The University of Manchester

A step-change in quantitative social science skills

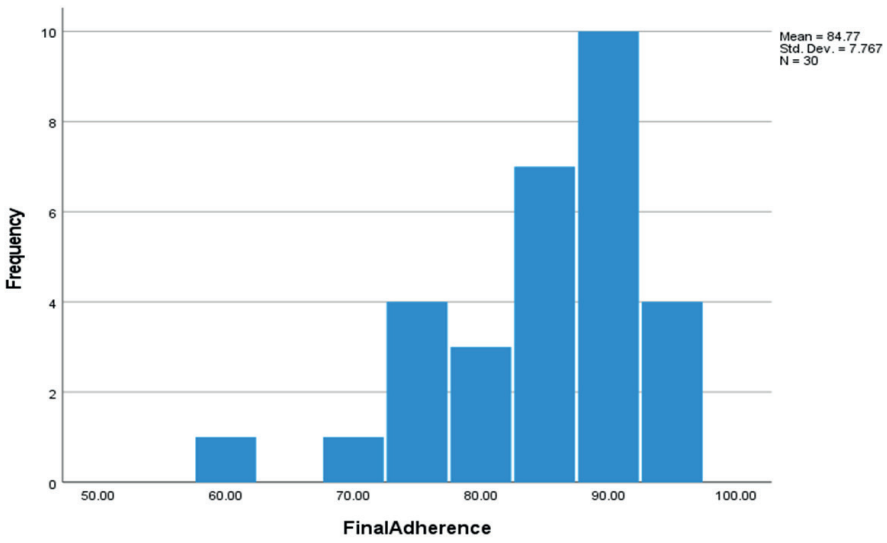
Funded by the Nuffield Foundation, ESRC and HEFCE

Data Fellowship with YourMeds

Harry Lowe | Politics and Philosophy

Overview of the Data Fellowship

I was working with YourMeds for an 8 week period, tasked with helping to produce a research paper into the effect that their SmartPack has on medication adherence. The YourMeds SmartPack is a medication monitoring system, which notifies the user of when to take medication and tracks their adherence. I was tasked with analysing and presenting the data collected by this system over a 2-year period.



Histogram showing distribution of individual adherence and overall

Key Skills Learnt

Creativity—Having been presented with 2 years' worth of raw data, I had to be imaginative in how I could analyse it i.e., how to stratify it. I then had to experiment with a number of graphs to present the data clearly.

Communication—Initially, I struggled with the data analysis and using SPSS. I was also hesitant to ask for help. However, following consultation with my colleagues and the Q-step team, I became more confident and produced effective analysis.

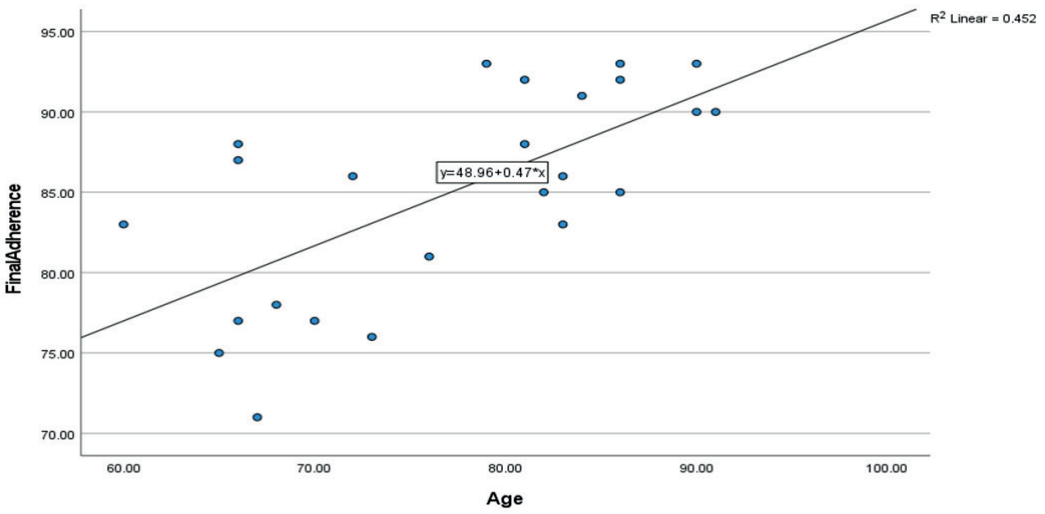
Adaptability—I had to adapt to a fast-paced environment in which I had to produce high-quality work under strict time constraints. Especially when the data analysis was severely challenging me, this was difficult. However, I overcame this and would be more comfortable in this position in future.

Findings

The total adherence score was found to have improved from a baseline of 50%, to 85%, and the YourMeds SmartPack was a significant factor in this. Age was positively correlated with adherence rates, with over 79s (90.5%) far more adherent than under 79s (78.9%). Gender was found to have no significant effect. 2 and 4 medication rounds produced the highest adherence (87%), whilst 1 and 3 produced the lowest (76%). Also, 75 weeks was the optimum period using the system. After this, adherence fell below 80%.

Data Analysis

Over a 2-year period, 30 patients' medication adherence was tracked, totalling over 30,000 medication rounds. For each medication round, an 'early', 'adherent', 'late', 'missed' or 'wrong' result was recorded, and an individual adherence percentage was calculated. From this, the adherence percentage from across the entire study was calculated. The cohort was split based upon age, gender and daily medication rounds, and statistical tests using SPSS were conducted to investigate the trends associated with these categories.



Adherence by age

Presentation— I was required to present the work that I carried out, justifying the statistical analysis I had conducted and explaining the relevance of the results. Initially, the presentation I complied was relatively unengaging. After feedback from my colleagues, I produced an interesting presentation and presented it strongly.

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