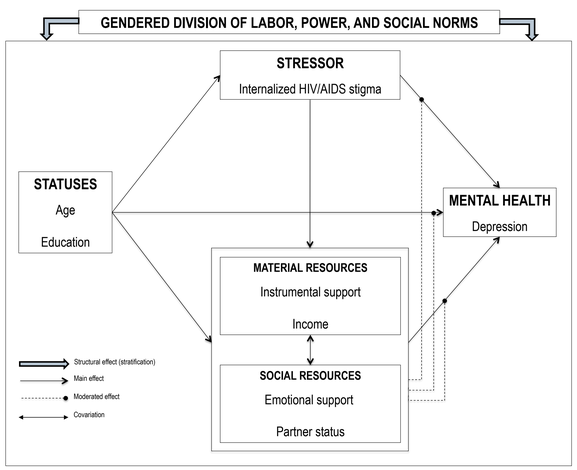
Gender Differences in Depression Among People Living with HIV/AIDS in India

Anne E. Fehrenbacher[1], Rishi Das[2], Protim Ray[3], Stephanie Sumstine[1], Soma Ray[3], Smarajit Jana[3], Dallas Swendeman[1]
1. University of California, Los Angeles, 2. University of Michigan, 3. Durbar Mahila Samanwaya Committee

INTRODUCTION

- India has the third largest population of people living with HIV (PLH) in the world, estimated at 2.3 million
- Depression is one of the most common co-morbidities of HIV
- High prevalence of depression consistently documented among PLH in India, with higher severity among women than men
- We use a sample of PLH (N=362) in a randomized controlled trial of mobile phone support for antiretroviral (ART) medication adherence and self-management to:
  - Examine rates of mild, moderate, and severe depression
  - Test gender differences in associations between depression severity and status characteristics, stressors, and coping resources
  - Propose a novel gendered stress process model integrating the theory of gender and power with the stress process model

FIGURE 1: GENDERED STRESS PROCESS MODEL



THEORETICAL FRAMEWORK

- **The theory of gender and power** explains how social and institutional structures contribute to gender imbalances in:
  - Labor
  - Power
  - Social norms
- **The stress process model** explains how mental health disparities are created and maintained by social stratification through the unequal distribution of:
  - Social statuses
  - Exposure to stressors
  - Access to resources

METHODS

- **Research question:** Do gender disparities in statuses, exposure to stressors, and access to resources lead to more severe depression among HIV+ women than men in India?
- **Data & sample:** N=362 PLH recruited from the Calcutta School of Tropical Medicine ART Clinic and the Mamata Care and Treatment Center in Kolkata, India
- **Measures:** Depressive level (HADS-D), social support (mMOS-SS), coping strategies (BRIEF-COPE), stressor (internalized HIV/AIDS stigma), alcohol use (AUDIT-C), and demographic characteristics
- **Statistical analysis:** Multivariate linear regression of depression level (HADS-D) stratified by gender with interactions to test conditional effects:
  - Social statuses (Age by partner status)
  - Stressors (internalized HIV/AIDS stigma X partner status)
  - Resources (instrumental support X household income)

TABLE 1: SAMPLE CHARACTERISTICS BY GENDER

Variable	Total (n=362) Freq\ Mean	Total (n=362) %\ SD	Women (n=122)† Freq\ Mean	Women (n=122)† %\ SD	Men (n=238) Freq\ Mean	Men (n=238) %\ SD	p-value
Demographic characteristics							
Age in years *(mean, SD)*	39.2	8.6	36.7	8.0	40.6	8.7	0.000
Household income in Rs *(mean, SD)*	5184.0	6575.0	2540.9	3054.0	6458.8	7395.0	0.000
Educational attainment *(highest grade)*	2.1	1.4	1.5	1.3	2.4	1.4	0.000
No formal education, illiterate (0)	62.0	17.1	36.0	29.5	26.0	10.9	
No formal education, literate (1)	49.0	13.5	29.0	23.8	20.0	8.4	
Class 5 (2)	119.0	32.9	28.0	23.0	91.0	38.2	
Class 10 (3)	86.0	23.8	22.0	18.0	64.0	26.9	
Class 12 (4)	25.0	6.9	6.0	4.9	18.0	7.6	
Graduate (5)	16.0	4.4	1.0	0.8	14.0	5.9	
Post Graduate (6)	5.0	1.4	0.0	0.0	5.0	2.1	
Married or living with partner *(yes/no)*	234.0	64.8	64.0	52.5	171.0	71.5	0.000
Has an HIV+ partner *(yes/no)*	129.0	55.1	50.0	78.1	79.0	46.2	0.000
Number of dependents *(mean, SD)*	2.2	1.9	1.4	1.6	2.7	1.8	0.000
Psychosocial characteristics							
Depression level [0-24] *(mean, SD)*	12.5	3.5	13.0	2.9	12.3	3.7	0.076
None (< 8)	33.0	9.1	5.0	4.1	28.0	11.8	
Mild (8-10)	46.0	12.7	15.0	12.3	30.0	12.6	
Moderate (11-14)	204.0	56.4	73.0	59.8	130.0	54.6	
Severe (≥ 15)	79.0	21.8	29.0	23.8	50.0	21.0	
AUDIT-C* Score [0-12] *(mean, SD)*	0.4	1.2	0.3	1.0	0.5	1.3	0.072
Internalized HIV/AIDS Stigma [0-6] *(mean, SD)*	2.6	1.7	2.6	1.5	2.6	1.8	0.975
mMOS-Social Support [0-100]** *(mean, SD)*							
Instrumental support subscale	51.6	37.0	38.4	34.2	58.5	36.1	0.000
Emotional support subscale	38.3	27.0	30.3	26.0	42.5	26.7	0.000
BRIEF-COPE* [0-6]** *(mean, SD)*							
Behavioral disengagement	1.5	1.5	1.0	1.3	1.8	1.5	0.000
Active coping	2.9	1.2	2.6	1.1	3.1	1.3	0.000
Self-blame	1.1	1.2	0.8	1.0	1.2	1.3	0.003
Planning	2.4	1.1	2.1	1.1	2.5	1.1	0.004
Venting	1.6	1.5	1.3	1.3	1.8	1.5	0.006
Acceptance	3.7	1.7	3.3	1.7	3.8	1.7	0.006
Humor	0.4	0.8	0.6	0.9	0.4	0.8	0.010
Substance abuse	0.2	0.7	0.1	0.3	0.3	0.8	0.002
Denial	1.0	1.2	0.8	0.9	1.1	1.3	0.021
Positive reframing	2.7	1.3	2.5	1.2	2.7	1.3	0.051
Self-distraction	2.7	1.4	2.5	1.3	2.8	1.5	0.061
Instrumental (tangible) support	2.4	1.3	2.2	1.3	2.4	1.3	0.145
Religion	1.5	1.5	1.6	1.5	1.4	1.6	0.309
Emotional support	2.4	1.3	2.3	1.3	2.4	1.4	0.537

† Includes two transgender women
*AUDIT C is an alcohol screening scale to identify hazardous drinkers or active alcoholism disorders.
**mMOS-SS operationalizes measures of perceived availability of emotional support and instrumental support.
***BRIEF-COPE is used to assess frequency of behaviors for coping with HIV and taking ART.

TABLE 2: PREDICTORS OF DEPRESSION LEVEL

Table 2. Depression level (n=337)	Coef.	95%	CI
Internalized HIV/AIDS stigma	0.441***	0.282	0.600
Gender	-0.782	-4.922	3.358
Married or living with partner	-4.418	-8.972	0.135
Age	-0.023	-0.096	0.050
Household income	0.000	0.000	0.000
Availability of emotional support	-0.062***	-0.085	-0.040
Availability of instrumental support	0.028***	0.012	0.044
Frequency of instrumental support	0.763**	0.246	1.281
Frequency of disengagement	0.424***	0.213	0.636
Frequency of self-distraction	-1.075***	-1.335	-0.814
Gender X Frequency of instrumental support	-1.384***	-1.966	-0.803
Gender X Household income	-0.000*	-0.001	0.000
Frequency of instrumental support X Household income	-0.000*	0.000	0.000
Gender X Frequency of instrumental support X Household income	0.000**	0.000	0.000
Gender X Age	0.074	-0.024	0.172
Gender X Married or living with partner	8.562**	3.037	14.086
Married or living with partner X Age	0.132*	0.006	0.257
Gender X Married or living with partner X Age	-0.214**	-0.362	-0.066
Constant	14.273***	11.028	17.518
Adjusted R-squared	0.517		

Significance level: *=p<0.05, **=p<0.01, ***p=0.001

TABLES 3A & 3B: DEPRESSION LEVEL BY GENDER

Table 3a. Depression level for women (n=109)	Coef.	95%	CI
Internalized HIV/AIDS stigma	0.587***	0.288	0.886
Married or living with partner	-4.374*	-8.641	-0.107
Age	-0.023	-0.092	0.046
Household income	0.000	0.000	0.000
Availability of emotional support	-0.081***	-0.118	-0.045
Availability of instrumental support	0.049***	0.022	0.077
Frequency of instrumental support	0.720*	0.170	1.270
Frequency of disengagement	0.405	-0.051	0.860
Frequency of self-distraction	-1.187***	-1.700	-0.675
Frequency of instrumental support X Household income	0.000*	0.000	0.000
Married or living with partner X Age	0.133*	0.015	0.251
Constant	13.989***	10.825	17.154
Adjusted R-squared	0.429		

Table 3b. Depression level for men (n=228)	Coef.	95%	CI
Internalized HIV/AIDS stigma	0.399***	0.207	0.591
Married or living with partner	4.178*	0.934	7.421
Age	0.052	-0.016	0.120
Household income	0.000*	0.000	0.000
Availability of emotional support	-0.051***	-0.080	-0.023
Availability of instrumental support	0.019	-0.001	0.039
Frequency of instrumental support	-0.645**	-1.050	-0.240
Frequency of disengagement	0.443***	0.199	0.688
Frequency of self-distraction	-1.051***	-1.358	-0.744
Frequency of instrumental support X Household income	0.000	0.000	0.000
Married or living with partner X Age	-0.084*	-0.166	-0.003
Constant	13.584***	10.793	16.375
Adjusted R-squared	0.532		

FIGURES 2A & 2B: SUPPORT BY INCOME

Figure 2a. Instrumental support by income for women

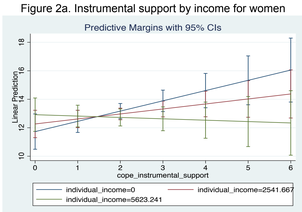
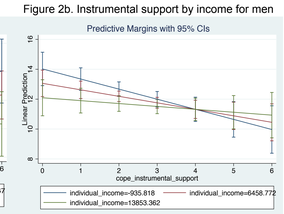


Figure 2b. Instrumental support by income for men



FIGURES 3A & 3B: AGE BY PARTNER STATUS

Figure 3a. Age by partner status for women

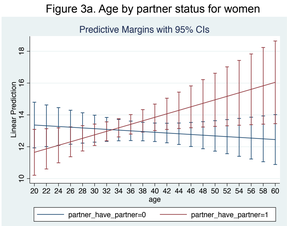
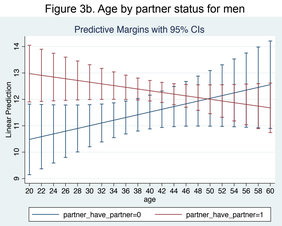


Figure 3b. Age by partner status for men



RESULTS

- More than 75% had moderate or severe depression
- Compared to men, women reported lower income, education, number of dependents, and availability of emotional and instrumental support
- Women were less likely to be partnered than men but more likely to have an HIV+ partner than men
- Overall, depression severity was:
  - Negatively associated with availability of emotional support and self-distraction coping
  - Positively associated with internalized HIV/AIDS stigma, availability of instrumental support, and behavioral disengagement coping
- Interactions analyses stratified by gender indicated:
  - Drawing on instrumental support was a protective coping strategy for all men, but only for high-income women
  - Having a partner was protective for men as they aged but not for women
  - No gender differences in effect of stigma on depression

DISCUSSION

- The findings identify a significant need for mental health services for PLH in India
- Lower social status and access to resources among women compared to men explain gender disparities in depression
- Unequal caregiving responsibilities for women with HIV+ partners likely exacerbate these disparities
- Stigma strongly increases depression severity for both men and women
- Self distraction reduces depression severity but behavioral disengagement increases depression severity
- Programs and interventions to reduce depression among PLH should be tailored by gender, age, income, and partner status
- Limitations of the study are that HADS-D is not a diagnostic measure of depression and data were cross-sectional
- Future interventions with PLH in India should prioritize reducing stigma, providing social support, and increasing access to material resources, especially among low-income women

CONTACT INFORMATION

Anne E. Fehrenbacher, PhD, MPH
Postdoctoral Fellow, UCLA Global Center for Children & Families
Semel Institute for Neuroscience and Human Behavior
10920 Wilshire Blvd., Suite 350
Los Angeles, CA 90024-6521
Tel: (310) 794-2509
Fax: (310) 794-8297
Email: afehrenbacher@mednet.ucla.edu