#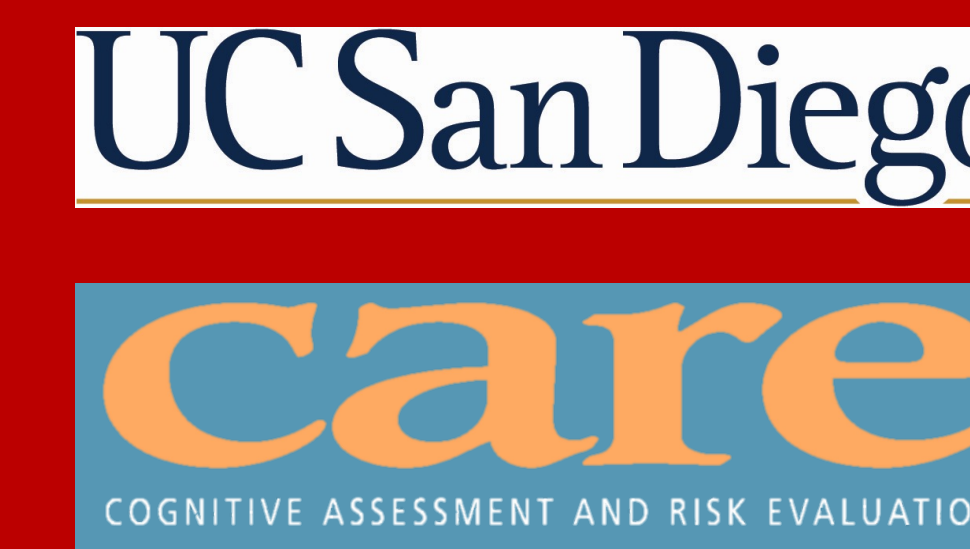 Resource Utilization and Comorbidity in Clinical High-Risk individuals in the North American Prodrome Longitudinal Studies (NAPLS) 3 Cohort

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UC San Diego care COGNITIVE ASSESSMENT AND RISK EVALUATION

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Introduction
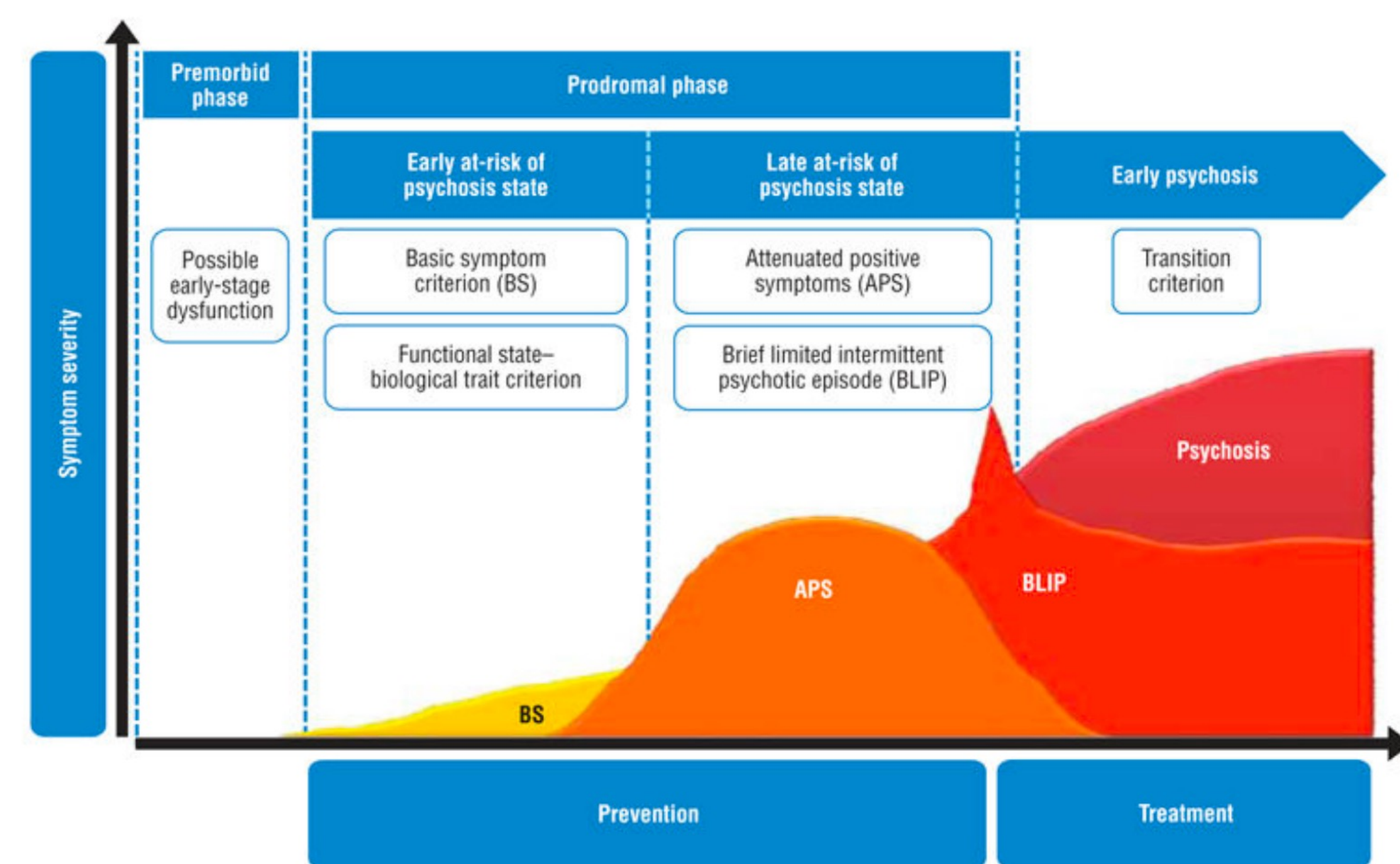
Fusar-Poli P, Borgwardt S, Bechdolf A, et al. The Psychosis High-Risk State: A Comprehensive State-of-the-Art Review. *JAMA Psychiatry*. 2013;70(1):107–120. doi:10.1001/jamapsychiatry.2013.269

- Individuals are thought to be at clinical-high risk (CHR) for psychosis when compounding environmental risk factors and subsyndromal symptoms are present that do not meet criteria for a clinically significant psychotic episode. Evidence has suggested this is a critical time window for early intervention to potentially prevent the onset of psychosis.[1,4]
- Social Determinants of Mental Health (SDOMH) are societal conditions that impact an individual's ability to achieve and maintain optimal mental health. Their impact in CHR populations is not fully understood, but access and pathways to care have been investigated[3]. Health service use may be an avenue to explore this.
- **Objective:** Characterize the health service use in a population of help-seeking individuals meeting CHR criteria in the third cohort of the North American Prodromal Longitudinal Study (NAPLS3) consortium.
- **Hypothesis:** CHR participants will have greater history of health service use. CHR participants with mental health comorbidities and higher subsyndromal psychotic symptom scale scores will utilize health services more than those with less severe symptoms.

Methods

Cohort
- CHR (N=700), Healthy Controls (HC) (N=95) from the NAPLS 3 consortium
- 5-year study: 3-year recruitment phase and 2 years of follow-up
- Age 12-30: CHR group was considered a help-seeking population[3,5] varying in pathways to care, HC were not
- CHR based on Criteria of Psychosis-Risk Syndromes (COPS) and never meeting a psychotic disorder
- HC based on no subsyndromal psychotic symptoms or DSM-5 psychotic Axis I disorders

Clinical Instruments, Scales and Baseline Measures
- Structured Clinical Interview for DSM-5 (SCID-5), the Structured Interview for Psychosis-Risk Syndromes (SIPS), the Scale of Psychosis-Risk Symptoms (SOPS)
- Participants completed a resource utilization log with a history of healthcare resource usage: none, emergency stay for physical problems (EM Non-Psych), emergency stay for psychiatric problems (EM Psych), inpatient stay for physical (IN Non-Psych) or psychiatric care (IN Psych) and day hospitalization or residential care, as a well as days spent in a healthcare facility

Analysis
- Chi-square tests were used to assess differences between CHR and HC groups on demographic variables and resource utilization in addition to within CHR-comorbid groups
- Spearman's rho was used to explore correlations between Days in a healthcare facility and cumulative psychosis risk scale scores

Results

Table 1: Baseline Demographics and Comorbidity

	CHR (n=695)	Control (n=95)	Test Statistic
Age (Years)			
Mean (Range)	18.19 (12-30)	18.60 (12-30)	F=.341, p=.559
Median	17	18	
Sex			
Female (n,%)	318 (45.5%)	48 (50%)	X^2= .690 (1), p= .406
Male (n,%)	381 (54.5%)	48 (50%)	
Comorbidity			
	CHR (n=658)	Control (n=41)	Test statistic
Anxiety	126 (18.0%)	35 (85.4%)	
Depression	104 (14.9%)	3 (7.3%)	X^2=96.201 (3), p<.001*
Both	223 (31.9%)	1 (2.4%)	
Neither	205 (29.3%)	2 (4.9%)	

* P-value significance level set to p<.01

Table 2: Results

Resource Utilization

	CHR	HC	Test Statistic		
EM Non-Psych	273 (39.0%)	39 (40.6%)	X^2=1.858 (4), p=.762		
EM Psych	143 (20.4%)	2 (2.1%)	X^2=19.019 (4), p=0.001*		
IN Non-Psych	129 (18.4%)	13 (13.5%)	X^2=55.002 (32), p=.007*		
IN Psych	118 (16.9%)	1 (1.0%)	X^2=16.646 (4), p=.002*		
Day Hospital Facility	50 (7.1%)	1 (2.0%)	X^2=5.311 (4), p=0.257		

* P-value significance level set to p<.01

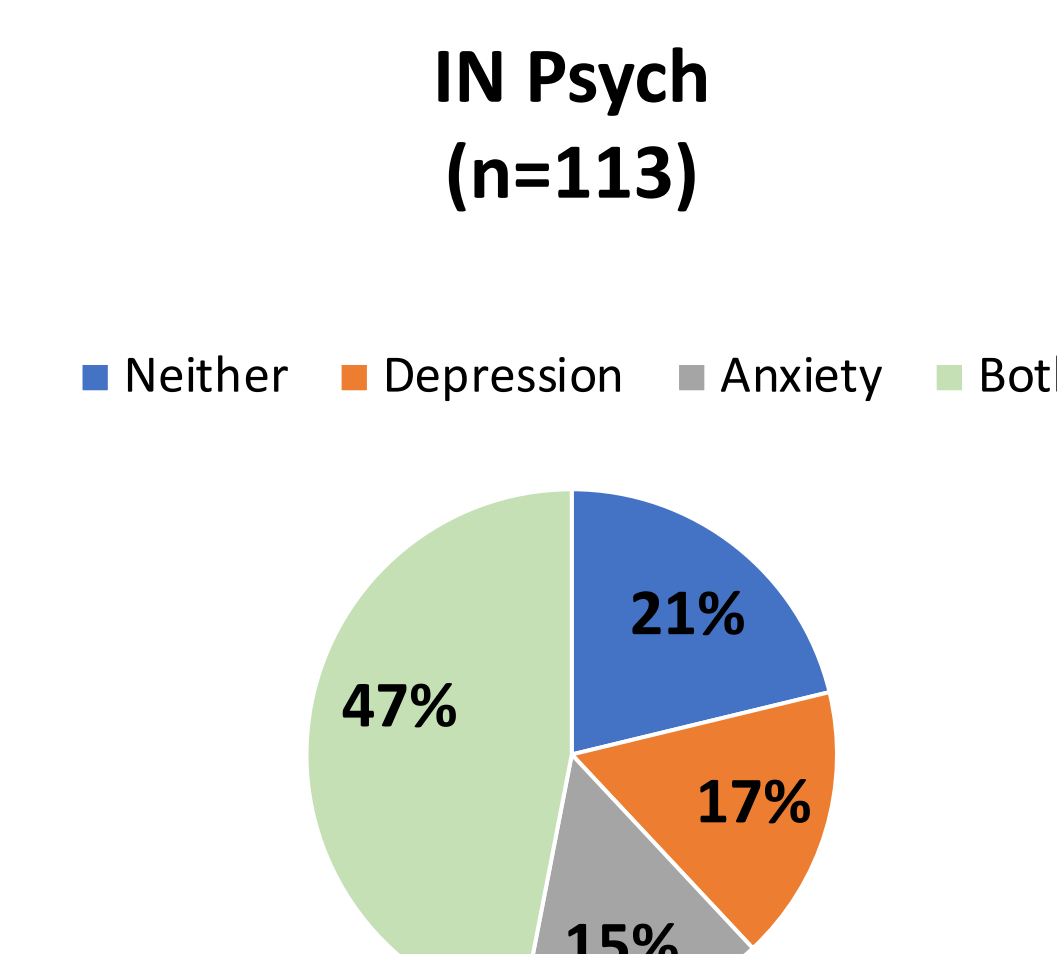**Days Spent in a Healthcare Facility by CHR Comorbidity**

	Anxiety (n=126)	Depression (n=104)	Both (n=223)	Neither (n=205)	Test Statistic
0-1 day n(%)	81 (64.3%)	67 64.4%)	102 (45.7%)	144 (70.2%)	X^2= 29.636(3), p<.001*
> 1 day n(%)	45 (35.7%)	37 (35.6%)	121 (54.3%)	61 (29.8%)	

* P-value significance level set to p<.01

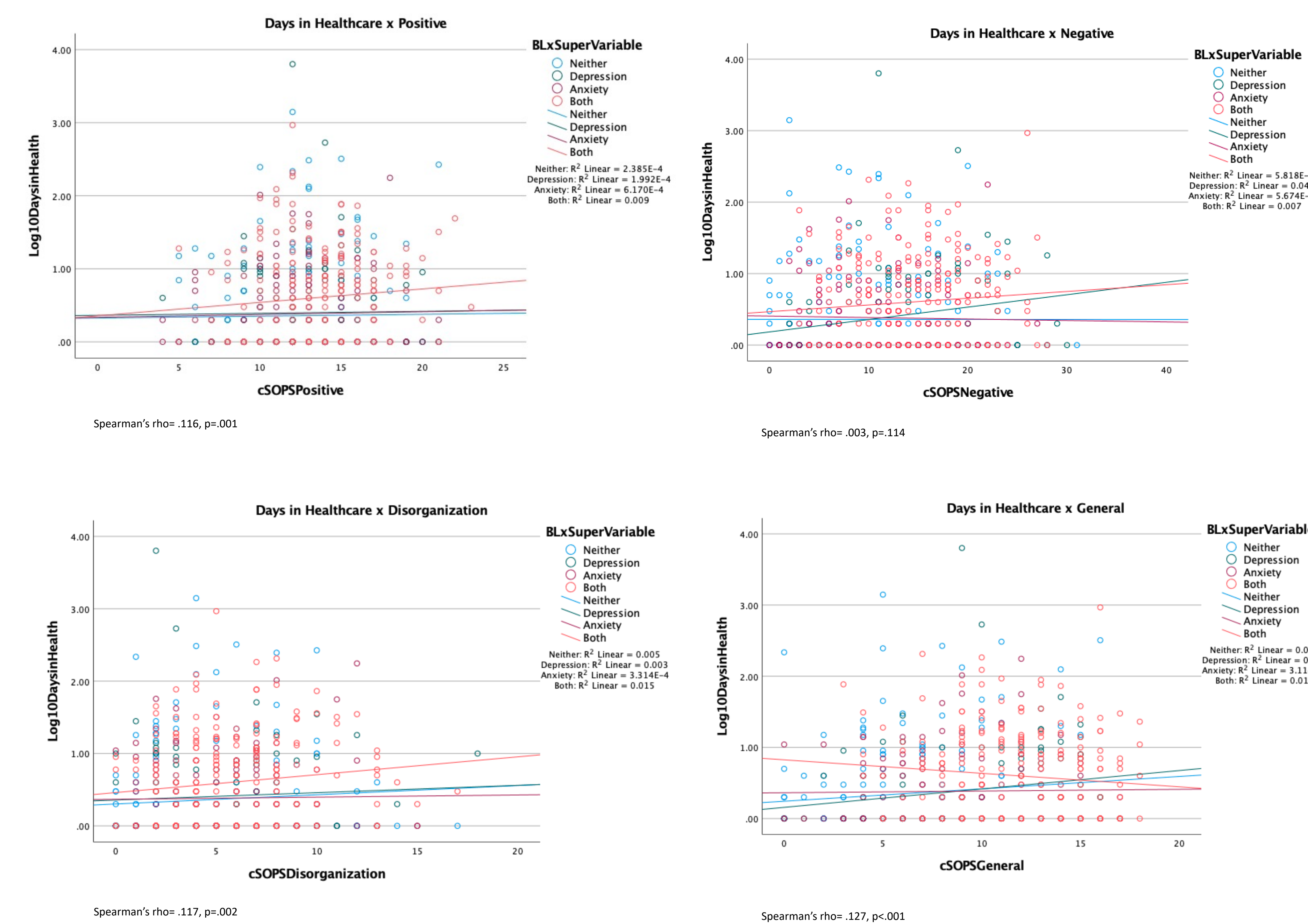**Resource Utilization in CHR by Comorbidity**

EM Psych (n=138)
- Neither 25%
- Depression 20%
- Anxiety 15%
- Both 41%
X^2=13.518 (3), p=.004*
P<.05 *
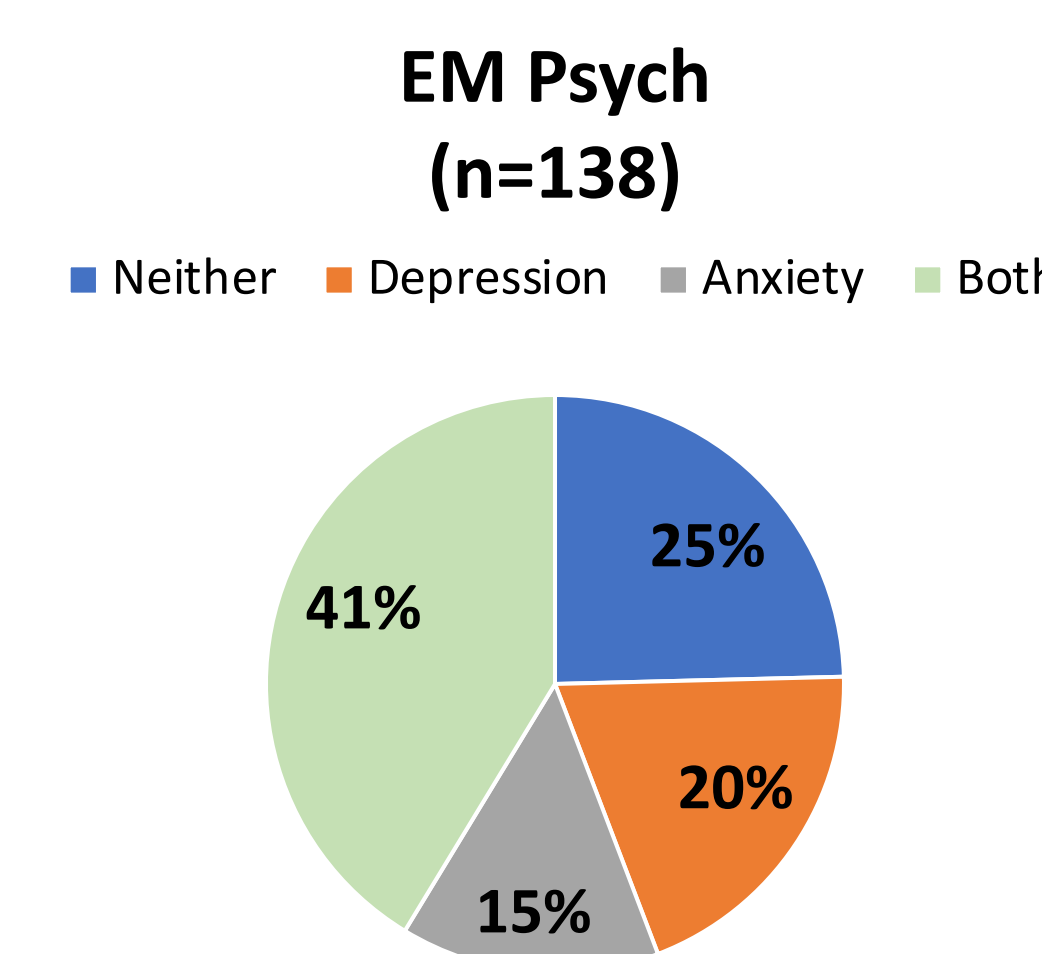
IN Psych (n=113)
- Neither 21%
- Depression 17%
- Anxiety 15%
- Both 47%
X^2=12.410 (3), p=.006*
p<.05 *

Results cont.

Days in Healthcare x Positive

BLxSuperVariable
- Neither
- Depression
- Anxiety
- Both
- Neither
- Depression
- Anxiety
- Both

Neither: R^2 Linear = 2.385E-4
Depression: R^2 Linear = 1.992E-4
Anxiety: R^2 Linear = 6.170E-4
Both: R^2 Linear = 0.009

Spearman's rho= .116, p=.001

Days in Healthcare x Negative

BLxSuperVariable
- Neither
- Depression
- Anxiety
- Both
- Neither
- Depression
- Anxiety
- Both

Neither: R^2 Linear = 5.818E-7
Depression: R^2 Linear = 0.041
Anxiety: R^2 Linear = 5.674E-4
Both: R^2 Linear = 0.007

Spearman's rho= .003, p=.114

Days in Healthcare x Disorganization

BLxSuperVariable
- Neither
- Depression
- Anxiety
- Both
- Neither
- Depression
- Anxiety
- Both

Neither: R^2 Linear = 0.005
Depression: R^2 Linear = 0.003
Anxiety: R^2 Linear = 3.114E-4
Both: R^2 Linear = 0.015

Spearman's rho= .117, p=.002

Days in Healthcare x General

BLxSuperVariable
- Neither
- Depression
- Anxiety
- Both
- Neither
- Depression
- Anxiety
- Both

Neither: R^2 Linear = 0.012
Depression: R^2 Linear = 0.003
Anxiety: R^2 Linear = 3.114E-4
Both: R^2 Linear = 0.010

Spearman's rho= .127, p<.001

Discussion

- CHR had more psychiatric service utilization than controls at baseline
- Approximately 20% of CHR individuals had accessed emergency services for psychiatric reasons and 16.9% for an inpatient psychiatric stay
- Depression and anxiety were the leading comorbidities in the CHR group and those with both had greater use of psychiatric services
- Mean cumulative scores on the positive, disorganized, general and total domains of the SOPs highlight that CHR individuals with baseline comorbid anxiety, and/or depression may experience longer stays in a healthcare facility than non-comorbid CHR counterparts
- More CHR individuals had a diagnosis of both anxiety and depression whereas the leading comorbid diagnosis in healthy controls was anxiety

Conclusions

- Differences in baseline history of resource utilization may indicate an unmet healthcare need among CHR individuals
- Treatment of CHR individuals with a comorbid diagnosis of anxiety, depression or both is important and may reduce length of stay
- Early interventions like CBT may help reduce length of stay in a healthcare facility
- A better understanding of how social determinants of health may impact use of emergency and inpatient service use among CHR individuals may be beneficial

Citations

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2.) Addington, J., Liu, L., Brummitt, K., Bearden, C., Cadenhead, K., Cornblatt, B., Keshavan, M., Mathalon, D., Mc Glashan, T., Perkins, D., Seidman, L., Stone, W., Tsuang, M., Walker, E., Woods, S., & Cannon, T. (2020). North American Prodrome Longitudinal Study (NAPLS 3): Methods and baseline description. Elsevier B.V. https://doi.org/10.17615/wbcf-8w42

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