“Prevalence of HIV, syphilis, hepatitis B and C among adults with chronic mental illness: a national multicenter study in Brazil”

Mark D C Guimarães, LN Campos, AP Souto Melo, CJ Machado for PESSOAS Project Network Group

Universidade Federal de Minas Gerais, Brasil
HIV Center for Clinical and Behavioral Studies, Columbia University, NY, USA
CAPES/Ministério da Educação, Brasil

- BRIEF BACKGROUND
- OVERVIEW OF PESSOAS PROJECT
  (Pesquisa em Soroprevalência de Aids na Saúde Mental)
  (AIDS Seroprevalence study in Mental Health)
- DESCRIPTIVE
- SEROPREVALENCE
- CONCLUSIONS

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“Prevalence of HIV, syphilis, hepatitis B and C among adults with chronic mental illness: a national multicenter study in Brazil”
Sexually Transmitted Infections
Psychiatric Patients

➢ Vulnerability
  Clinical Conditions
  Social Conditions
  Risky behavior

➢ Knowledge and Prevention
  Lower risk perception
  Poor knowledge
  Isolation
  Segregation

Increased exposure to STI
Low response to interventions
SEROPREVALENCE RATES AMONG PSYCHIATRIC PATIENTS WORLDWIDE

HIV
Median =1.5%  Median = 5%

HBV
Median =19%  Median =23%

HCV
Median =6%  Median =19%

SIFILIS
Median =3%

Source: Campos et al, CSP. 2008; 24(supl 4): s607-s620
<table>
<thead>
<tr>
<th>Behavior</th>
<th>Percentage Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sexually active 12 months</td>
<td>51%- 74%</td>
</tr>
<tr>
<td>Anal sex ever</td>
<td>13%- 84%</td>
</tr>
<tr>
<td>Inconsistent condom use 12 months</td>
<td>12%- 68%</td>
</tr>
<tr>
<td>Two or more partners 12 months</td>
<td>7%- 69%</td>
</tr>
<tr>
<td>Sex with high risk partner 12 months</td>
<td>2%- 58%</td>
</tr>
<tr>
<td>Exchange sex for money 12 months</td>
<td>2%- 48%</td>
</tr>
<tr>
<td>Drug or alcohol use during sex</td>
<td>5%- 45%</td>
</tr>
</tbody>
</table>

Selected behavior data among psychiatric patients worldwide

Source: Campos et al, CSP. 2008; 24(supl 4): s607-s620
RATIONALE

- Increased vulnerability and higher STI prevalence among mentally ill patients

- Need to establish prevention and health care strategies for both, AIDS and Mental Health Programs in Brazil

- Absence of representative risk behavior or STI seroprevalence data in Brazil or elsewhere
"HIV seroprevalence and risk behavior among psychiatric patients: A national health service study in Brazil"

➤ OVERVIEW OF PESSOAS PROJECT
OBJECTIVES - PESSOAS Project
(AIDS Seroprevalence in Mental Health)

➢ To determine the prevalence of HIV, syphilis, and hepatitis B and C in a national representative sample of psychiatric patients under care in Brazil

➢ To describe socio-demographic, behavioral, clinical aspects and to explore potential factors associated with prevalent infection
BRAZILIAN GOVERNMENT
National AIDS and Mental Health Programs

RESEARCH GROUP
Planning
Conducting

INTERVIEWS
BLOOD COLLECTED
INVITED
CAPABLE
CONSENTED

MENTAL HEALTH SERVICES
SEROLOGY RESULTS
EXAMS PERFORMED
DADA PROCESSED

PATIENTS
REFERRED FOR CARE AND COUNSELING

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September 24, 2008 - Porto Alegre, RS, Brazil (ABSTRACT 619)
METHODS – PESSOAS PROJECT

- **DESIGN:**
  Cross-sectional national sample

- **POPULATION:**
  Psychiatric patients hospitalized in public hospitals or under care in outpatient units (CAPS) randomly selected

**Eligibility criteria:**

- Adults (≥ 18 years old)
- Hospitalized for at least seven days (Inpatients) OR
- Under care in CAPS units [Except CAPS Ad]
- Capable of answering the questionnaire
- Written consent to participate

3400 patients
PROcedures

Semi-structured Interview

Medical Charts

SEROLOGY

- Hepatitis B Surface Antigen (HBsAg) (ELISA, BioMérieux®)
- Hepatitis B Total Antibody (Anti-HBc) (ELISA, BioMérieux®)
- Hepatitis C antibody (Anti-HCV) (ELISA, Adaltis®)
- HIV (Anti-HIV 1 e 2) (ELISA, Dade Bhering®) & WB (Genelabs Abbott®)
- Syphilis (VDRL, Wiener Lab®) & Hemaglutinin – HAI, BioMérieux®

Health Service Evaluation

Qualitative Interview

TWO STAGE PROBABILITY
SAMPLE
Proportional to:
✓ Type of service
✓ AIDS cases by Region

Stage I
Selection of Centers
Hospitals 11
CAPS 15

Stage II
Selection of patients
Hospitals 1281
CAPS 2119
ANALYSIS

➢ DESCRIPTIVE

➢ SEROPREVALENCE
   Corrected for clustering by Huber/White Sandwich (Rogers, 1993)
   Weighted by sample size relative to the total population

➢ Associations with PREVALENT infection:
   Multivariate Poisson regression
   Prevalence ratio with 95% confidence interval
   Corrected for clustering by Huber/White Sandwich (Rogers, 1993)
   Weighted by sample size relative to the total population

➢ Database: Paradox / Analysis: SAS, STATA
RECRUITMENT – PESSOAS PROJECT, 2007

Recruited

3255 (100%)

492 (15%) Not Capable

2763 (85%)

288 (10%) Non participants

Capable

Interviewed + blood sample

2238 (69%)

2300 (71%) Blood Sample

2475 (76%) Interviewed
## Selected health service characteristics (n=26), PESSOAS PROJECT

<table>
<thead>
<tr>
<th>Service Characteristic</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insufficient psychiatric medication</td>
<td>19</td>
</tr>
<tr>
<td>Insufficient clinical care medication</td>
<td>42</td>
</tr>
<tr>
<td>Structured reference and counter-reference system</td>
<td>19</td>
</tr>
<tr>
<td>Unsatisfactory reference system</td>
<td>69</td>
</tr>
<tr>
<td>Unsatisfactory counter-reference system</td>
<td>82</td>
</tr>
<tr>
<td>Any sexual education program</td>
<td>27</td>
</tr>
<tr>
<td>STI prevention programs</td>
<td>31</td>
</tr>
<tr>
<td>Condom distribution</td>
<td>31</td>
</tr>
<tr>
<td>Existing HIV positive patients</td>
<td>62</td>
</tr>
<tr>
<td>Specific group therapy for HIV positive patients</td>
<td>12</td>
</tr>
</tbody>
</table>

**DESCRIPTIVE RESULTS (n=2475), PESSOAS PROJECT**

<table>
<thead>
<tr>
<th>Sociodemographics</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAPS</td>
<td>(64)</td>
</tr>
<tr>
<td>Women</td>
<td>(52)</td>
</tr>
<tr>
<td>White or mulato</td>
<td>(84)</td>
</tr>
<tr>
<td>Singles/Separated</td>
<td>(67)</td>
</tr>
<tr>
<td>Age &gt; 39 years old</td>
<td>(56)</td>
</tr>
<tr>
<td>Didn’t know how to read or write</td>
<td>(18)</td>
</tr>
<tr>
<td>Schooling &lt; 4 years</td>
<td>(34)</td>
</tr>
<tr>
<td>Monthly family income (&lt; US$ 150)</td>
<td>(35)</td>
</tr>
<tr>
<td>No health insurance</td>
<td>(90)</td>
</tr>
<tr>
<td>History of homelessness</td>
<td>(18)</td>
</tr>
<tr>
<td>Currently living in institutional setting</td>
<td>(10)</td>
</tr>
</tbody>
</table>
**Clinical Characteristics**

<table>
<thead>
<tr>
<th>Description</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Previous hospitalizations (1+)</td>
<td>(58)</td>
</tr>
<tr>
<td>Psychiatric diagnoses (ICD-10):</td>
<td></td>
</tr>
<tr>
<td>Schizophrenia</td>
<td>(47)</td>
</tr>
<tr>
<td>Depression</td>
<td>(13)</td>
</tr>
<tr>
<td>Bipolar disorders</td>
<td>(9)</td>
</tr>
<tr>
<td>Hepatitis B immunization</td>
<td>(26)</td>
</tr>
<tr>
<td>Non-psychiatric medical Dx</td>
<td>(22)</td>
</tr>
<tr>
<td>Self-reported medical co-morbidity</td>
<td>(45)</td>
</tr>
<tr>
<td>History of STD</td>
<td>(24)</td>
</tr>
<tr>
<td>History of HIV testing</td>
<td>(27)</td>
</tr>
</tbody>
</table>
Selected risk behavior characteristics, PESSOAS Project, 2006

- Sex ever: 88
- Sex past six months: 61
- >1 partner (ever): 61
- >1 partner (6 months): 16
- Condom last sex: 26
- Safe sex (6 months): 17
- Safe sex (lifetime): 8
- STD (lifetime): 23
- STD (6 months): 5
- HIV testing (ever): 27
- IDU: 3

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PESSOA SEROPREVALENCE RATES / 100 COMPARED TO OTHER BRAZILIAN POPULATIONS

- HIV: 0.80%
- HBsAg: 1.60%
- Anti-HBc: 14.70%
- HCV: 2.60%
Selected seroprevalence rates / 100 by gender and age, Pessoas Project, 2007

- Syphilis: Women 40+ (1.07), Women <40 (1.37), Men 40+ (2.97), Men <40 (4.71)
- HIV: Women 40+ (1.07), Women <40 (1.37), Men 40+ (2.97), Men <40 (4.71)
- HBsAg: Women 40+ (1.07), Women <40 (1.37), Men 40+ (2.97), Men <40 (4.71)
- Anti-HCV: Women 40+ (1.07), Women <40 (1.37), Men 40+ (2.97), Men <40 (4.71)
Seroprevalence rate of anti-HBc, by age, gender and hospitalization.
Pessoas Project, 2007

<table>
<thead>
<tr>
<th>Age Groups</th>
<th>18-39</th>
<th>40+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Hospitalized MEN</td>
<td>14</td>
<td>35</td>
</tr>
<tr>
<td>Current Hospitalized WOMEN</td>
<td>8</td>
<td>19</td>
</tr>
<tr>
<td>CAPS with Hx Hosp MEN</td>
<td>12</td>
<td>25</td>
</tr>
<tr>
<td>CAPS with Hx Hosp WOMEN</td>
<td>10</td>
<td>16</td>
</tr>
<tr>
<td>CAPS No Hx Hosp MEN</td>
<td>8</td>
<td>18</td>
</tr>
<tr>
<td>CAPS No Hx Hosp WOMEN</td>
<td>5</td>
<td>12</td>
</tr>
</tbody>
</table>
Seroprevalence rate / 100 of HCV, by age, sex and hospitalization.

Pessoas Project, 2007

Age Groups
- 18-39
- 40+

Prevalence rate / 100

- **Current Hospitalized**
  - MEN: 2.8
  - WOMEN: 3.5
  - 18-39
  - 40+

- **CAPS with Hx Hosp**
  - MEN: 2.4
  - WOMEN: 3.9
  - 18-39
  - 40+

- **CAPS No Hx Hosp**
  - MEN: 1.3
  - WOMEN: 1.7
  - 18-39
  - 40+

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Seroprevalence rate of HBsAg, by age, gender and hospitalization.
Pessoas Project, 2007

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<tr>
<th>Age Group</th>
<th>Prevalence Rate / 100</th>
</tr>
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<tbody>
<tr>
<td>18-39</td>
<td>2.0</td>
</tr>
<tr>
<td>40+</td>
<td>0.6</td>
</tr>
<tr>
<td>Current Hospitalized</td>
<td>2.0</td>
</tr>
<tr>
<td>Women</td>
<td>2.0</td>
</tr>
<tr>
<td>Men</td>
<td>5.0</td>
</tr>
<tr>
<td>CAPS with Hx Hosp</td>
<td>0.9</td>
</tr>
<tr>
<td>Women</td>
<td>1.3</td>
</tr>
<tr>
<td>Men</td>
<td>0.9</td>
</tr>
<tr>
<td>CAPS No Hx Hosp</td>
<td>3.5</td>
</tr>
<tr>
<td>Women</td>
<td>1.9</td>
</tr>
<tr>
<td>Men</td>
<td>0.9</td>
</tr>
</tbody>
</table>

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### Prevalence ratios of HBV and HCV, adjusted for age, gender and center, Projeto PESSOAS, 2007

<table>
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<tr>
<th></th>
<th>PR</th>
<th>(95% CI)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HBsAg (N=2206)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>&lt; 40</td>
<td>0.70</td>
<td>(0.30  1.66)</td>
</tr>
<tr>
<td>Gender</td>
<td>Male</td>
<td>2.21</td>
<td>(0.97  5.05)</td>
</tr>
<tr>
<td>Center</td>
<td>Hospital</td>
<td>0.80</td>
<td>(0.30  2.13)</td>
</tr>
<tr>
<td><strong>Anti-HBc (N=2206)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>&lt; 40</td>
<td>0.43</td>
<td>(0.35  0.53)</td>
</tr>
<tr>
<td>Gender</td>
<td>Male</td>
<td>1.51</td>
<td>(1.02  2.23)</td>
</tr>
<tr>
<td>Center</td>
<td>Hospital</td>
<td>1.28</td>
<td>(0.82  2.01)</td>
</tr>
<tr>
<td><strong>Anti-HCV (N=2235)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>&lt; 40</td>
<td>0.56</td>
<td>(0.26  1.21)</td>
</tr>
<tr>
<td>Gender</td>
<td>Male</td>
<td>2.34</td>
<td>(1.56  3.52)</td>
</tr>
<tr>
<td>Center</td>
<td>Hospital</td>
<td>3.25</td>
<td>(1.84  5.77)</td>
</tr>
<tr>
<td>Characteristics (%)</td>
<td>Men</td>
<td>Women</td>
<td></td>
</tr>
<tr>
<td>---------------------------------------------------------</td>
<td>------</td>
<td>-------</td>
<td></td>
</tr>
<tr>
<td>Hospitalized</td>
<td>(45)</td>
<td>(28)</td>
<td></td>
</tr>
<tr>
<td>History of homelessness</td>
<td>(21)</td>
<td>(15)</td>
<td></td>
</tr>
<tr>
<td>Living in the hospital</td>
<td>(11)</td>
<td>( 6)</td>
<td></td>
</tr>
<tr>
<td>Previous hospitalizations (1+)</td>
<td>(66)</td>
<td>(51)</td>
<td></td>
</tr>
<tr>
<td>Schizophrenia/Bipolar Disorders</td>
<td>(61)</td>
<td>(53)</td>
<td></td>
</tr>
<tr>
<td>Substance use</td>
<td>(12)</td>
<td>( 2)</td>
<td></td>
</tr>
<tr>
<td>History of STD</td>
<td>(26)</td>
<td>(20)</td>
<td></td>
</tr>
<tr>
<td>Alcohol use (ever)</td>
<td>(77)</td>
<td>(52)</td>
<td></td>
</tr>
<tr>
<td>Smoking (ever)</td>
<td>(81)</td>
<td>(62)</td>
<td></td>
</tr>
<tr>
<td>Any illicit drug use</td>
<td>(37)</td>
<td>(14)</td>
<td></td>
</tr>
<tr>
<td>Any injection drug use</td>
<td>( 5)</td>
<td>( 2)</td>
<td></td>
</tr>
<tr>
<td>Hx of incarceration</td>
<td>(41)</td>
<td>(11)</td>
<td></td>
</tr>
<tr>
<td>More than one partner (lifetime)</td>
<td>(70)</td>
<td>(54)</td>
<td></td>
</tr>
<tr>
<td>Unprotected Sex (lifetime)</td>
<td>(77)</td>
<td>(84)</td>
<td></td>
</tr>
</tbody>
</table>
CONCLUSIONS
CONSIDERATIONS

- Exclusion of CAPs Ad

- Exclusion of patients not capable of participating
  - Sample of chronic mentally ill patients under care
  - May have underestimated seroprevalence and risk behaviors

- Sample representative of patients, mas not necessarily of services
  - Cluster effect potentially present

- Comparability should be with other representative data
CONCLUSIONS

✓ Higher IST seroprevalence, corrected for clustering, as compared to other representative populations in Brazil

✓ Extremely high rate of unprotected sex

✓ Younger women have higher HIV and syphilis prevalence

✓ Older men have higher HBV and HCV prevalence
  ✓ Long term hospitalization
  ✓ Clinical severity
  ✓ Behavior
  ✓ Intrainstitutional transmission ??

✓ Services are not prepared to deal with this reality

✓ Public policies are urgently needed
Estudo de soroprevalência da infecção pelo HIV, Sífilis, Hepatite B e C em instituições públicas de atenção em saúde mental: Um estudo multicêntrico nacional

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