
Presentation
HEALTH-RELATED QUALITY OF LIFE IN THE WA HIV COHORT: 2008

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Introduction

A new Patient-Reported Outcomes questionnaire to measure QOL in people living with HIV/AIDS has been developed.

The instrument, PROQOL-HIV, has undergone psychometric validation in 791 individuals from 8 countries including 102 people from the WA HIV Cohort Study.

Here we describe:
1. Factors influencing HRQL in the WA HIV Cohort Study
2. Some comparisons with other countries
3. The reliability and validity of the PROQOL-HIV questionnaire

Methods: (1) The PROQOL-HIV Questionnaire

Qualitative input from semi directive interviews revealed 12 dominant themes which informed the 70 item PROQOL-HIV questionnaire to be validated:
- Ability to work
- Social life
- Stigma
- Family
- Sexuality
- Spirituality
- Medication
- Energy/fatigue
- Psychological burden
- Leisure
- Ability to travel
- Resources

Methods: (2) The MOS-HIV SF 36

- general health perceptions
- physical functioning
- role functioning
- pain
- social functioning
- mental health
- energy
- health distress
- cognitive functioning
- quality of life

A physical health summary score: PHS
A mental health summary score: MHS

Methods

102 patients (792 globally) attending the Royal Perth Hospital Immunology Outpatient Clinic- completed three HRQL instruments:

1. (1) the 70-item PROQOL-HIV – to be tested
2. (2) the EQ-5D
3. (3) the MOS-HIV *
4. (4) a symptom questionnaire
Other information: Self reported missed doses in the preceding two weeks, demographic and biomedical data

The QOL score* from the PROQOL-HIV was expressed on a 0-100 point scale with higher values indicating better QOL.

*France, USA and Australia only, * standardised raw score
METHODS: (3, 4) The EQ-5D & Symptom Questionnaire

The EQ-5D is a standardised instrument for use as a generic measure of health outcome. It assess 5 traits:
- Mobility, self-care, usual activities, pain/discomfort, and anxiety/depression together with a general health state scored on a visual analogue scale.

Symptoms/health conditions were measured using a modified version of the self-completed HIV symptom index developed by Justice et al (2001).

RESULTS - Psychometric validation

PROQOL sub-scales
1. Physical Health & Symptoms (PHS)
2. Treatment Impact (TI)
3. Emotional Distress (ED)
4. Health Concerns (HC)
5. Body Image (BC)
6. Intimate relationships (SR)
7. Social Relationships (IR)
8. Stigma (St)

RESULTS: Patient characteristics: Australia N=102
- Mostly caucasian (80%) men (85%)
- Aged between 37 – 53 yrs (mean 45)
- The earliest diagnosis was in 1981 with half of the patients diagnosed before 2000 (n=47) and half since (n=55)
- Transmission commonly was MSM (53%)
- Hetero = 27%, IVDU = 20%
- Living alone (39%) vs with a partner (33%) vs with others (28%) and employed (80% vs 18%)
- Most common co-morbidity: depression (24%) followed by HCV (17%), psychiatric disorder (5%), CVD (3%) and HBV (2%)

RESULTS: Patients on protease inhibitors n = 42 (52%)
- More likely to be on BD regimen (p= 0.01)
- Take more tablets (p<0.001)
- Report more symptoms (p=0.007)

RESULTS: Patient characteristics: Australia antiretroviral therapy (ART), n = 87
- 87 pts on ART, 76% were 100% adherent
- 52% on protease inhibitors (PI)
- 70% on a once daily regimen
- 85% had an undetectable viral load
- Mean CD4 T cell count ranged from 6 – 62% average = 26%

RESULTS: PROQOL –HIV Score

All patients (n = 102)
50.2, 64.4, 77.6

Naïve patients (n= 13)
48.1, 64.1, 77.6

Treated patients (n=87)
50.9, 65.4, 79.8

Lowest, median and highest score
**RESULTS: All Countries**

### Demographics

<table>
<thead>
<tr>
<th>Variable</th>
<th>West Australia N = 102</th>
<th>All countries N = 692</th>
<th>P - value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender m/f</td>
<td>85/15% (87/15)</td>
<td>60/40% (419/273)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Age (yrs)</td>
<td>45</td>
<td>41</td>
<td></td>
</tr>
<tr>
<td>Body Mass Index</td>
<td>25</td>
<td>23</td>
<td></td>
</tr>
<tr>
<td>Diagnosis (=2008)</td>
<td>3 (7)</td>
<td>2 (5, 9)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Transmission</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Msm</td>
<td>53% (54)</td>
<td>27% (28)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Hetero</td>
<td>20% (20)</td>
<td>26% (175)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>IVDU</td>
<td></td>
<td>10% (68)</td>
<td></td>
</tr>
<tr>
<td>Living alone</td>
<td>59% (40)</td>
<td>19% (131)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Secondary education</td>
<td>98% (100)</td>
<td>19% (126)</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

### Co-morbidities and Substances

<table>
<thead>
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<th>West Australia N = 102</th>
<th>All countries N = 692</th>
<th>P - value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depression</td>
<td>24% (24)</td>
<td>10% (67)</td>
<td>0.037</td>
</tr>
<tr>
<td>Psychiatric disorder</td>
<td>5% (5)</td>
<td>6% (41)</td>
<td>NS</td>
</tr>
<tr>
<td>Hepatitis C</td>
<td>17% (17)</td>
<td>12% (72)</td>
<td>NS</td>
</tr>
<tr>
<td>Hepatitis B</td>
<td>2% (2)</td>
<td>6% (36)</td>
<td>NS</td>
</tr>
<tr>
<td>Cardiovascular disease</td>
<td>3% (3)</td>
<td>11% (69)</td>
<td>NS</td>
</tr>
<tr>
<td>Alcohol (&gt;2/day)</td>
<td>15% (15)</td>
<td>8% (47)</td>
<td>0.027</td>
</tr>
<tr>
<td>Tobacco (&gt;2/day)</td>
<td>40% (41)</td>
<td>28% (163)</td>
<td>0.008</td>
</tr>
</tbody>
</table>

### Treatments and Outcomes

<table>
<thead>
<tr>
<th>Variable</th>
<th>West Australia N = 102</th>
<th>All countries N = 692</th>
<th>P - value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment/naive</td>
<td>85% (87)</td>
<td>86% (596)</td>
<td>NS</td>
</tr>
<tr>
<td>Dosing schedule (no. 80, &gt;80)</td>
<td>70.5% (62) = 0, 20.5% (20) = 80</td>
<td>18% = 00, 82% = (&gt;80)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>ART pill burden</td>
<td>3 (20.4)</td>
<td>5 (18)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>100% Adherence (last 2 weeks)</td>
<td>79% (84)</td>
<td>70% (512)</td>
<td>&lt;0.04</td>
</tr>
<tr>
<td>CD4 T Cell copies/ml</td>
<td>579 (77)</td>
<td>405</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Viral load (undetectable)</td>
<td>75% (77)</td>
<td>85% (377)</td>
<td>NS</td>
</tr>
<tr>
<td>No of symptoms</td>
<td>7 (9)</td>
<td>9</td>
<td>0.018</td>
</tr>
</tbody>
</table>

### Differences in sub-scales according to country

**RESULTS: Differences in sub-scales according to country**

- **Australia, US & France**
- **Brazil & Thailand**
- **China & Cambodia**
- **Senegal**

**Symptom burden</i> (≥5)**

- **Depression**
- **Dosing schedule (≥BD)**
- **Pill burden (>2 tablets)**
- ** Psychiatric disorder**
- **CD4 T-cell count (<200 cps/ml)**
- **Lack of Professional activity**
- **Gender (female)**
- **Living alone**
- **Cardiovascular disease**

**Symptom burden</i> (≥5)**

- **Depression**
- **Dosing schedule (≥BD)**
- **Pill burden (>2 tablets)**
- ** Psychiatric disorder**
- **CD4 T-cell count (<200 cps/ml)**
- **Lack of Professional activity**
- **Gender (female)**
- **Living alone**
- **Cardiovascular disease**

**Quality of Life**

**PROQOL std score**

- **Australia, US & France**
- **Brazil & Thailand**
- **China & Cambodia**
- **Senegal**
Relationship of depression to PROQOL subscales

(Each sub-scale contributes equally) N = 102 Western Australians

RESULTS: Depression & Symptoms
- Participants who reported depression scored on average 13 points lower (95% CI, [-20.8; -6.2])
- For each increase in the number of reported symptoms, there is a loss of about 2 points of HRQL (95% CI, [-2.3; 1.1]).

RESULTS: Multivariate analysis - Australians

<table>
<thead>
<tr>
<th>Variable</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of symptoms</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Depression</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Living alone</td>
<td>0.005</td>
</tr>
<tr>
<td>Younger age</td>
<td>0.003</td>
</tr>
<tr>
<td>Heterosexual transmission</td>
<td>0.008</td>
</tr>
<tr>
<td>On a protease inhibitor</td>
<td>0.046</td>
</tr>
</tbody>
</table>

Linear Regression Analysis
Lower scores were associated with more symptoms, depression, younger age, heterosexual transmission, not living with a partner, PI treatment and higher pill burden

Reliability and Validity

Q Is the PROQOL-HIV a "valid" PRO questionnaire? Does it measure what it is required to measure?

Q Is the PROQOL-HIV a "reliable" PRO questionnaire? Are the observed scores reproducible when the questionnaire is readministered?
Joint distribution of PROQOL-HIV scores and EQ-5D visual analogue score

The visual analogue scale = “your own health state today”: 
Best imaginable health state = 100%  worst imaginable = 0%

VALIDITY

Scores reliability was assessed using

- Cronbach’s alpha = 0.936
  (95% CI = 0.929 – 0.943)
- Intra-class correlation coefficient = 0.859
  (n= 34, 95% CI = 0.701-0.959)

RELIABILITY

The PROQOL-HIV is a ‘valid’ PRO questionnaire
It measures what it purports to measure

The PROQOL-HIV is a ‘reliable’ PRO questionnaire
The scores observed are reproducible when the questionnaire is readministered

SUMMARY

In Western Australia in 2008
- The most significant health condition influencing quality of life was depression
- 30% of depressed patients also had hepatitis C
- Depression and the number of reported symptoms were related
- People who acquired HIV heterosexually seem to have worse quality of life
- Patients on PIs reported more symptoms/health conditions

SUMMARY SUMMARY

- The PROQOL-HIV is a ‘valid’ PRO questionnaire
  It measures what it purports to measure
- The PROQOL-HIV is a ‘reliable’ PRO questionnaire
  The scores observed are reproducible when the questionnaire is readministered

COMMENTS

There is an indication to examine:
- The ‘social drivers’ of depression in the context of HIV and coinfections
- The role of stigma and shame and how stigma affects PLWHA
- There exists a need to
  - Consider how societal inequalities for example within gender and ethnicity are exacerbated by HIV and impact on QOL*
  - Intervene to reduce substance use and prevent significant associated morbidity

*Kippax et al 2007

CONCLUSION

- The data demonstrate the validity and utility of the PROQOL-HIV to measure QOL in this population.
- The implications of a high frequency of depression is concerning
- Rates of adherence are encouraging and are probably the outcome of active ongoing adherence support
- The information is a useful adjunct to national surveys and can be used to inform HIV services in WA.
Acknowledgements: study sites

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Sidaction

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Sidaction

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#include <iostream>

using namespace std;

int main()
{
    // Code to read and process the natural text
    // from the document
    //...
    return 0;
}