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The Role of Race in Diagnostic and Disposition Decision-making in a Pediatric Psychiatric Emergency Service (PES)

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Abstract

Objective—We investigated the influence of race/ethnicity in diagnostic and disposition decision-making for children and adolescents presenting to an urban psychiatric emergency service (PES).

Method—Medical records were reviewed for 2991 child and adolescent African American, Hispanic/Latino, and White patients, treated in an urban PES between October 2001 and September 2002. A series of bivariate and binomial logistic regression analyses were employed to delineate the role of race in the patterns and correlates of psychiatric diagnostic and treatment disposition decisions.

Results—Binomial logistic regression analyses reveal that African American (OR=2.28, p<.001), and Hispanic/Latino (OR=2.35, p<.05) patients are more likely to receive a psychotic disorder and behavioral disorders diagnoses (African American:OR=1.66, p<.001; Hispanic/Latino:OR=1.36, p<.05) than White children/adolescents presenting to PES. African American youth compared to White youth are also less likely to receive depressive disorder (OR=0.78, p<.05), bipolar disorder (OR=.44, p<.001), and alcohol/substance abuse disorder (OR=.18, p<.01) diagnoses. African American pediatric PES patients are also more likely to be hospitalized (OR=1.50, p<.05), controlling for other socio-demographic and clinical factors (e.g., GAF).

Conclusions—The results highlight that non-clinical factors such as race/ethnicity are associated with clinical diagnostic decisions as early as childhood suggesting the pervasiveness of such disparities.

Keywords

psychiatric emergency services; decision-making; race; diagnosis; disposition

Introduction

Major mental illness and functional impairment afflict approximately one in ten children [1-3]. Despite high prevalence, only about a fifth of children impaired by mental illness receive treatment[1,3]. Race/ethnic disparities in mental health care access exist, with African American and Hispanic/Latino youth being less likely to receive mental health services than whites[4,5]. Specific segments of the population including the poor and ethnic minorities rely

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more heavily on emergency and psychiatric emergency services (PES) due to social circumstances[6-8]. Several recent studies demonstrate an increase in pediatric psychiatric visits in general and psychiatric emergency settings (PES) over the past couple of decades[1, 9-11], suggesting that PES is a likely entry point for many youth entering the mental health system[12], especially non-white youth. Assignment of diagnoses and treatment dispositions made in the PES can have a large impact on mental health services that children and adolescents receive and may have long term effects on the course of a mental illness. Little is known about ethnic minority youth who present to psychiatric emergency facilities and the factors associated with psychiatric diagnostic and disposition decision-making for this population.

Among studies examining persons presenting to PES[13,14], few have focused specifically on the ethnic characteristics of children and adolescents[9]. A number of studies examine clinical and non-psychiatric predictors of diagnostic and disposition decision-making for adult PES patients[13-19]. However, among studies on U.S. pediatric psychiatric emergency-type settings[20-23] even fewer have specifically examined the role of sociodemographic factors (e.g., race, ethnicity) in diagnostic and disposition decision-making.

Some evidence exists to suggest that children and adolescents' socio-demographic characteristics may affect PES psychiatric diagnoses and hospitalization decisions. Studies using non-PES adolescent clinical samples have found racial variations in psychiatric diagnosis. African American youth have been shown to receive higher rates of disruptive behavioral disorders and psychotic disorders than White youth[24-27]. Higher rates of psychotic disorder diagnoses found among African American youth[25,28] parallel adult patterns of diagnosis in PES[13] and across mental health service facilities[7,29-31]. Similarly, Hispanics/Latinos are more likely to receive disruptive behavioral disorder or substance abuse disorder diagnoses[25], while Whites are more likely to receive major depression and alcohol use disorders[24,26]. Finally, younger adolescents are more likely to be hospitalized by PES clinicians than older adolescents[32,33].

Examining racial disparities in diagnostic and disposition patterns are an important public and mental health concern given the severity and stigma attached to psychotic disorders and the potential negative consequences of untreated psychopathology. The Surgeon General's Mental Health report expressed national concerns regarding racial disparities in access to mental health services for ethnic minority youth, further highlighting the need to understand prevalence estimates of psychiatric disorders for ethnically diverse children and adolescents[34]. The present study explores prevalence and patterns of psychiatric diagnosis and disposition among African American, Hispanic/Latino and White youth presenting at an urban Crisis Response Center (CRC). The following questions guided the study: (1.) What are the sociodemographic characteristics of the youth presenting at PES during the study period? (2.) Are there racial variations in PES diagnostic rates? (3.) Are there racial variations in PES inpatient disposition rates?

Method

Setting

The Albert Einstein Medical Center's Crisis Response Center (CRC) is the only center designated by the county office of mental health in Philadelphia to provide psychiatric emergency services to children and adolescents. At the time of the study the CRC was situated within an urban general hospital, adjacent to the medical emergency service. It has since been relocated to community medical campus with a variety of outpatient services that retains a medical emergency service. The CRC remains a comprehensive PES, providing triage, assessment for psychiatric and drug/alcohol problems, crisis treatment, referral services, and linkage follow-up. It is not bounded by catchment area and is open 24-hours a day, 7-days a

week. About 85% of the children seen are covered by county-funded medical assistance insurance. The CRC also serves adults. The pediatric PES makes dispositions for acute hospitalization, acute detoxification programs, partial hospital programs, and outpatient services. Children requiring inpatient services are transported to other hospitals. Those needing outpatient psychiatric services and partial hospital programs are referred to facilities in the county. There is typically a waiting list for outpatient programs. There is limited availability of partial programs within the county; some are located in surrounding counties.

Sample

Between October 1, 2001 and September 30, 2002, the CRC had 3732 patient visits. The medical record data for each visit were abstracted and the personal identifier removed. The electronic data were manually compared to the patient registration log form for each visit on three separate occasions by graduate level research assistants to ensure accuracy of the information. All patients who were self-identified as African American, White, or Hispanic/Latino and under 22 years of age were included in the study. The sample size of patients of other ethnic backgrounds was less than thirty, insufficient for meaningful analyses; thus, they were excluded from the study sample. To avoid duplication, analyses included only data for patients' first visit, among those who had multiple CRC visits during the study period, to reduce the potential adverse effect of clustering or non-independence of visits within patients. The final sample for this study was reduced to 2991 to ensure that data were not missing for the primary study variables.

Measures

Information abstracted from patient records included age (continuous and categorical groups), gender, ethnicity (African American, White, Hispanic/Latino, and other), and a proxy for socioeconomic status (whether the patient had public, private, or no insurance).

DSM-IV Diagnoses—Diagnostic variables were based on the patient's recorded Axis I DSM-IV diagnoses[35] as determined by the evaluating psychiatrist (e.g., child and adolescent psychiatrists, child and adolescent psychiatry fellows/residents, general psychiatrists, general psychiatry residents) and were collapsed into the following categories: psychotic disorders, major depressive disorders, bipolar disorders, anxiety disorders, behavioral disorders (e.g., conduct, impulsive, oppositional, attention deficit/ hyperactivity), adjustment disorders, developmental disorders (e.g., autism), alcohol/substance abuse disorders, and other disorders/problems. The category “other disorders/problems” included V codes for relational disorders, learning disorders, abuse, and miscellaneous problems which accounted for a small number of cases. The other eight diagnostic categories were separated out because they may require more clinical discretion and have been examined in previous studies on racial/ethnic disparities in diagnostic and disposition decision-making. The medical record notation of comorbid *DSM-IV* diagnoses was incomplete, precluding the use of comorbid diagnoses in the analysis. Patient Global Assessment of Functioning (GAF)[35]score was also recorded to measure psychological, social and occupational functioning and severity of impairment.

The Albert Einstein Medical Center and the University of Pennsylvania Institutional Review Boards granted approval of the protocol for medical records review. Because this is a retrospective review, the clinicians had no knowledge of the study at the time that the evaluation information and diagnostic and disposition decisions had been recorded. Data were derived from PES databases designed for billing, to monitor quality outcomes, and other standard procedures.

Data Analysis

The analytical sample consisted of 2991 African-American, White and Hispanic/Latino youth. Bivariate and logistic regression analyses were employed to examine the relations between sociodemographic and clinical characteristics and the two study outcome variables: diagnosis and disposition. A series of binomial logistic regression analyses were performed to predict the association between race and diagnostic and disposition decisions. The multivariate analyses conducted also controlled for demographic and clinical variables (i.e., GAF). This generated valid p-values and confidence intervals. Computations were performed using SPSS 12.

Results

Sample Demographics

Table 1 presents sample descriptive statistics of the children and adolescents presenting to this pediatric psychiatric emergency service. The sample is diverse in its sociodemographic characteristics (e.g., gender, race) and diagnoses. The sample was 64.3% (1922) African American, 14.3% (428) Hispanic/Latino, and 21.4% (641) White. Male participants' average age was 13.06 (SD=3.43) while females were 14.83 (SD=2.88). Of the participants, 2.9% (88) had no insurance, 23.2% (695) had private insurance, and 68.5% (2049) had public insurance. The racial/ethnic distribution of the sample is reflective of the demographic composition of the local area.

Patient Race and Diagnostic Decision-making

Bivariate analyses including African American, Hispanic/Latino and White patients reveal significant patient race/ethnicity differences for PES diagnoses (χ^2=125.50, df=16, p<.001). For example, 4.5% of the African American patients and 4.9% of the Hispanic/Latino sample having been diagnosed with psychotic disorder as compared to 2.5% of the White patients (χ^2=5.58, df=2, p<.07). Additionally, 4.7% of the White patients compared to 1.7% of African Americans and 2.3% of Hispanics/Latinos were diagnosed with bipolar disorder (χ^2=17.731, df=2, p<.0001). With regard to depressive disorders, 37.8% of Whites compared to 28.5% of African Americans and 30.1% of Hispanics/Latinos received this diagnosis (χ^2=19.52, df=2, p<.0001). Thirty-five percent of the White youth compared to 50.3% of African Americans youth and 46% of Hispanics/Latinos were diagnosed with a behavioral disorder (χ^2=45.82, df=2, p<.0001). Finally, 5.9% of Whites compared to .8% of African Americans and 2.3% of Hispanic/Latino youth were diagnosed with alcohol/substance abuse disorders (χ^2=61.87, df=2, p<.0001).

Binomial logistic regression analyses were utilized in order to assess if patient race was independent of all other patient sociodemographic (i.e., gender, age, insurance) and clinical (i.e., GAF) effects in the model. Table 2 presents results from the series of logistic regression analyses which reveal racial variations in patterns of psychiatric diagnosis. African American pediatric patients as compared to White patients were significantly more likely to receive a psychotic disorder diagnosis (OR=2.28, p<.001, 95% CI=1.3-4.0) and behavioral disorder diagnosis (OR=1.66, p<.001, 95% CI=1.35-2.03) than all other diagnoses. Conversely, African American pediatric patients as compared to White patients were significantly less likely to receive a bipolar disorder diagnosis (OR=.44, p<.001, 95% CI=.26-.75), a depressive disorder diagnosis (OR=.78, p<.05, 95% CI=.63-.95), and a alcohol/substance abuse diagnosis (OR=.18, p<.001, 95% CI=.09-.35) than all other diagnoses. Finally, Hispanic/Latino as compared to White pediatric patients were also significantly more likely to receive a psychotic disorder diagnosis (OR=2.35, p<.05, 95% CI=1.18-4.67) and behavioral disorder diagnosis (OR=1.36,

p<.05, 95% CI=1.04-1.79) than all other diagnoses. Each model controlled for gender, age, insurance, and GAF.

Further race-specific exploratory logistic-regression analyses showed that African American males (OR=1.69, p<.04, 95% CI=1.05-2.73) as compared to females were more likely to be diagnosed with psychotic disorders. African American (OR=2.22, p<.001, 95% CI=1.82-2.71) and Hispanic/Latino (OR=2.43, p<.001, 95% CI=1.55-3.80) males as compared to females were more likely to be diagnosed with behavioral disorders. African American (OR=2.29, p<.001, 95% CI=1.84-2.85) and Hispanic females/Latinas (OR=2.32, p<.001, 95% CI=1.45-3.70) as compared to males were more likely to be diagnosed with depressive disorders.

Patient Race and Disposition Decision-making

Binomial logistic regression models were also run to test the hypothesis regarding racial variations in patterns of disposition. Logistic regressions examining inpatient disposition as compared to all the other dispositions revealed that African American as compared to White pediatric patients were significantly more likely (OR=1.50, p <.05, 95% CI=1.05-2.14) to be hospitalized. The effect of race was independent of gender, age, and insurance status as well as clinical factors including GAF and diagnosis (Table 3). Overall, the adolescents most likely to be hospitalized were older, African American, had lower GAF scores and no insurance.

Discussion

This study presents critical information on racial differences in psychiatric diagnostic and treatment disposition decisions using one of the largest clinical samples of urban adolescents presenting at a PES. The typical child presenting to this PES is generally African American, about 14 years old, possesses public insurance, is slightly more likely to be male, and has serious symptoms and impairment (GAF=40). However, the present findings highlight a few notable differences that may reflect ethnic or cultural uniqueness in diagnostic and disposition decision-making related to urban adolescents and may have implications for their future mental health care.

Findings demonstrate some racial variation in PES diagnostic rates. African American and Hispanic/Latino youth in this sample were more likely to be diagnosed with psychotic disorders and behavioral problems, while White youth were more likely to be diagnosed with depressive disorders and bipolar disorder. Such trends have been evidenced in pediatric inpatient[28] and outpatient[27] rates. Our results for children and adolescents are also consistent with previous research that found that African American *adult* patients are diagnosed at higher rates with psychotic disorders and at lower rates of mood disorders while White *adult* patients are diagnosed with higher rates of mood disorders and lower rates of psychotic disorders across mental health settings including PES[13,29,31,36,37]. Despite the dearth of literature on diagnostic rates in pediatric PES, these findings combined with others'[27,28] suggest that such racial variations may occur across clinical settings.

This study's diagnostic rates are relatively consistent with previous research. Second to suicidal thoughts, aggressive behavior is one of the most common reasons that youth present to PES [12,32]. Similar to previous studies we found that pediatric patients in the current study were given a diagnosis of behavioral disorders (46.4%) or depression (30.7%) most often. Behavioral disorders are commonly diagnosed in urban pediatric PESs[38] and rural community samples[4,39] of children and adolescents. One study of an urban pediatric PES with a large African American population diagnosed 21% with behavioral disorders[38]. Psychotic disorders (e.g., schizophrenia) are less common among youth than adults; however, it seems to be observed with increased frequency than in the past[12](p.70). We found this pattern to hold true in the current study with only 4.1% of patients receiving a diagnosis of

psychotic disorders. Additionally, the higher rates of alcohol/substance abuse among the White sample compared to the African American and Hispanic/Latino samples are consistent with results from large-scale studies of adolescent substance use[40,41] and clinical samples of African Americans and Whites[24]. Finally, anxiety disorders are among the most common psychiatric diagnoses, however, few youth presented with anxiety as their primary problem to PES. Because many anxiety problems are chronic, they may not present "emergently", perhaps constituting psychiatric emergencies less often[42](p.872).

Despite these clinical findings, the limited epidemiological data for youth and extensive epidemiological studies of *adult* mental health do not reveal unequivocal significant racial differences in rates of psychotic disorders [nor bipolar disorder][43-45]. For example, African American and White adolescents were found to have similar rates of affective disorders, in an epidemiological sample of a single southeastern school district[46]. However, findings from an epidemiological study of a southeastern US rural community sample have found higher rates of depressive disorders and behavioral disorders among White youth[4]. Nationally representative pediatric psychiatric epidemiological data are limited and data by race are almost nonexistent[39,47,48], thus limiting efforts to discern whether the reason for racial differences in psychiatric diagnosis are due to clinician bias or true variances in the population.

Discrepancies between clinical and epidemiological rates may stem from true differences in prevalence[29] between African American, Whites, and Hispanics/Latinos who seek treatment as compared to those who are randomly included in epidemiological samples. Ethnic minorities are less inclined to seek formal mental health services[49,50], preferring non-clinical supports; thus, PES services may be sought only after the individual's mental health has deteriorated to the point that others are unable to care for him/her. This delay in seeking treatment may result in more severe diagnoses and more restrictive dispositions at the point of contact. Another possibility is that diagnostic discrepancies may be due to diagnostic errors, and misdiagnosis which may result from clinician bias, social and cultural distance between patient and clinician [29], cultural variations in the clinical presentation of psychiatric illness[24,51], different experiences with stress, stereotypes of psychopathology[29], and "cultural paranoia" and mistrust [52-54](p.453).

Inpatient Disposition

Our third hypothesis examined racial variations in PES inpatient disposition rates. The proportion of youth in this study receiving an inpatient disposition (43%) was higher as compared to some other samples (e.g., 25%)[38]. Our analyses reveal racial variation in PES inpatient disposition. African American youth in this sample were more likely to be hospitalized than Hispanic/Latino or White youth, controlling for other sociodemographic (e.g., insurance, age) and clinical (e.g., diagnosis, GAF) characteristics. It is important to note that results from previous findings are inconsistent regarding the role of patient race in inpatient dispositions. Non-PES findings suggest that compared to White youth, African American and Hispanic/Latino youth ages 10-19 are less likely to receive inpatient services for psychiatric problems[55]. However, these findings did not take diagnosis into account; African American adolescents (as compared to Whites) diagnosed with psychotic disorders were at an elevated risk of psychiatric hospitalization[56,57]. Given the inconsistent results in the child, adolescent and adult literature, the current findings of racial variations in an urban pediatric PES may offer an important initial step in developing a greater understanding of the association between race (and/or other socio-demographic variables) and diagnostic and disposition decisions. Another important implication of our findings is that they suggest that those factors influencing the variances found in diagnostic outcomes may be more persistent than initially thought given that they are found in both child and adult samples.

This study has several limitations. The data are not based on structured clinical interviews and are retrospective in nature. The information of interest, however, was routinely collected at the time of the evaluation by experienced child psychiatrists in a PES and entered into the patient's chart and a database used for billing and monitoring quality of care. Clinician information was not available, in order to control for clinician effects. Additionally, determining the accuracy and appropriateness of the diagnosis and disposition is beyond the scope of these data. This study focused on the primary (principal) diagnosis recorded at the time of the evaluation, which may not expose the full complexity of the PES presentations (including comorbid psychiatric and medical conditions)[58]. The rates of substance abuse data are likely to be higher than the findings suggest given that drug screening was not routine and the limited recording of comorbid disorders.

The results may be generalizable, however, to other first time visits at pediatric PES in urban clinics. They may be less applicable to patients evaluated in PES in private, suburban, or rural hospitals and those patients who have been seen repeatedly. The study does have a significant advantage, namely the large sample size with African Americans and Hispanics/Latinos accounting for a majority of the sample population.

Our study is in response to Halamandaris & Anderson[42] call for data on the practice patterns of pediatric PES nationwide. Findings from our analyses show that race/ethnicity is associated with specific diagnostic and disposition decisions in this PES, suggesting that race may affect diagnosis and disposition decision-making in pediatric PES. Future studies may further advance the investigation of race/ethnicity as a potential factor that may influence pediatric PES clinical decision-making and examine the mechanism(s) underlying this process. For example, prospective studies may examine underlying associations between race/ethnicity and involuntary commitment and child welfare involvement to clarify the roles of these variables in predicting hospitalization. Clarifying the influence of patient socio-demographic characteristics on such decisions is critical because of their immediate and long-term effects, and the increasing number of youth initiating contact with the mental health system through PES. Decision-making with youth is further complicated by developmental issues, stigma, and parental factors[59,60]. While the Academy of Child and Adolescent Psychiatry and others have developed guidelines to increase uniformity in clinical practice, the present study adds to evidence suggesting that non-clinical factors may influence the clinical decision-making process. The Census Bureau anticipates that by 2020 children of color will be nearly 50% of all youth; the changing US demographics serve to reinforce the need for culturally competent care. The evaluation and examination of these factors may help to guide healthcare policy aimed to protect specific subgroups of patient populations and is critical to the delivery of quality mental health care.

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Table 1

Sample Characteristics by Race/Ethnicity (N=2991)

Variable	White % (n)	Black % (n)	Hispanic/Latino % (n)	Total % (n)
Gender				
Female	45.9 (294)	43.2 (831)	43.2 (185)	43.8 (1310)
Male	54.1 (347)	56.8 (1091)	56.8 (243)	56.2 (1681)
Age (years)				
Mean (SD)	14.9 (3.29)	13.5 (3.29)	13.6 (3.20)	13.8 (3.32)
Range	4-22	4-21	5-21	4-22
Insurance				
Insured	91.7 (588)	92.3 (1774)	89.3 (382)	91.7 (2744)
Not Insured	2.2 (14)	3.0 (57)	4 (17)	2.9 (88)
Global Assessment of Functioning (GAF)				
Mean (SD)	39.7 (15.40)	40.7 (14.51)	40.0 (14.19)	40.4 (14.66)
Range	10-90	10-90	10-90	10-90
Diagnosis				
Depression	37.8 (242)	28.5 (547)	30.1 (129)	30.7 (918)
Psychotic	2.5 (16)	4.5 (86)	4.9 (21)	4.1(123)
Bipolar	4.7 (30)	1.7 (33)	2.3 (10)	2.4 (73)
Anxiety	3.7 (24)	3 (57)	4.4 (19)	3.3 (100)
Behavioral	34.9 (224)	50.3 (967)	40 (197)	46.4 (1388)
Adjustment	7.5 (145)	7.2 (31)	7.2 (46)	7.4 (222)
Developmental	0.9 (6)	0.9 (18)	0.7 (3)	0.9 (27)
Alcohol/Substance Abuse	5.9 (38)	0.8 (15)	2.3 (10)	2.1 (63)
Other Disorders/Problems	2.3 (15)	2.8 (53)	1.9 (8)	2.5 (76)
Disposition				
Inpatient	44.1 (283)	42.7 (821)	43.5 (186)	43.1 (1290)
Outpatient	42.6 (273)	44.1 (848)	45.1 (193)	43.9 (1314)
Other	13.3 (85)	13.2 (253)	11.4 (49)	12.9 (387)
Total	21.4 (641)	64.3 (1922)	14.3 (428)	100 (2991)

Table 2

Summary Table for Racial Differences in the Risk for Select Psychiatric Diagnosis

Variables	African Americans (v. Whites)			Hispanics/Latinos (v. Whites)		
	Odds Ratio	Wald χ^2	95% CI	Odds Ratio	Wald χ^2	95% CI
Psychotic Disorder	2.28**	8.29	1.3 – 4.0	2.35*	5.87	1.18 – 4.67
Bipolar Disorder	.44**	9.27	0.26 -0.75	0.65	1.31	0.31 – 1.36
Depressive Disorder	.78*	5.91	0.63 – 0.95	0.86	1.11	0.65 – 1.14
Anxiety Disorder	.76	1.09	0.46 – 1.27	1.02	.004	0.52 – 2.01
Behavioral Disorder	1.66**	23.76	1.35 – 2.03	1.36*	4.89	1.04 – 1.79
Alcohol/Substance Abuse	.18**	26.16	.09-.35	.59	1.764	.27-1.28
Adjustment Disorder	1.07	.131	.74-1.56	1.04	.020	.62-1.74

Each model controls for gender, age, insurance, GAF

** p<.001;

* p<.05

Table 3

Race/Ethnicity as a Predictor of Inpatient Disposition

Variables	Odds Ratio	95% CI	Wald χ^2
Age	1.13**	1.08 – 1.18	25.85
Gender			
Female	1.26	0.94 – 1.69	2.31
Male	1.00	—	
Race/Ethnicity			
African American	1.50*	1.05 – 2.14	5.03
Hispanic/Latino	1.34	0.85 – 2.14	1.56
White	1.00	—	
Global Assessment of Function	0.79**	0.78 – 0.80	723.49
Medical Insurance			
No Insurance	3.89**	1.56 – 9.67	8.52
Insurance	1.00	—	
DSM Disorders			
Depression	.97	0.46 – 2.07	0.01
Bipolar	1.21	0.39 – 3.81	0.11
Anxiety	0.35†	0.12 – 1.05	3.51
Behavioral	.81	0.39 – 1.68	0.32
Alcohol/Substance	.25*	.08-.81	5.40
Adjustment	.28*	.10-.77	6.04
Developmental	.07**	0.02 – 0.31	12.41
Other	.11**	0.02 – 0.53	7.54
Psychotic	1.00	—	

Each model controls for gender, age, insurance, GAF, and diagnostic category

* p<.05;

** p<.01;

† p<.1