Mental Health and Retention in HIV Care: a Systematic Review and Meta-Analysis

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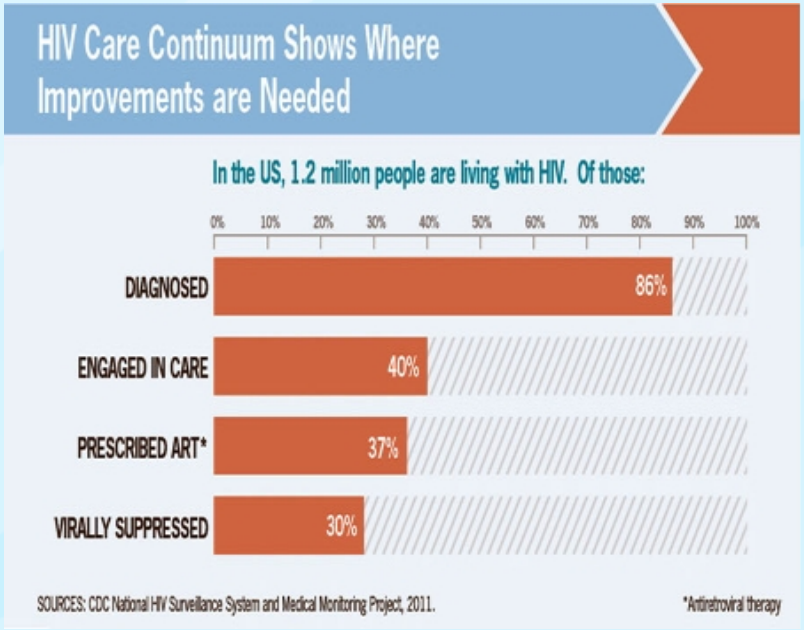
Agenda

- Background/Introduction
- Methods
- Results
  - Mental Health Diagnoses/Symptoms
  - Mental Health Service Utilization
- Discussion
- Research Gaps
- Limitations
- Conclusions/Future Implications

Retention in HIV Care

- **Among the 1.2 million Americans living with HIV, fewer than half are linked to and retained in HIV care** (CDC, 2015)
- **Retention in HIV Care: "*consistency in HIV appointment attendance over time*"**
  - **Increases the likelihood a person living with HIV receives and adheres to their antiretroviral medication regimen** (Thompson et al., 2012)
- **A primary goal of U.S. HIV care guidelines is to increase retention in HIV care in order to achieve viral suppression** (White House Office of National AIDS Policy, 2015)



CDC. (2015). Retrieved from https://www.cdc.gov/hiv/statistics/overview/ataglance.html.

Thompson, M. et al. (2012). *Annals of Internal Medicine, 156*, 817-833.

White House Office of National AIDS Policy. (2015). Retrieved from https://www.aids.gov/federal-resources/national-hiv-aids-strategy/nhas-update.pdf

Mental Health and Retention in HIV Care

- **Mental health is one factor that may affect the likelihood that PLWH can achieve optimal retention in HIV care** (Holtzman, Brady, et al., 2015)

- **Roughly half of all people living with HIV screen positive for one or more psychiatric disorders** (HRSA, 2015)

- **HIV-infected adults with mental illness less likely to achieve viral suppression than those without** (Yehia et al., 2015)

Holtzman, C. et al. (2015). *Drugs*, 75, 445-454.
HRSA. (2015). Retrieved from http://hab.hrsa.gov/deliverhivaidscare/mentalhealth.pdf.
Yehia, B et al. (2015). *AIDS and Behavior*, 19, 1491-1500.

Mental Health and Retention in HIV Care

- **Inconsistencies amongst studies examining mental health and retention in care exist**
  - Unclear whether all mental health diagnoses affect a patient's retention in care equally
  - Unclear whether certain factors moderate the relationship between mental health and retention in care

- **Potential Benefits of Mental Health Service Utilization**
  - Positive association observed between receipt of ancillary services (i.e., mental health treatment) and retention in HIV care (Ashman, Conviser, & Pounds, 2002; Soto, Bell, & Pillen, 2004)
  - Mental health services commonly assessed in combination with other services (e.g., substance abuse treatment)

Ashman, J. J., Conviser, R., & Pounds, M. B. (2002). *AIDS Care*, 14, S109-S118.
Soto, T. A., Bell, J., & Pillen, M. B. (2004). *AIDS Care*, 16, S43-S55.

Objective: This systematic review examined the association between various mental health disorders and retention in HIV care; In addition, we will examine whether utilization of mental health services plays a role in improving retention in HIV care

Research Questions:

1. *What is the association between mental health diagnoses/symptoms and retention in HIV care?*

2. *What is the association between mental health service utilization and retention in care?*

3. *What factors moderate the association between mental health diagnoses/symptoms or mental health service utilization and retention in HIV care?*

METHODS

Systematic Search Criteria

- **CDC HIV/AIDS Prevention Research Synthesis Project database**
  - Comprehensive literature search conducted annually for 4 ongoing reviews
    - Automated search of 6 databases: CINAHL, EMBASE, MEDLINE, PsycINFO, Sociological Abstracts, CAB global Health
    - Hand search of the HIV literature to identify most recent literature
- **PRS Database Query (2002-early 2016)**
  - Two PRS database searches
    - Keyword search of PRS database = Mental health terms in title and abstract
    - Search for previously coded terms in PRS database = HIV-Linkage or Retention in care
- **Hand-Searched Non-HIV Literature**
  - 5 journals searched (e.g., Archives of General Psychiatry)

Inclusion/Exclusion Criteria

- **Inclusion Criteria**
  - Contains a measure of mental health status (predictor) and a measure of retention in HIV care (outcome)
  - Measured any of the following MH variables:
    - Mental health psychiatric diagnoses
    - Mental health related symptoms
    - Utilization of mental health services
  - Included children, adolescents, or adults with HIV/AIDS
  - Assessed mental health symptoms or diagnoses by self-report measures, interviews, or medical record abstraction
  - Conducted in the US

- **Exclusion Criteria**
  - Only measured substance abuse (mental health not assessed)
  - Target population was an HIV care provider or caregiver

Screening and Abstraction

- **Independent screening of citations by two researchers**
  - Level 1: Title/Abstract
  - Level 2: Full Report
- **Data Abstraction**
  - Independent coding of citations by two researchers with process for reconciliation
  - Quality assessment conducted
    - NHLBI quality assessment tool for observational and cross-sectional studies (National Heart Lung Blood Institute, 2014)
    - “Good”, “Fair”, “Poor”

NHLBI. (2014). Retrieved from https://www.nhlbi.nih.gov/health-pro/guidelines/in-develop/cardiovascular-risk-reduction/tools/cohort

Variables & Outcomes Abstracted

- **Mental Health**
  - Diagnoses/Symptoms
  - Mental health service utilization
  - Assessment tool
- **Retention in HIV Care**
  - Made/Kept visits, visit constancy, gaps in care, missed visits
- **Study Characteristics**
  - Study location, study design, retention assessment period, study quality
- **Sample Characteristics**
  - Sample size, age, percent male, percent black, percent men who have sex with men (MSM), percent substance abusers, percent on public health insurance

Statistical Analysis

- **Effect sizes calculated and appropriate transformations were conducted**
  - Weighted by the inverse variance
  - Pooled estimate using a random effects model
  - OR >1 indicates an improvement in retention in HIV care

- **Heterogeneity**
  - Q-statistic – likelihood of heterogeneity across studies
  - I^2 – percentage of variability due to heterogeneity
    - 25% - low, 50% - medium, 75% - high

Moderator Analysis

- Meta-regression – continuous population level variables

Variables	
• Age • % Male • % Black • % MSM	• % Substance abusers • % With public health insurance • % With private health insurance

Moderator Analysis cont.

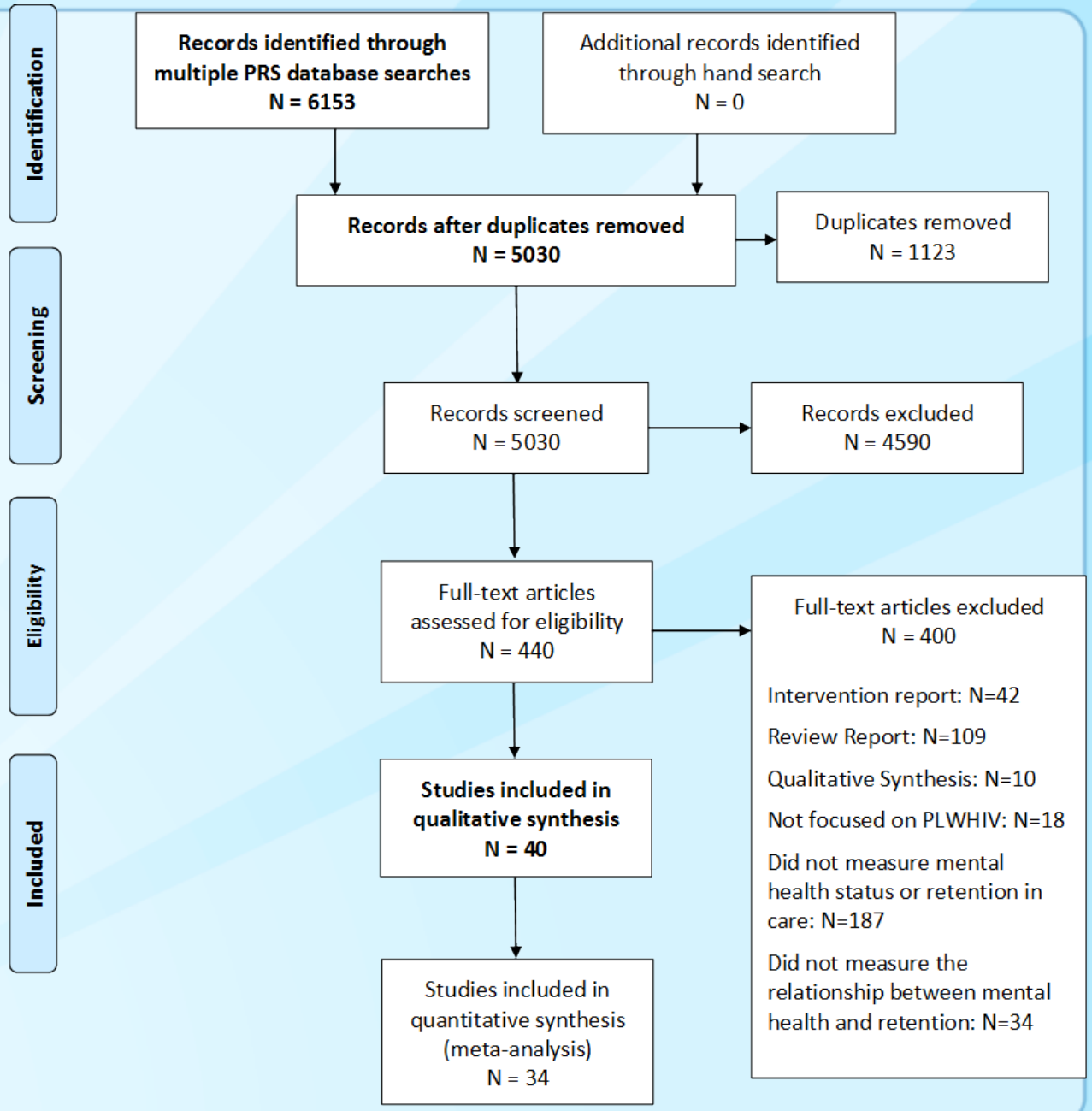
- Mixed model – between group differences (Q_B) in dichotomous or categorical study level variables

Variables	
• Mental health status (depression vs. other mental health variables) • Mental health measurement (survey vs. diagnostic interview)	• Study quality • Retention assessment period • Study design

RESULTS

Flow Diagram

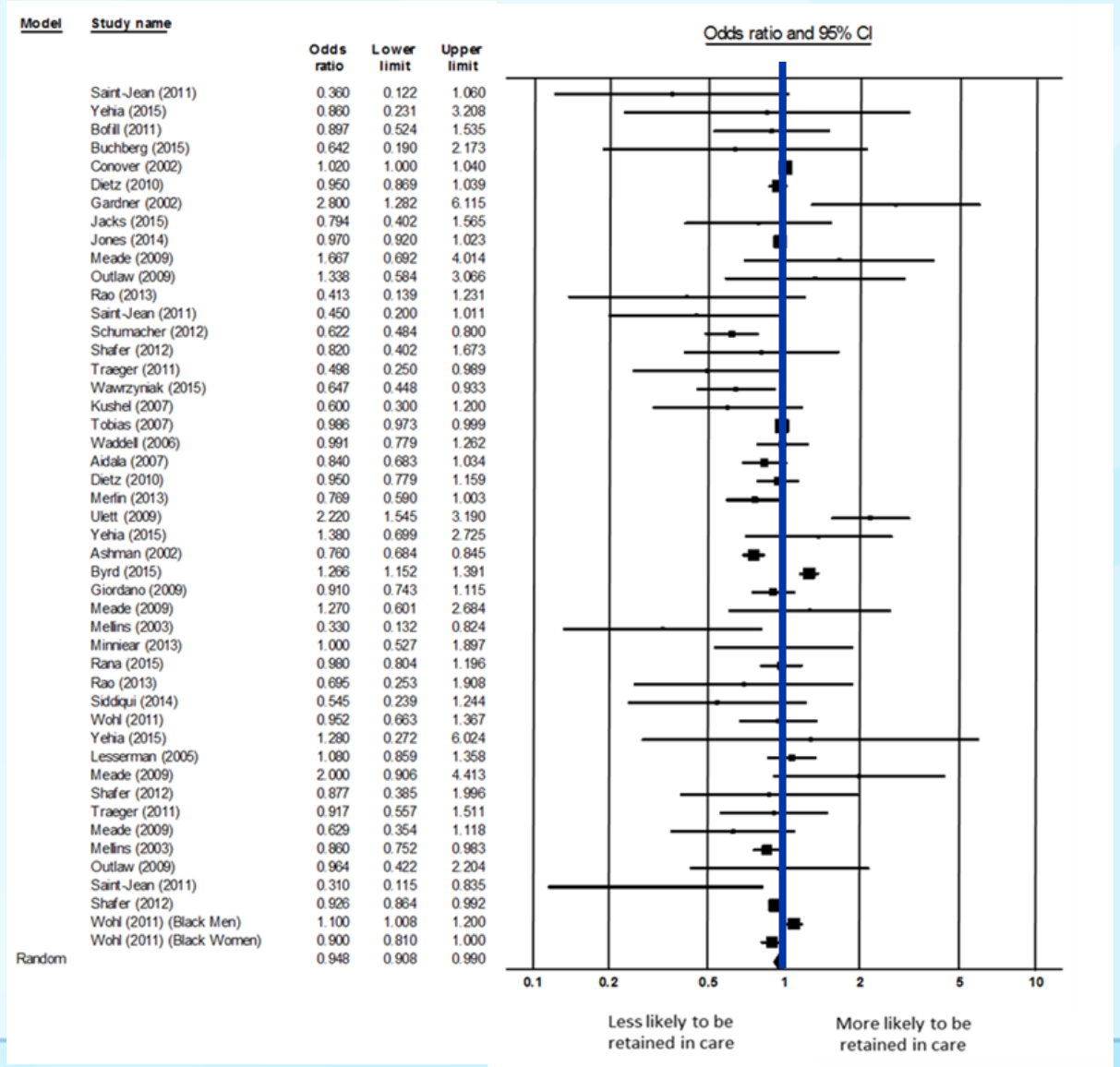
- MH Diagnoses/Symptoms
  - 35 studies (47 effects)
- MH Service Utilization
  - 12 studies (10 effects)



Mental Health Diagnoses/Symptoms and Retention in HIV Care

RESULTS

Relationship between Mental Health Diagnoses/Symptoms and Retention in HIV Care



N=31 studies
k=47 effects

OR = 0.95
95% CI = 0.91, 0.99
p=0.02

$Q_{46} = 167.6$, $p<0.001$
$I^2 = 72.5\%$

Does the Relationship between Mental Health and Retention in HIV Care Differ by Mental Health Type?

Variable	Effects (k)	Odds Ratio	95% CI	p-value	I^2 (%)
Mental Health Variable					
Anxiety	1	0.36	0.12 to 1.10	0.07	0
Bipolar	1	0.86	0.22 to 3.30	0.83	0
Depression	15	0.88	0.78 to 0.99	0.04	69
Mood Disorder	5	1.03	0.86 to 1.23	0.79	85
Mental Health Composite Score	3	0.95	0.77 to 1.17	0.63	0
Psychiatric Disorder	11	0.92	0.80 to 1.06	0.26	83
PTSD	4	1.09	0.83 to 1.43	0.54	0
Stress	7	0.91	0.79 to 1.04	0.18	67
Overall	47	0.95	0.91 to 0.99	0.02	72

What Factors Moderate the Relationship between Mental Health and Retention in HIV Care?

Meta-regression Analysis					
Variable	**Effects (k)**	**β-Coefficient**	**Standard Error**	**Z-value**	**P-value**
Mean Age (yrs)	30	-0.01	0.004	-1.29	0.20
Male **(%)**	47	0.0002	0.001	0.25	0.80
Black **(%)**	44	0.002	0.001	1.58	0.11
MSM **(%)**	21	0.001	0.001	0.76	0.45
Substance Abusers **(%**	40	0.00005	0.001	0.04	0.97
With high school education or less **(%)**	28	-0.001	0.002	-1.43	0.15
On Public Health Insurance (%)	25	0.004	0.001	3.25	0.001
On Private Health Insurance **(%)**	22	-0.003	0.05	-1.32	0.19

What Factors Moderate the Relationship between Mental Health and Retention in HIV Care?

Random Effects Stratified Analysis						
Variable	**Effects (k)**	**OR**	**95% CI**	**I^2**	**Q_B**	**P-values**
Mental Health Variable					1.01	0.31
Depression	15	0.90	0.81 to 0.99	73.7		
Other MH diagnoses/ symptoms	32	0.96	0.90 to 1.02	69.0		
Mental Health Measurement					0.004	0.95
Diagnostic Interview	18	0.95	0.87 to 1.03	82.7		
Self-Report	29	0.95	0.90 to 1.00	59.2		
Study Quality					26.07	<0.001
Good	17	0.85	0.79 to 0.91	44.6		
Fair	27	1.02	0.97 to 1.07	70.8		
Poor	**3**	**0.62**	**0.44 to 0.88**	**0**		

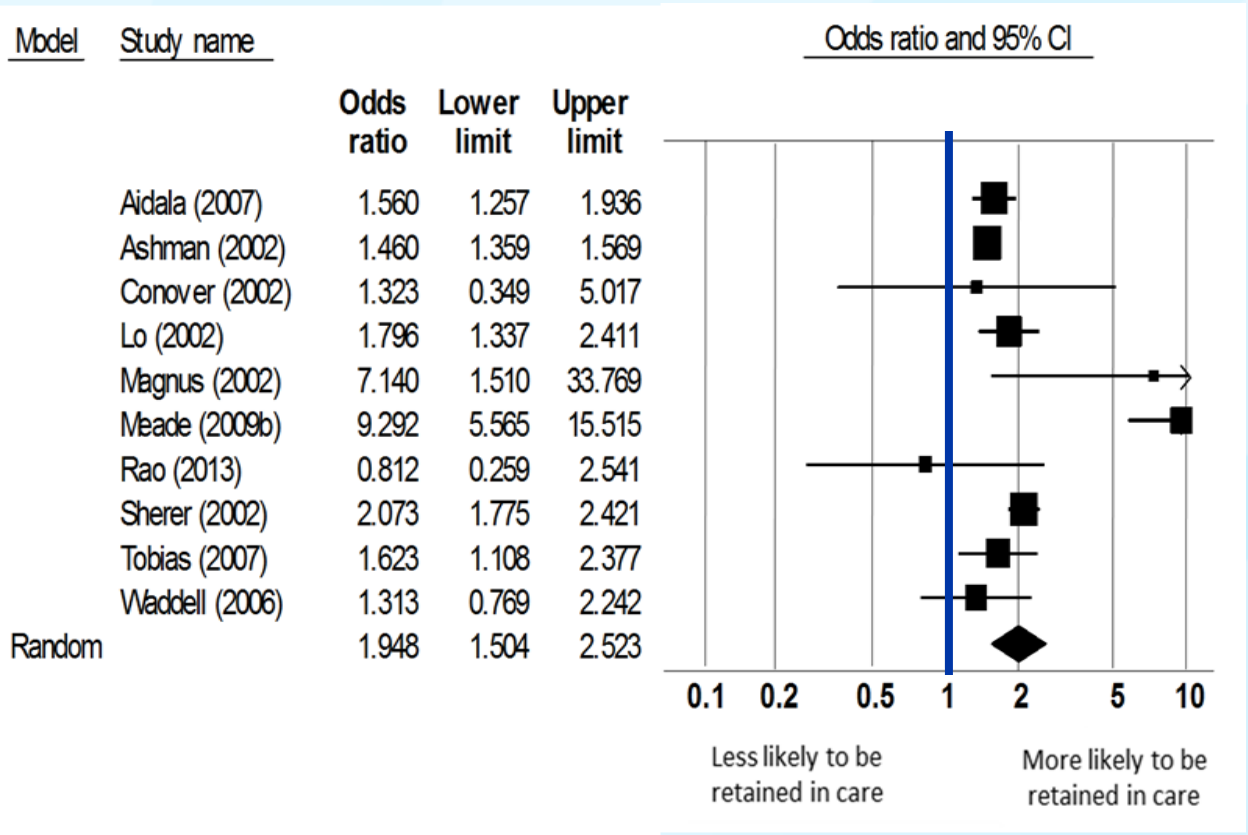
What Factors Moderate the Relationship between Mental Health and Retention in HIV Care?

Random Effects Stratified Analysis cont.						
Variable	**Effects (k)**	**OR**	**95% CI**	**I^2**	**Q_B**	**P-values**
Retention Assessment Period					9.92	0.08
1+ visits/ 6 mth	7	1.11	0.88 to 1.39	58.8		
2+ visits/ 6 mth	9	0.90	0.79 to 1.02	75.7		
2+ visits/ 12 mth	13	0.92	0.81 to 1.06	20.0		
3+ visits/ 12 mth	7	0.81	0.65 to 1.01	0		
4+ visits/ 12 mth	8	0.78	0.62 to 0.99	40.0		
4+ visits/ 24 mth	3	1.15	0.93 to 1.42	97.0		
Study Design					16.38	<0.001
Prospective	**17**	**0.84**	**0.78 to 0.90**	**44.4**		
Cross-sectional	19	1.01	0.96 to 1.08	75.8		
Retrospective	11	0.98	0.89 to 1.09	65.7		

Mental Health Service Utilization and Retention in HIV Care

RESULTS

Relationship between Mental Health Service Utilization and Retention in HIV Care



N=10 studies
k=10

OR = 1.95
95% CI = 1.50, 2.52
P<0.001

$Q_{10} = 68.5$, $p < 0.001$
$I^2 = 86.3\%$

**No factors significantly moderated the overall effect estimate

Discussion

- MH diagnoses/symptoms are significantly associated with lower rates of retention in HIV care
- Depression was the most commonly reported diagnosis and was found to be significantly related to lower rates of retention in HIV care.
- Studies with higher proportion of participants with public health insurance showed higher rates of retention in HIV care compared to studies with lower proportion of public health insured individuals
- Prospective cohort studies observed the largest effect estimate for mental health diagnoses/symptoms and retention in HIV care compared to cross-sectional and retrospective designs

Discussion

- Mental health service utilization was associated with higher rates of retention in HIV care.

- No factors were identified that significantly moderated the relationship between mental health service utilization and retention in HIV care.

Research Gaps

- More research needed that examine other types of mental health diagnoses/symptoms (e.g., generalized anxiety and bipolar disorder)
- Few studies examined populations such as Latinos or Hispanics
- Although youth living with HIV suffer from high rates of mental illness, few studies reported on this population
- Studies did not provide stratified analyses among certain subgroups

Limitations

- **Few studies accounted for whether individuals were concurrently receiving mental health services**
- **Serious mental illness was not well represented, so results are not generalizable to all mental health conditions**
- **Moderator analysis did not identify any factors that substantially reduced heterogeneity**
  - Other unidentified factors may account for the variation across studies
- **Few studies reported subgroup data, thus unable to compare across different populations and settings**

Conclusion

- Although MH diagnoses/symptoms were found to be a barrier to retention in HIV care, increased utilization of MH services were associated with higher rates of retention in HIV care

- These results suggests that individuals with HIV who are treated for their mental illness may have better HIV outcomes than those whose mental illness goes untreated

Future Implications

- **Future studies will aid in identifying the importance of mental health on retention in care by investigating populations whose need for mental health services go unmet**

- **Important to address barriers to mental health treatment in HIV primary care since it is a strong facilitator of retention in HIV care**
  - Address factors such as mental health when implementing the "test and treat" model

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Thank You!

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