

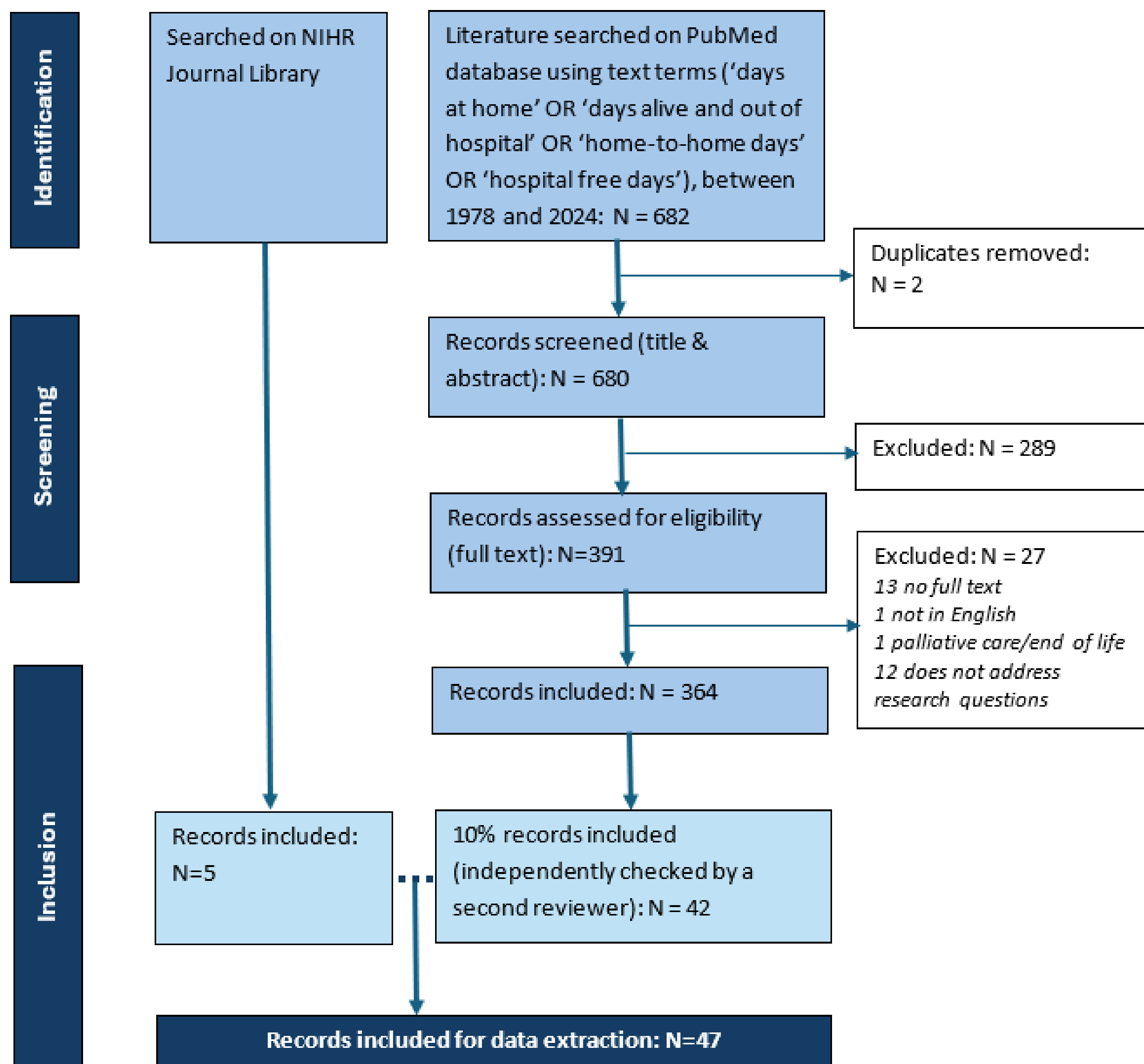
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## Background

'Days at home' (DAH) is a composite, patient-centred outcome measure combining information about a patient's recovery. It is typically defined as the number of days a patient spends at home during a defined time window (e.g., 30 days) following the intervention. It comprises the initial hospital stay, subsequent hospitalisations and/or mortality. Previous research and patient engagement indicate that patients place a high value on time spent at home. DAH is an increasingly prevalent outcome across several clinical areas, but there exists considerable variation in how it is defined, analysed and reported.

## Methods

We conducted a literature review of published studies using DAH as an outcome measure to describe current practice in the derivation, analysis, and reporting of DAH.



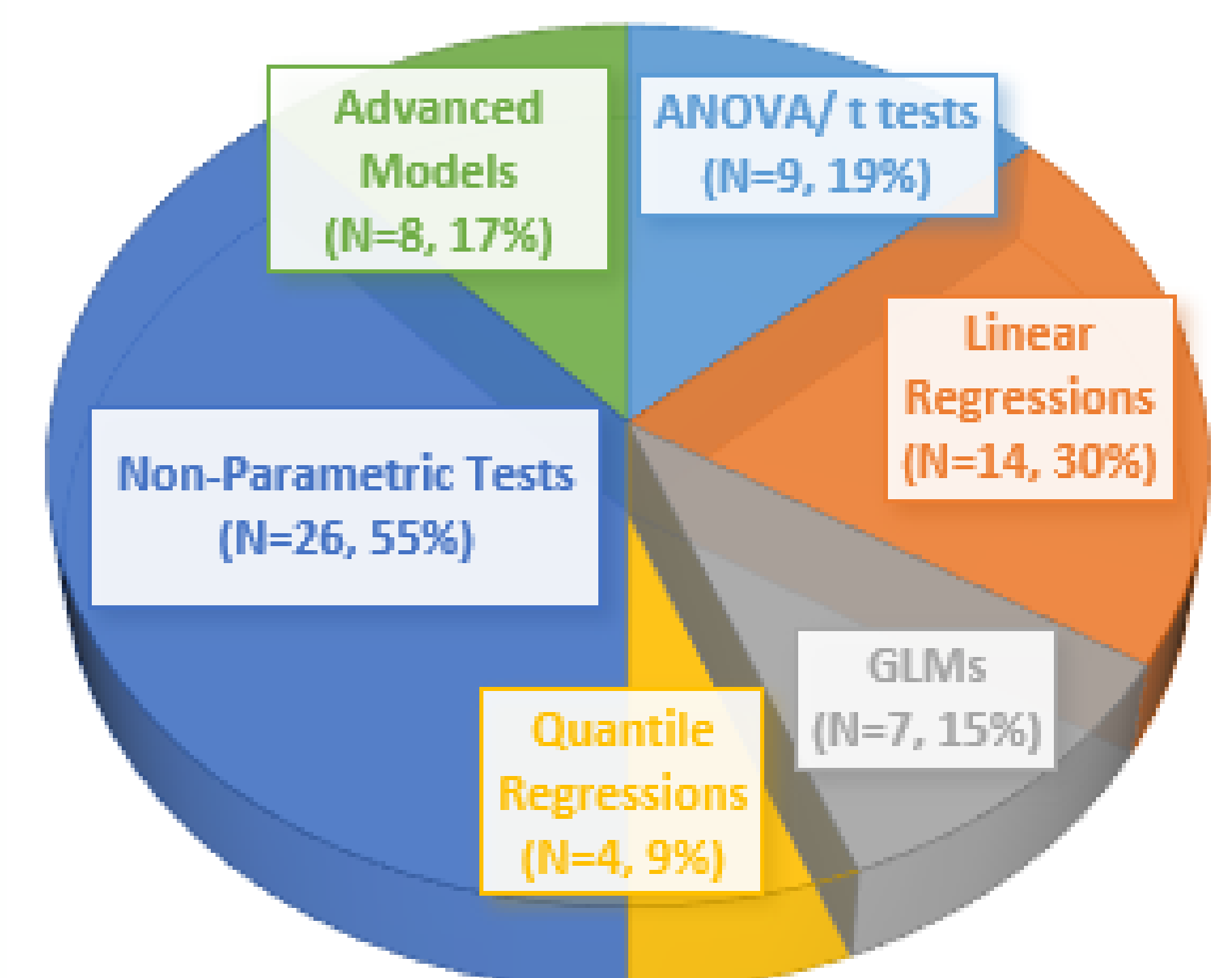
## Results

See the below table for characteristics of the included articles (N=47):

Publication type	Number of articles (%)
Randomised clinical trial (RCT)	14 (30%)
Non-trial research publication	33 (70%)
Regions of publication 1 <sup>st</sup> author	Number of articles (%)
North America	24 (51%)
Europe	15 (32%)
Other	8 (17%)
Clinical area	Number of articles (%)
Cardiac	14 (30%)
General/Emergency Surgery	8 (17%)
Orthopaedic/Hip Fracture	5 (11%)
Respiratory	5 (11%)
Elderly/Geriatrics	4 (9%)
Intensive care/Critical illness	3 (6%)
Neurological	3 (6%)
Trauma	2 (4%)
Other (Sepsis/Haematological/Renal)	3 (6%)

In terms of reporting DAH, 14 (30%) articles did not provide a clear definition of DAH. For DAH estimation, 16 (34%) articles reported using the Median, 13 (28%) used the Mean, and 6 (13%) employed both or chose either as appropriate. 12 (26%) did not provide information on how DAH was estimated.

Regarding the analysis of DAH, the majority of studies (N=30, 64%) employed more than one analytical approach, while 3 (6%) articles did not specify any methods. Types of analytical approaches used are shown in the pie chart:



More advanced analytical approaches were explored in 8 (16%) articles, including Zero-Adjusted Beta-Binomial Regression; Negative Binomial Regression (including Zero-Inflated Models and Mixed-Effects Models); Joint Trajectory Analysis; Instrumental Variable Analysis; Generalised Estimating Equations; Targeted Minimum Loss-Based Estimation.

## Conclusion/Future Work

In this literature review, we have summarised the reporting of DAH in terms of its definition, estimation, and analysis from published studies. Non-parametric tests and linear regression analyses were the most commonly used methods to assess DAH, while some studies also explored more advanced analytical approaches.

An NIHR Pre-doctoral Fellowship grant, starting in 2025, will support further comprehensive research on DAH. This work will include a systematic review of published RCTs that use DAH as an outcome measure to identify approaches to define, derive, analyse and report DAH in RCTs. Furthermore, a simulation study will be conducted to evaluate different approaches analysing DAH, comparing and contrasting their strengths and weaknesses.

