of treatment resources. If, in fact, patterns of mental health symptoms during incarceration relate to violent behavior within secure facilities, then targeted interventions will not only aid the recipient, but may also protect staff and other wards from physical harm.

### HIGHLIGHTS

- Self-reported mental health symptoms were highest at arrival to the institution.
- Patterns of mental health adjustment were variable.
- Symptoms of substance abuse appeared to increase starting at the third week of incarceration.



**Figure 1. Violent Committing Offenses**

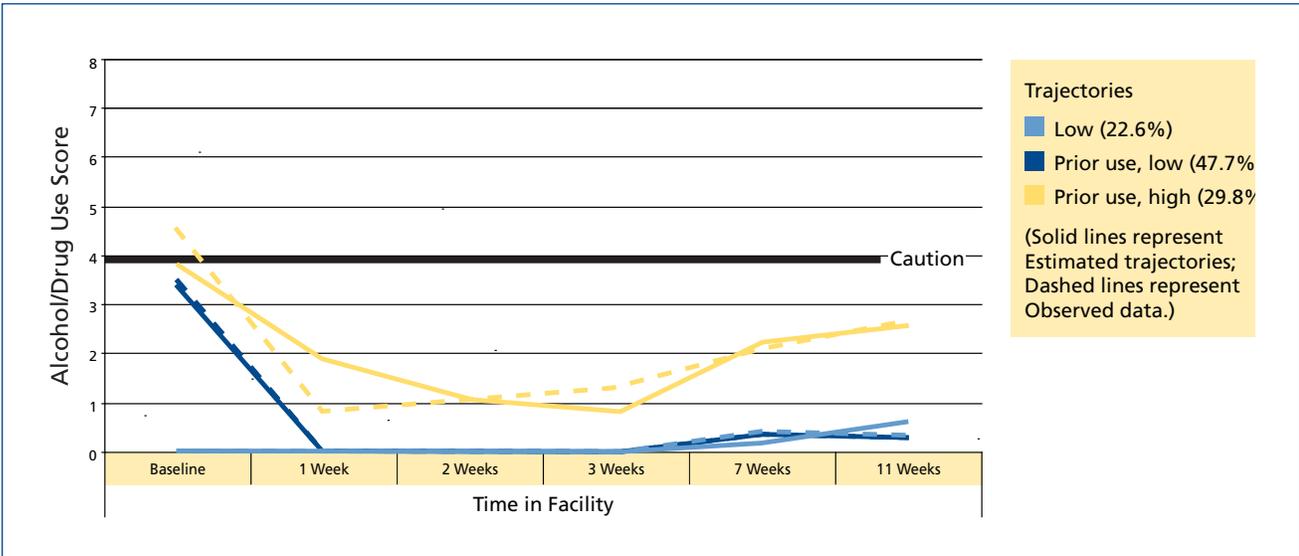
- In the domains of anger/irritability, substance abuse and somatic complaints, about 20% of youth exhibited chronically high levels of symptoms.
- 46% of youth reported having engaged in violent behaviors in the institution.
- Youth high in symptoms of anger/irritability or substance abuse were more likely than other youth to engage in violent behaviors within the facility.

**METHODOLOGY**

Study participants were 373 male juvenile offenders incarcerated in a California Department of Juvenile Justice Southern Youth Correctional Reception Center and Clinic. Participants ranged from 14-17 years of age with the average age being 16.4 years. Boys were interviewed within 48-hours upon arrival to the institution. They were followed weekly and then monthly for a period of 90 days. Of the parents

contacted, we had a 97% successful consent rate. Data collection yielded a predominantly minority sample (94%). Most youths were Hispanic (53%), the next largest group was African-American (29%), and 12% were bi- or multi-racial. The disproportionate representation of minorities is representative of youths incarcerated in the state of California (Snyder & Sickmund, 2006).

The majority (69%) of participants had been found guilty (or delinquent) of violent “person” offenses, including robbery (25%), aggravated assault (17%), sexual assault (5%), attempted murder (6%) and murder (3%). See Figure 1 for the percentages of youth with various violent committing offenses. Over a quarter (28%) had been tried as adults (see Figure 2). Most (95%) were in the facility for the first time. If a youth had already been at the facility for his most recent offense, then he was not eligible for the study. However, if a youth was returning to the facility to serve time for a different offense, he was considered eligible for the study.



**Figure 2. Alcohol/Drug Use Trajectories**

In the present study, mental health symptoms were assessed at all six study time points using the Massachusetts Youth Screening Instrument, Version 2 (MAYSI-2), a 52-item, yes/no, self-report measure that taps seven types of mental health symptom clusters (Grisso et al., 2001). The MAYSI-2, developed specifically for use with juvenile offender populations, takes about 10-12 minutes to administer and contains the following different types of mental health symptoms: Alcohol/Drug Use, Angry-Irritable, Depressed-Anxious, Somatic Complaints, Suicide Ideation, Thought Disturbance, and Traumatic Experiences. Respondents were asked whether each item had been true for them “within the past few (6) months,” at baseline and then within the past week or past month for all other time points. Scoring was based on the total number of affirmative responses for each scale, with higher scores indicating more mental health problems. In addition, for each scale there is a recommended “caution” cutoff (see Box 3). Scores at or above this cutoff indicate clinically significant levels of distress; youth scoring in the caution range for a given scale are considered to be at relatively high risk of having a psychological disorder.

For the present study we used the following MAYSI-2 scales: Alcohol/Drug Use, Angry-Irritable, Depressed-Anxious, Somatic Complaints, and Suicide Ideation (see Box 1). We were interested in dynamic mental health symptoms that might change in response to the incarceration experience. Accordingly, we excluded the two other MAYSI-2 scales, Thought Disturbance and Traumatic Experiences from our analyses because these scales are intended to tap conditions (psychotic disorders and lifetime exposure to trauma) that are relatively stable, at least within a three-month time-frame.<sup>1</sup>

<sup>1</sup> Given the small fraction of youth evincing psychotic symptoms, we expected the majority of youth to follow a consistent pattern of very low or no psychotic symptoms. For traumatic events, we did not expect to see patterns of change given that the questions gauging exposure to trauma are worded so as to measure lifetime exposure, not exposure to trauma since the previous assessment.

<b>Alcohol/Drug Use (8 items)</b> - Frequent use of alcohol/drugs
Risk of substance abuse or psychological reaction to lack of access to substances. (Average alpha = 0.79.)
<b>Angry-Irritable (9 items)</b> - Experiences frustration, lasting anger, moodiness
Risk of angry reaction, fighting, aggressive behavior. (Average alpha = 0.79.)
<b>Depressed-Anxious (9 items)</b> - Experiences depressed and anxious feelings
Risk of impairments in motivation, need for treatment. (Average alpha = 0.61.)
<b>Somatic Complaints (6 items)</b> - Experiences bodily discomforts associated with distress
Risk of psychological distress not otherwise evident. (Average alpha = 0.64.)
<b>Suicide Ideation (5 items)</b> - Thoughts and intentions to harm oneself
Risk of suicide attempts or gestures. (Average alpha = 0.58.)

### Box 1. MAYSI-2

How many times have you...	Never	Once	2-5 times	> 5 times	Mean (SD)
beaten up, mugged, or seriously threatened someone?	57%	18%	21%	5%	0.43 (0.50)
attacked someone with a weapon, like a knife, box cutter, or bat?	98%	1%	1%	0%	0.02 (0.14)
taken someone else’s things by force?	91%	6%	2%	1%	0.09 (0.29)
physically attacked a staff member?	97%	2%	1%	0%	0.03 (0.16)

Note: SD = standard deviation.

### Box 2. Self-Report of Violent Behavior Occurring within the Institution

	Caution Cut-Off	Mean	SD	% Within Caution-Range
Alcohol/Drug Use	4	3.03	2.73	40%
Angry-Irritable	5	3.67	2.72	44%
Depressed-Anxious	3	2.10	1.85	36%
Somatic Complaints	3	2.00	1.71	37%
Suicide Ideation	2	0.27	0.72	6%

Note: SD = standard deviation.

### Box 3. MAYSI-2 Scores upon entry to the facility

It is important to note that the MAYSI-2 cannot definitively identify youth with particular mental disorders the way a full clinical assessment would. Instead, the MAYSI-2 is designed to alert juvenile institutions when a youth exhibits high levels of symptoms that are often related to mental health disorders. In essence, the MAYSI-2 acts like a thermometer which detects illness without being diagnostic of a particular disease (Cauffman, 2004).

To measure violent behavior during incarceration, we used a four-item scale based on Huizinga and colleagues' Self Report of Offending (Huizinga, Esbenson, & Weiher, 1991; see Box 2). The scale exhibited adequate reliability (alphas ranged from .64 to .73). Youths reported on how many times they had committed a particular act since the prior interview. Total violent offending was computed by summing violent acts reported across the six time points.

We anticipated that one's history of offending would relate to both violence in the facility and certain mental health symptoms (e.g., anger, substance use problems); prior violent behavior in particular is a very good predictor of future violent behavior. To examine the relation between mental health symptoms and violent behavior within the institution, over and above any effect of prior offending on violent behavior, we used a self-report measure of lifetime offending as a covariate in the statistical models. This lifetime offending measure was the sum of seven yes/no items asking youth whether they had ever committed various offenses including the four violent offenses listed in Box 2 and three other nonviolent offenses ("Have you ever chased someone where you planned to seriously hurt them?", "Have you ever stolen someone else's things?", and "Have you ever purposely damaged or destroyed property that did not belong to you?")

## MENTAL HEALTH AT BASELINE

Box 3 lists youths' MAYSI-2 scores upon entry to the facility—when mental health assessments are typically administered. For all the scales except Suicide Ideation, youths' average scores at entry were less than one standard deviation from the clinical cutoff. On Alcohol/Drug Use, Angry-Irritable, Depressed-Anxious and Somatic Complaints scales, 36-44% of youth scored at or above the caution cutoff; 6% scored in the caution range on Suicide Ideation. (Scores on Suicide Ideation likely underestimate the true levels of suicidal thought/intent in this population because each youth was repeatedly reminded that the researcher would have to break confidentiality and inform facility staff if he expressed intent to harm himself.) Thus, youth are coming into the facility in a highly volatile state. What has not been examined is whether mental health symptoms change or remain constant during adjustment to a secure facility.

## MENTAL HEALTH SYMPTOMS OVER TIME

To examine patterns of change and stability in mental health symptoms, we used group-based trajectory modeling (Nagin, 2005) to identify clusters of youth that tended to follow similar patterns over the three-month period (see Figures 3-7). The y-axis for each figure shows scores on the MAYSI-2 scale and the x-axis shows the number of weeks

incarcerated. It is important to note that baseline equals week 0 (i.e., arrival to the facility) and questions asked at this time point refer to the past six months, when youths were in other locations (e.g., juvenile halls, correctional camps, detention facilities, their communities). For most of the MAYSI-2 scales, we found three groups exhibiting similar patterns of adjustment. The exceptions were Depressed-Anxious, for which we found four main trajectories, and Suicide Ideation, for which we found only two.

## Alcohol/Drug Use

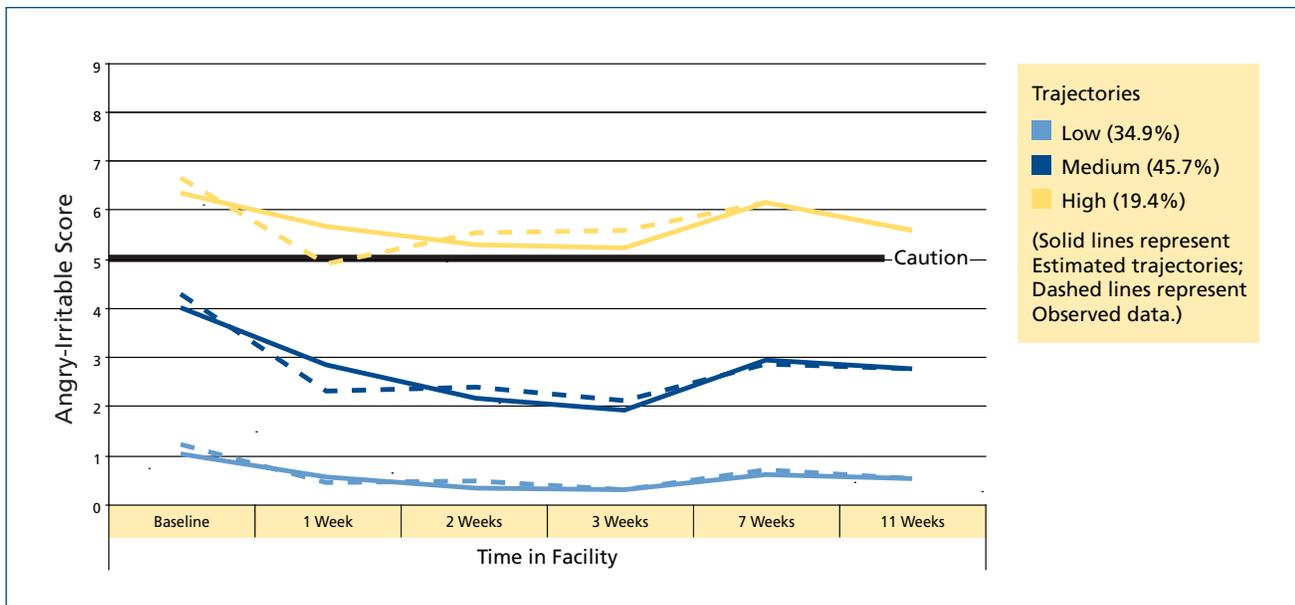
Specific symptoms measured by this scale include having been so drunk or high that one could not remember what happened, and using alcohol or drugs in order to feel better. Youth who score high on this scale are more likely to use alcohol or drugs and may be at risk for substance abuse or dependence.

Examining change over time in Alcohol/Drug Use scores, there were three patterns identified (see Figure 2). The smallest group (comprising 23% of the sample) consisted of youths who did not report substance abuse symptoms prior to arrival, but, over time, started reporting some symptoms in the facility. The largest group (48%) reported a significant amount of substance abuse symptomatology prior to arrival, then exhibited a large decline upon incarceration, followed by a slight increase in reported symptoms at 7 and 11 weeks. The only important difference between these first two groups was whether or not they endorsed symptoms of alcohol/drug abuse prior to arrival. A third group consisting of just under a third of youth (30%) reported clinically significant levels of alcohol/drug abuse symptoms prior to arrival. Across the first couple weeks of incarceration, their symptoms declined (never reaching zero) but then increased again through week 7.

Because these patterns of symptoms indicated that youth were obtaining and abusing substances while incarcerated, we examined youths' reports of actual substance use in the facility. Nearly half (47%) of youth reported using marijuana in the facility (the most commonly reported drug). Youth also reported using stimulants (methamphetamine, cocaine, speed, and ecstasy), alcohol, and to a lesser degree, hallucinogens (mushrooms, PCP, and acid). None of the groups identified in the trajectory analysis were more likely to use a particular drug.

## Angry-Irritable

Youth scoring high on the Angry-Irritable scale are the ones who tend to get frustrated and lose their temper easily, hurt others, and/or break things on purpose because they are



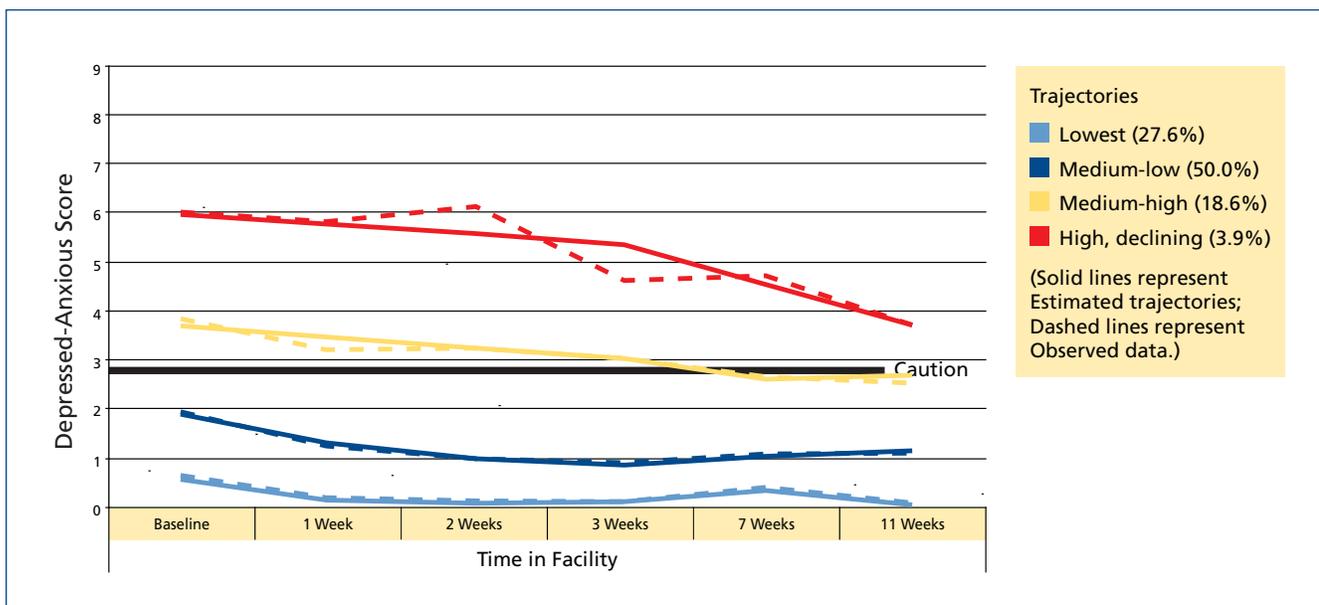
**Figure 3. Angry-Irritable Trajectories**

mad. The results for the Angry-Irritable scale also indicate three patterns of change over time in symptoms (see Figure 3). There was a group consisting of just over a third of the sample (35%) that consistently exhibited low levels of anger and irritability. The largest group, comprising 46% of youth, arrived at the facility with fairly high levels of anger/irritability, calmed down (showed a decline) across the first few weeks, but then exhibited an increase in anger/irritability symptoms between weeks 3 and 7, followed by a leveling off between weeks 7 and 11. There was also a third group comprising almost a fifth of the sample (19%) who exhibited much higher levels of angry and/or irritable symptoms over time

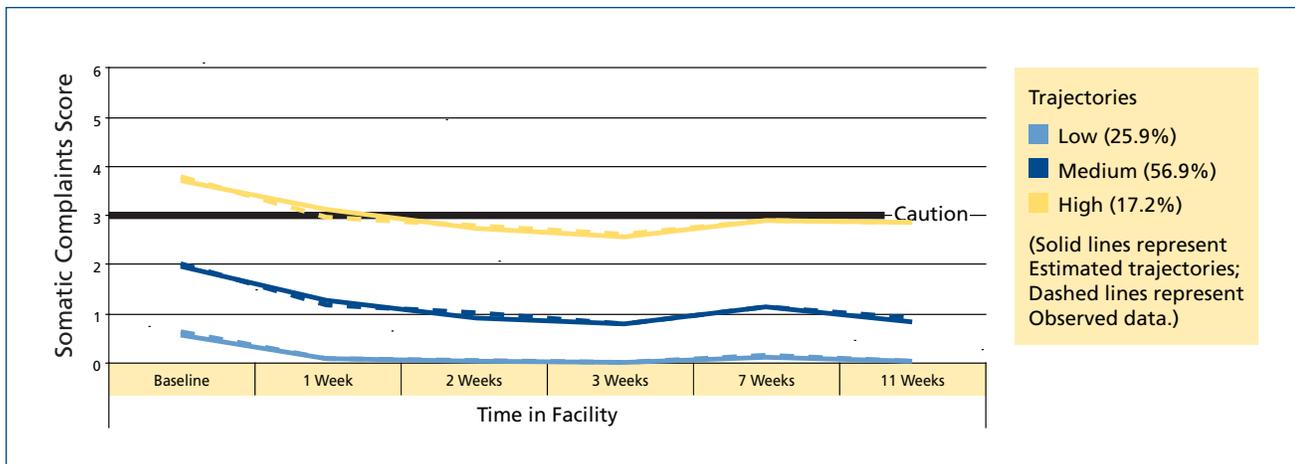
compared to the other two groups. Their average scores were consistently above the caution cutoff for Angry-Irritable.

### Depressed-Anxious

Four main groups were identified for the Depressed-Anxious scale (see Figure 4). A majority of youth were in the two lowest trajectories (50 and 28% respectively). These groups exhibited few or almost no depressed or anxious symptoms. For both low symptom groups, youth exhibited their highest levels of symptoms at baseline, showed a small decline, and then remained low in symptoms. About a fifth



**Figure 4. Depressed-Anxious Trajectories**



**Figure 5. Somatic Complaints Trajectories**

(19%) of youth fell into a medium-high trajectory for depression/anxiety symptoms. These youth also start off highest at baseline and exhibit a small decline over time. Unlike the two lower symptom groups, youth on this third, medium-high trajectory remained very close to the caution cutoff, meaning they consistently exhibited clinically significant levels of depressed and anxious symptoms. A small group, comprising 4% of the sample, exhibited very high levels of symptoms (e.g., feeling lonely much of the time, avoiding people or activities due to anxiety). Though their symptoms were worst at arrival and declined across 11 weeks of incarceration, they remained well above the caution cutoff for Depressed-Anxious throughout this period.

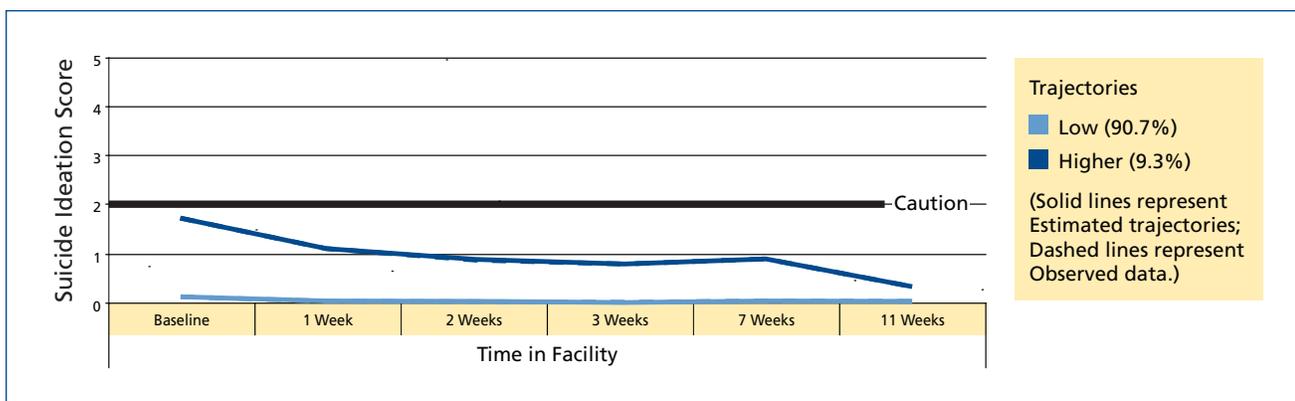
### Somatic Complaints

Youth who score high on the Somatic Complaints scale are the types who, when feeling anxious, tend to experience upset stomachs, headaches, heart palpitations, and/or shortness of breath. The analyses for Somatic Complaints suggested three main patterns of adjustment (see Figure 5). As with Depressed-Anxious, the majority of youth fell into the two lowest trajectories (57% and 26% respectively),

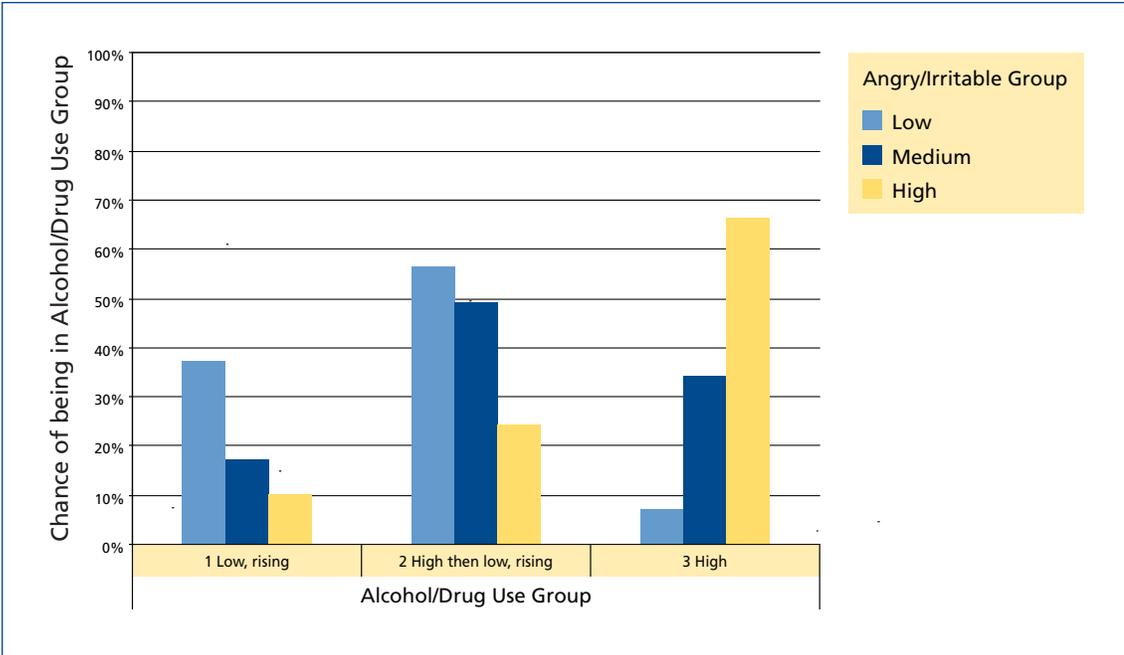
exhibiting few or almost no symptoms. For both of these groups, their symptoms were highest at baseline, declined slightly across the first couple weeks of incarceration and then leveled off. A third group, comprising 17% of the sample, arrived at the facility exhibiting clinically significant levels of Somatic Complaints. Though their symptoms declined somewhat over the first few weeks before stabilizing (and even increasing a bit between 3 and 11 weeks), they remain close to the caution cutoff for Somatic Complaints throughout the study period.

### Suicide Ideation

The vast majority of youth (91%) did not endorse any of the items related to suicidal thought over time (e.g., “Have you given up hope for your life?,” “Have you wished you were dead?,” “Have you felt like hurting or killing yourself?”). As noted above, our data may underestimate levels of Suicide Ideation due to our mandatory reporting requirements (i.e., we warned the youth that we would inform staff if they expressed intent to harm themselves). Facility response to suicide ideation, threats, and attempts involves putting youth on suicide watch. Staff and other inmates are aware



**Figure 6. Suicide Ideation Trajectories**

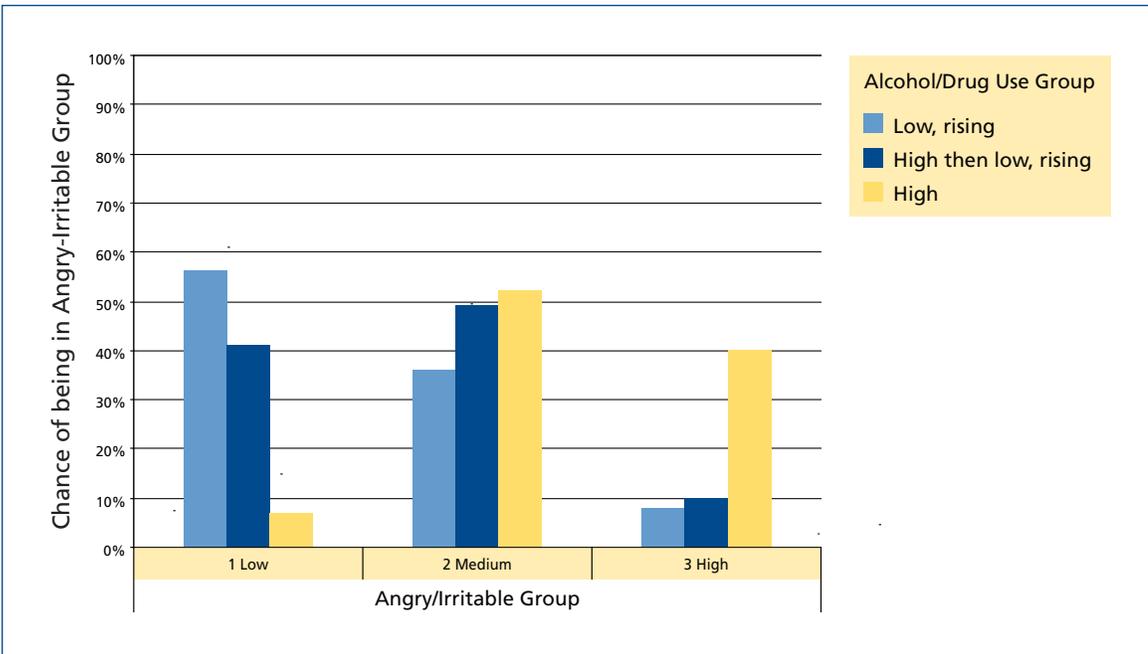


**Figure 7a. Chance of Being in a Particular Alcohol/Drug Use Group Given One's Angry-Irritable Group**

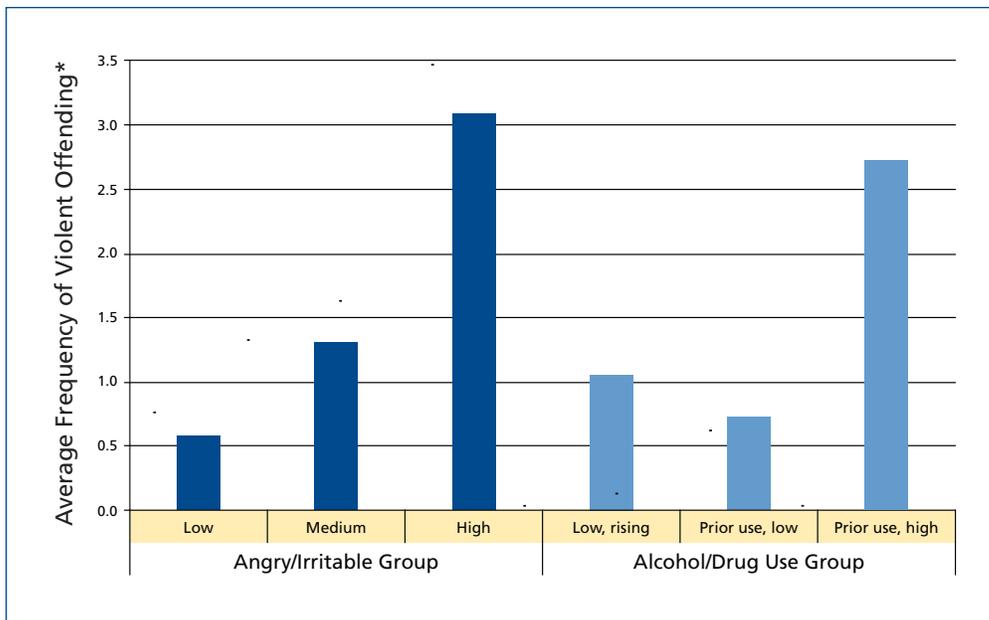
of which youth are removed from their unit and placed on suicide watch. Thus, stigma associated with this procedure may deter youth from admitting suicidal intent. Still, a small but significant group of youth (9%) endorsed an average of just under two items on this scale at baseline followed by a decline in Suicide Ideation across the 11-week study period (see Figure 6).

**Mental Health Symptoms and Violent Behavior**

Just under half of youth (46%) reported engaging in violent behavior while incarcerated. Rates of violent behavior were similar to those found in other studies of incarcerated male adolescents (cf. Cornell, Peterson, & Richards,



**Figure 7b. Chance of Being in a Particular Angry-Irritable Use Group Given One's Alcohol/Drug Use Group**



**Figure 8. Violent Institutional Offending by Predicted Angry-Irritable and Alcohol/Drug Use Group**

\*Outlying values (more than 3 standard deviations above the 5% trimmed mean) were truncated to three standard deviations above the trimmed mean plus one.

1999; Trulson, Marquart, Mullings, & Caeti, 2005). Consistent with prior research on correlates of violent behavior, youth high in symptoms of anger/irritability and/or substance use were at increased risk for violent offending within the institution. There was a large degree of overlap (i.e., co-morbidity) between Angry-Irritable and Alcohol/Drug Use symptoms; of those youth in the highest trajectory for Angry-Irritable, 66% were also in the highest Alcohol/Drug Use trajectory (depicted in Figures 7a and 7b). Youth in the highest Alcohol/Drug Use ( $t = 2.08$ ,  $p < .05$ ) and Angry-Irritable ( $t = 5.00$ ,  $p < .001$ ) trajectories were more likely to violently offend within the secure facility (controlling for their lifetime offending) compared to those in the lowest trajectories. For Angry-Irritable, youth in the middle trajectory were also significantly more likely to be violent ( $t = 2.41$ ,  $p < .05$ ) than youth exhibiting the lowest levels of symptoms. Figure 8 shows the average frequencies of violent offending (adjusted for outlying observations) for the groups identified in the Angry-Irritable and Alcohol/Drug Use trajectory analyses.

## SUMMARY AND IMPLICATIONS

Mental health disorders can contribute to behavioral problems (Lepler et al., 2006) and are especially prevalent among juvenile offenders (Department of Justice, 2006). Incarceration coupled with serious emotional problems puts thousands of incarcerated adolescents in “double jeopardy” (Grisso, 2004). As other sources of help for at-risk youth have diminished, the juvenile justice system has become a surrogate for mental health treatment. Yet, at present,

juvenile justice institutions are not designed to evaluate or treat these types of disorders—they lack the resources and finances needed to provide full psychological assessments and treatment to youth in their care. The results of the present study suggest that, with the help of validated mental health screening devices, such as the MAYSI-2, juvenile justice facilities may be able to provide cost-effective treatment to the youth in their care most in need of clinical services. Attending to youths’ mental health needs may make juvenile justice facilities safer and make some youth more amenable to rehabilitation/corrections.

This bulletin describes the first study to track incarcerated youths’ mental health symptoms over time. In general, we found the highest levels of mental health symptomatology at arrival to the institution. This transitional point appears to be a highly stressful time, when youths exhibit the greatest emotional volatility. This finding is in line with previous research regarding the mental health problems of serious adolescent offenders. However, our data from later time points suggest that estimates of mental health problems may have been inflated in past research due to reliance on measurements that take place shortly after arrival at a juvenile justice facility. Our results suggest that, across the first three months of incarceration, youths, on average, never again exhibit levels of mental health symptoms as severe as those observed at baseline. This finding reinforces the notion that measurement of mental health at baseline is merely a snapshot—an important one to capture—but one that should be supplemented with repeated screening of mental health over time.

The fact that we find the highest levels of distress at the point of transition has implications for the way youth are handled within the juvenile justice system. Decline in symptoms across the first couple weeks likely signifies a return to more typical levels of mental health symptoms following elevation induced by transition to a new facility. The average length of stay at the Southern Youth Correctional Reception Center and Clinic is approximately 90 days, after which youth are often transferred (again) to another secure facility. Given our finding that the initial adjustment period is the most volatile, it makes sense to try to limit the frequency with which youth are relocated within the system. However, more research is needed to discern whether the pattern of adjustment observed in this study is specific to transition to this particular facility or whether it generalizes to any type of relocation within the system.

The observed progression of mental health symptoms during incarceration was probably not indicative of recovery due to treatment. If the experience of incarceration were rehabilitative, we would expect to see mental health symptoms starting to decline (at the earliest) after two to three weeks of confinement, at which point the facility would have had time to implement individualized programming and treatment. We would also expect to see mental health symptoms continuing to decline throughout the study period. However, this was not the pattern we found. As noted above, observed declines in mental health symptomatology occurred very early in the study period. For the most part, after an initial decline from baseline levels of symptomatology, mental health symptoms remained constant or increased slightly over the course of the first 11 weeks of incarceration. Symptoms of substance use disorder actually increased steadily after the third week of incarceration. In accordance with this rising trajectory of substance use symptoms, a surprisingly high percentage of youth reported using illicit substances within this high security facility. These findings do not imply successful treatment of youths' mental health problems during incarceration. On the other hand, we do not see symptoms worsening systematically during incarceration except in the case of substance abuse symptoms.

Given the scarcity of mental health resources in community settings (Goldstrom, Jaiquan, Henderson, Male, Manderscheid, 2001), incarceration may provide the first, best, and/or only opportunity to provide treatment services to juveniles. A significant subset of youth in the current study exhibited chronically high levels of mental health symptoms across the first 11 weeks of incarceration. This pattern suggests a very real need and opportunity for treatment.

It has been well established that violence in community settings is related to substance abuse among perpetrators (e.g.,

Ellickson & McGuigan, 2000; Kingery, Pruitt, & Hurley, 1992; Saner & Ellickson, 1996). It is therefore not surprising that youth in the highest Alcohol/Drug Use trajectory were more likely than youth in the lowest trajectory to exhibit violent behavior in the incarceration setting. In addition, anger has been linked with offending, particularly violent offending in adult populations (Buss & Perry, 1992; Novaco, 1994; Wang & Diamond, 1999). Prior research has also found that anger is predictive of violent behavior among incarcerated adolescents (Cornell et al., 1999), which is consistent with our finding that high levels of angry-irritable symptoms were associated with institutional violence. By providing youth with high levels of angry-irritable and/or substance abuse symptoms with evidence-based interventions, juvenile justice facilities would likely increase the safety of their staff and wards.

In conclusion, our results indicate that mental health problems may not be as prevalent among incarcerated juveniles as research based on intake assessments would suggest. Mental health symptoms were at their highest levels just after arrival to the secure facility. Still, a significant proportion of youth exhibited chronically high levels of distress throughout the three month follow-up period. These results imply that use of the MAYSI-2 to identify youth at high risk for mental disorder would allow institutions to provide more cost effective, targeted treatment to those youth that need it the most. Though the Division of Juvenile Justice was not originally intended to provide mental health treatment, it would appear that they should accept and capitalize on their role as a surrogate mental health provider, if for no other reason than to better accomplish their central mission—rehabilitation.

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