Relationship Between Patient-Perceived Treatment Burden and Health-Related Quality of Life in Heart Transplant Recipients

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INTRODUCTION

- Patient-perceived treatment burden is a patient's overall estimation of the burden their chronic disease treatment regimen imposes on them and their family [1].
  — Often referred to as the "work of being a patient" [2,3].
- Treatment burden is influenced by patient and treatment characteristics, disease conditions, support systems, and the healthcare system [1-5].
  — Influences health-related decisions, treatment adherence, resource utilization, and personal relationships [1].
- Health-related quality of life (HrQOL) is a patient's perceptions of their mental and physical health and correlates (e.g., health risks and conditions, functional status, social support, and socioeconomic status) [6].
  — Improves from pre- to post-heart transplant (HTx), but decreases over time [7].
  — Poor HrQOL is associated with depression in HTx patients [8].
- Few studies have comprehensively evaluated treatment burden and its relationship to HrQOL in transplant recipients.

OBJECTIVE

To evaluate the relationship between patient-perceived treatment burden and self-reported HrQOL in adult heart transplant recipients.

METHODS

- **Study design**: Cross-sectional multi-center study.
- **Study sites**: University of Colorado and University of California San Diego.
- **Study population**:
  — Inclusion criteria: Heart transplant recipients 18-90 years of age; 18 years of age or older at the time of transplant.
  — Exclusion criteria: Combined organ transplant (e.g., heart and kidney); re-transplantation.
- **Data collection**: Single study visit during which patients were administered the following two questionnaires in random order.

Treatment Burden Questionnaire (TBQ)

- Validated 15-item questionnaire published by Tran et al. in 2012 [9].
- Developed in patients with chronic diseases (e.g., diabetes, hypertension).
- Measures degree of burden regarding:
  — Medications;
  — Medical follow-up;
  — Administrative burden;
  — Financial burden; and
  — Lifestyle changes.
- Each question is scored on a scale of 0 (not a problem) to 10 (big problem).
  — Total possible score is 150.

Short Form-12v2 Health Survey (SF-12v2)

- Validated 12-item questionnaire published by Ware et al. in 2002 [10].
- Measures functional health and well-being in eight domains: physical functioning, role-physical, bodily pain, general health, vitality, social functioning, role-emotional, and mental health.
- Questions answered in rating scales which are transformed to mental component summary (MCS) and physical component summary (PCS) scores.
  — Scored on a scale of 1-100, higher scores represent greater HrQOL.

- **Statistical analysis**:
  — Correlation analysis was used to determine relationships between TBQ score, SF-12v2 MCS and PCS, and patient characteristics.

RESULTS

Table 1: Description of study cohort

Characteristic	n=102
Study site	
• University of Colorado	82 (80.4%)
• University of California	20 (19.6%)
Caucasian race	74 (72.6%)
Men	78 (76.5%)
Age on day of study consent, years	56 ± 13 (21-84)
Age at transplant, years	49 ± 13 (19-70)
Time post-transplant on day of consent, years	7.2 ± 7.0 (0.1-27)
Transplant Medications	
• Tacrolimus	66 (64.7%)
• Cyclosporine	34 (33.3%)
• Mycophenolate	85 (83.3%)
• Azathioprine	9 (8.8%)
• Prednisone	40 (39.2%)
• mTOR Inhibitor	18 (17.6%)
Total medication count	16 ± 5 (7-30)
Employed	41 (40.2%)
Married/living with partner	71 (69.6%)

Data are presented as n (%) or mean ± SD (range).

Table 2: Description of treatment burden and HrQOL characteristics

Questionnaire	Measurement	Score
TBQ	Treatment Burden	24.3 ± 21.1 (0-108)
SF-12v2	Quality of Life-Mental Component	53.2 ± 8.8 (28.4-68.1)
	Quality of Life-Physical Component	44.7 ± 10.3 (16.7-62.0)

Data are presented as mean ± SD (range). TBQ, Treatment Burden Questionnaire; SF-12v2, Short-Form 12v2 Health Survey.

Table 3: Patient factors correlated with treatment burden or HrQOL

Questionnaire	Patient Characteristic	Spearman's Rho	P Value
TBQ Score	Age on day of study consent	-0.30[a]	0.002
SF-12v2 MCS	Age on day of study consent	0.27[b]	0.006
SF-12v2 PCS	Employment status (i.e., employed vs not)	0.31[c]	0.001

TBQ, Treatment Burden Questionnaire; SF-12v2, Short-Form 12v2 Health Survey; MCS, mental component summary; PCS, physical component summary. [a]Older age correlated with lower treatment burden; [b]Older age correlated with higher mental quality of life; [c]Being employed correlated with higher physical quality of life compared to not being employed.

Table 4: Relationship between treatment burden and HrQOL

Correlation with TBQ Score	Adjusted Spearman's Rho	Adjusted P Value
SF-12v2-MCS	-0.39[a]	<0.0001
SF-12v2-PCS	-0.20[b]	0.049

TBQ, Treatment Burden Questionnaire; SF-12V2, Short-Form 12v2 Health Survey; MCS, mental component summary; PCS, physical component summary. [a]Adjusted for age on day of study consent; [b]Adjusted for age on day of study consent and employment status (i.e., employed vs not).

CONCLUSIONS

- Greater treatment burden was associated with lower patient-reported mental HrQOL after adjusting for age on day of study consent.
- Greater treatment burden was modestly associated with physical HrQOL after adjusting for age on day of study consent and employment status (i.e., employed vs not).
- Assessment of patient-perceived treatment burden may be helpful in identifying patients who are in need of intensified mental health interventions following HTx.

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RELEVANT FINANCIAL RELATIONSHIP DISCLOSURES

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