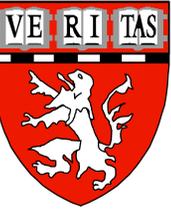




# Factors Associated with Attrition in a Longitudinal Rheumatoid Arthritis (RA) Registry

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## Introduction

- Loss of participants from longitudinal data collection can affect the validity of RA patient registries
- Characteristics of patients who drop out may end up being systematically different from those who remain
- Most studies suggest that psychosocial, socioeconomic, population demographics are the most likely factors associated with attrition in longitudinal studies

## Aim

- This study examines multiple characteristics of an RA patient registry to determine factors of attrition in a hospital-based population over 5 years of follow-up.

## Methods

- Study Population:**
  - 1095 RA patients enrolled in the Brigham and Women's Rheumatoid Arthritis Sequential Study (BRASS)
  - Patient follow-up occurs every six months
  - Inclusion criteria: diagnosis of RA by board certified rheumatologist; age > 18 yrs
- Study Outcome:**
  - Enrolled patients who drop out of the registry during five years of follow-up
  - Attrition is defined as patients who voluntarily withdraw, are lost to follow-up and are deceased
- Predictors of Attrition:**
  - Shorter disease duration (years)
  - Higher disease activity (higher DAS28-CRP3 scores)
  - Worse functional status (higher MHAQ scores on 0-3 scale)
  - Unemployment (includes being retired, disabled, or other)
  - Less education (categorized by high school graduate, college graduate, and completed graduate school)
  - Lower self-efficacy (lower scores on the Arthritis Self-Efficacy Scale 10-100)
  - Depression (higher scores on the MHAQ depression scale 0-3)
- Covariates** are age, gender, race/ethnicity
- Models:**
  - Univariate analysis of predictors comparing patient drop outs to patients still actively enrolled
  - Multivariate survival analysis using backward selection of significant predictors from the univariate analysis ( $p < 0.05$ )

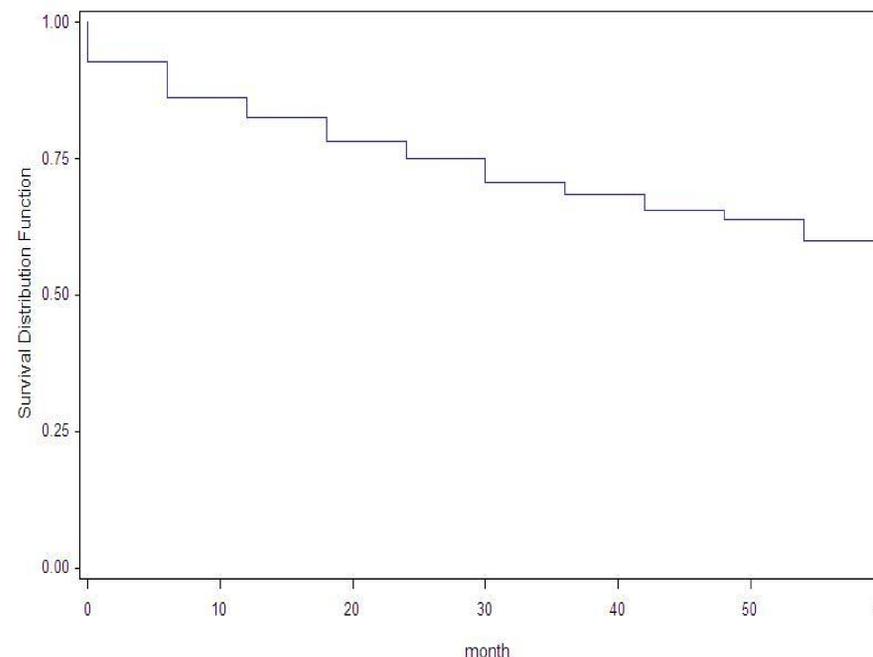
## Results

Table 1. Baseline Demographics (N=1,095)

Characteristics	N (%) or Mean ( $\pm$ SD)
Age, years	56.15 (14.06)
Female	899 (82.1%)
Caucasian	1,007 (92.81%)
Education, High school graduated	243 (22.4%)
College graduated	553 (50.97%)
Completed graduated school	289 (26.64%)
Employment, Employed	491 (44.84%)
Disabled	93 (8.49%)
Retired	286 (26.12%)
Other	225 (20.55%)
Disease Duration, year	13.72 (12.41)
DAS28-CRP3	3.97 (1.58)
MHAQ Score (0-3)	0.44 (0.47)
Arthritis Self Efficacy Score (10-100)	71.68 (19.20)

- 461 patients have completed five years of follow-up
- 327 patients are still actively enrolled
- 307 have dropped out
- Attrition rate of 3.23% per six month follow-up cycle (figure 1)

Figure 1. Attrition Rate per 6 month follow-up cycle



## Results

- Univariate analyses showed that the following factors were significantly associated with attrition:
  - Less education ( $p=0.0004$ ), unemployment ( $p < 0.0001$ ), higher MHAQ depression score ( $p < 0.0001$ ), shorter disease duration ( $p < 0.0001$ ), higher DAS28-CRP3 score ( $p < 0.0001$ ), worse MHAQ score ( $p < 0.0001$ ), and a lower Arthritis Self-Efficacy Score ( $p < 0.0001$ ).
  - Age, gender and ethnicity were not significantly associated with attrition.
- Multivariate survival analyses of significant variables ( $p < 0.05$ ) from the univariate analysis showed that shorter disease duration ( $p < 0.001$ ), higher DAS28-CRP3 scores ( $p < 0.001$ ), and higher MHAQ scores ( $p < 0.001$ ) were statistically associated with attrition. (Table 2)

Table 2. Multivariate survival analysis of factors associated with attrition

Characteristic	Hazard Ratio	95% Confidence Intervals
Disease Duration, years	0.97	0.95-0.98*
DAS28-CRP3 Scores	1.29	1.19-1.40*
MHAQ Scores	1.50	1.24-1.82*

\*P < 0.001

<sup>1</sup>Multivariate survival analysis using backward selection of significant variables from univariate analysis ( $p < 0.05$ )

## Limitations

- Results are population specific.
- No specific report was collected as to why patients dropped out of the registry.
- Income not included due to missing data.

## Conclusions

- Attrition rate for this registry is similar to rates reported by other registries.
- In contrast to previous studies, worse functional status and higher disease activity were associated with attrition in this population.
- In some populations, disease specific measures are major contributors to attrition.
- Specific population differences in each registry may have a greater effect on attrition than general demographic factors.
- Each longitudinal registry may need to conduct its own analyses.