Depressive Symptoms Related to Biological Markers of Immune Functioning among Young People with HIV

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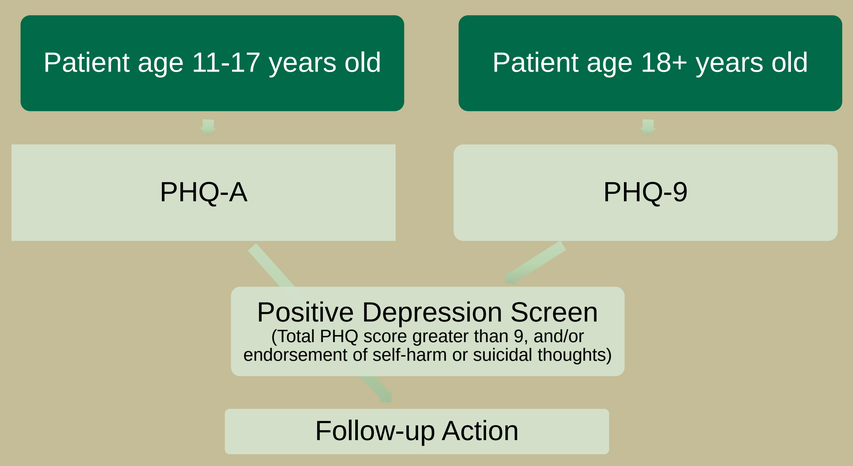
Abstract

Youth living with HIV (YLWH) are at risk for depression. The American Academy of Pediatrics and Health Resources and Services Administration recently released guidelines for Primary Care Providers and Infectious Disease Specialists to screen for depression as part of pediatric preventative healthcare. This study aimed to identify trends in depressive symptoms for YLWH in a specialty-care clinic and follow up clinical treatment procedures. Additionally, this study assessed the relationship between indicators of disease (e.g., viral load, CD4 count) and depressive symptoms. An archival review of a clinical database provided depression screening information for a sample of 115 YLWH between 11-25 years old.

Introduction

- One in four new diagnoses of HIV occurs in youth aged 13-24 (Centers for Disease Control [CDC], 2015)
- Depression is the most common psychological condition seen in individuals with HIV (Dube, Benton, Cruess, & Evans, 2005)
- YLWH are at an increased risk for developing depression compared to other individuals with chronic illnesses and up to four times more likely than their typical peers (Arseniou, Arvaniti, & Samakouri, 2014; Pao et al., 2000)
- Early identification and treatment of psychological symptoms, such as depression, improves quality of life, psychosocial functioning, and treatment engagement, which in turn contribute to positive impacts on disease progression (Arseniou, Arvaniti, & Samakouri, 2014)
- Given the relationship between depression and medication adherence (Murphy et al., 2001) and the strong association between medication adherence and immune functioning (Paterson et al., 2000), we hypothesized a negative association between depression risk and viral suppression

Screening Procedures



Depression Indicators

Demographics	Depression-risk category			Endorsement of critical question			PHQ total score		
	χ^2	*df*	*p*	χ^2	*df*	*p*	*t*	*df*	*p*
Gender	.12	1	.73	N/A		.54[a]	.28	113	.78
Race	3.02	1	.08*	N/A		.75[a]	.69	113	.49
Ethnicity	N/A		1.00[a]	N/A		.19[a]	1.43	113	.16
Mode of transmission	3.63	1	.06*	4.23	1	.04**	-1.58[b]	98	.12
Sexual orientation	.55	1	.46	3.28	1	.07*	-1.06	113	.29
	χ^2	*df*	*p*	χ^2	*df*	*p*	*F*	*df*	*p*
Age	2.64	1	.10*	3.10	1	.08*	1.32	1, 96	.25

Note. *$p \leq .10$, **$p < .05$. [a]The Fisher's exact test was applied, because at least one cell size was less than 5. N/A indicates that the Fisher's exact test did not have a test statistic or degrees of freedom. [b]The Satterthwaite approximate *t*-test was used due to the violation of equal variances assumption.

Participants

Variable	**Overall (*N*=115)**	**Male (*n*=63)**	**Female (*n*=52)**
Age in Years *M (SD)*	19.65 (3.03)	19.70 (2.86)	19.59 (3.25)
Sexual Orientation			
Heterosexual	65.22%	44.44%	90.38%
LGBTQ	34.78%	55.56%	9.62%
Race/Ethnicity			
African American	67.83%	69.84%	65.38%
White	32.17%	30.16%	34.62%
Non-Hispanic	86.96%	82.54%	92.31%
Hispanic	13.04%	17.46%	7.69%
Mode of Transmission			
Behavioral	46.96%	57.14%	34.62%
Perinatal	53.04%	42.86%	65.38%
Viral Load Outcomes	**(N=99)**		
Viral Suppression	54.55%		
Virologic failure	45.55%		
CD4 Count			
Asymptomatic (>500)	66.67%		
Symptomatic (<500)	33.33%		

Follow-up Care

Follow-up Care	***n***	**%**
None	69	60.00
Watchful waiting; repeat PHQ-9 at follow up appointment	22	19.13
Treatment plan, consider counseling, follow-up and/or pharmacotherapy	16	13.91
Active treatment with pharmacotherapy and psychotherapy	4	3.48
Immediate initiation of pharmacotherapy and/or expedited referral to specialists	4	3.48
Total	115	100

Results

- 24% screened positive for depression risk; 40% had a follow-up action plan; Most commonly endorsed symptoms: fatigue (55%) & sleep problems (51%)
- Depression indicators did not differ significantly by gender or ethnicity; differences were notable by race, sexual orientation, and age but did not reach significance
- Youth who acquired HIV behaviorally were significantly more likely to endorse self-harm/suicidal ideation than those with perinatal acquisition
- The most common follow-up action was watchful waiting. Follow-up treatment differed significantly by depression risk category (i.e., positive or negative screener) but not by the total depression score
- Youth who endorsed self-harm/suicidal ideation were significantly more likely to receive follow-up care (100%) compared to those who did not (33%)
- No significant association between viral load and depression scores; No significant association between CD4 count and total depression score
- There was a significant relationship between CD4 count and denying symptoms of anhedonia ($t(1, N=99)=2.16$, $p=.033$); patients who denied anhedonia had higher CD4 count than patients who endorsed depressive symptoms
- There was a trending relationship between CD4 count and sleep problems, ($t(1, N=99)=2.00$, $p=.049$); patients who denied sleep difficulties had significantly higher CD4 count than patients who reported sleep problems

Implications

- Early identification of symptoms can benefit treatment planning
  - Universal screening measures are useful tools in early identification and monitoring
  - Additional research into the psychometric properties of screening measures for use with this population may be warranted
- Interdisciplinary care for YLWH should integrate behavioral healthcare
  - Multidisciplinary teams of healthcare providers integrating care provides promise for improving physical and behavioral health outcomes for YLWH
- Targeted interventions addressing psychoeducation and prevention of mental health problems and risk behavior should be considered for all youth with HIV
- Youth engaging in risk factors associated with the behavioral acquisition of HIV should be linked to interventions targeted at reducing the risk of HIV transmission and increasing mental/behavioral well being
- There may be a relationship between indicators of disease and certain depressive symptoms (e.g., anhedonia and sleep problems); more research in this area is needed

References will be made available upon request