

Secondary analysis of routinely collected data from a specialist cancer rehabilitation service in South Wales, UK

Judit Csontos, Dr Tessa Watts, Dr Dominic Roche, Dr Mari Jones

Background:

International evidence suggests that cancer rehabilitation has a positive effect on cancer-related health problems, such as fatigue (Hunter et al. 2017). In South Wales (UK), a specialist cancer rehabilitation service has been providing exercise classes (hydrotherapy, Tai Chi, circuits, and individual sessions) to people affected by cancer (PABC). The service has been collecting Functional Assessment of Chronic Illness Therapy – Fatigue (FACIT-F), Timed Up and Go, pain, shortness of breath and quality of life visual analogue scale data routinely since 2014. People are assessed before and after a 12-week therapeutic episode to monitor if there are any changes in their fatigue and functional status. However, the data collected have not yet been comprehensively analysed. The aim of this study was to explore the routinely collected data and investigate change in functional outcomes from 2014 until 2017.

EPISODE NUMBER	AVAILABLE CASES FOR FACIT-F (N)			
	2014	2015	2016	2017
0	2	1	1	
1	55	101	75	56
2	26	39	18	34
3	16	24	10	13
4	8	7	7	6
5	7	3	5	5
6	4	3	4	1
7	3	1	3	1
8	1	2	3	1
9	1	3	1	2
10	No valid cases	No valid cases		2
11				1
12				No valid cases
UNKNOWN			No valid cases	No valid cases

Table 1 Sample size available for analysis for each year and episode

EPISODE NUMBER	FACIT-F EFFECT SIZE (r)			
	2014	2015	2016	2017
0	-0.316	.	.	.
1	0.484***	0.360***	0.504***	0.257
2	0.551**	-0.030	-0.134	0.074
3	0.376	0.022	0.258	0.083
4	-0.09	-0.040	0.129	-0.129
5	0.192	0	0.905*	-0.412
6	-0.372	0.309	-0.408	.
7	0.309	.	0.308	.
8	.	1	-0.617	.
9	.	-0.926	.	0.316
10	No valid cases	No valid cases		0.949
11				.
12				No valid cases
UNKNOWN			No valid cases	No valid cases

Table 2 Effect size r calculated for each year and episode (Cohen (1988) $r > 0.1$ =small; $r > 0.3$ =medium; $r > 0.5$ =large) Episodes where significant difference was detected: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Methods:

- Secondary analysis of routinely collected cancer rehabilitation data
- Based on the normality of the data, paired t-test or Wilcoxon signed rank test was used to look for change between pre and post rehabilitation outcomes.
- Effect size (r) was calculated for each test results (Rosenthal 1991).
- Missing data was listwise deleted and complete case analysis was conducted.
- This study was approved by London South – East Research Ethics Committee (17/LO/2123).

Results:

The database contained 1645 records from PABC. Therapeutic episode number varied from 0 to 12. Episode 0 usually meant that people did not attend the first assessment; therefore did not take part in the exercise classes. The longest attending participants had 12 therapeutic episodes. This means certain people continued to take part in the exercise classes up to 12 episodes. Most of the outcome measures were found statistically significant ($p < 0.05$) for the first 1-3 episodes, except shortness of breath. Here, FACIT-F results are discussed in more details.

In 2014 there was a significant change in FACIT-F scores in Episode 1 (Mean difference=-5.090, CI [-7.598,-2.582], $t(54)=-4.069$, $p=0.000$) and in Episode 2 (Mean difference=-5.721, CI [-9.292,-.150], $t(25)=-3.300$, $p=0.003$). In 2015 people had a significant change in their fatigue level in Episode 1 (Mean difference=-3.911, CI [-5.919,-1.903], $t(100)=-3.863$, $p=0.000$). In 2016 there was a significant change in FACIT-F scores in Episode 1 (Mean difference=-5.537, CI [-7.736,-3.337], $t(74)=-5.16$, $p=0.000$) and Episode 5 (Median PRE=14.180, Median POST=16.000, $T=15.000$, $p=0.043$). There was no significant change in any Episodes in 2017. The effect sizes show (Table 2) that after Episode 1 there is still change in people's fatigue level, although usually smaller. Some effect sizes show negative tendency, indicating that some people might have experienced deterioration in their fatigue levels.

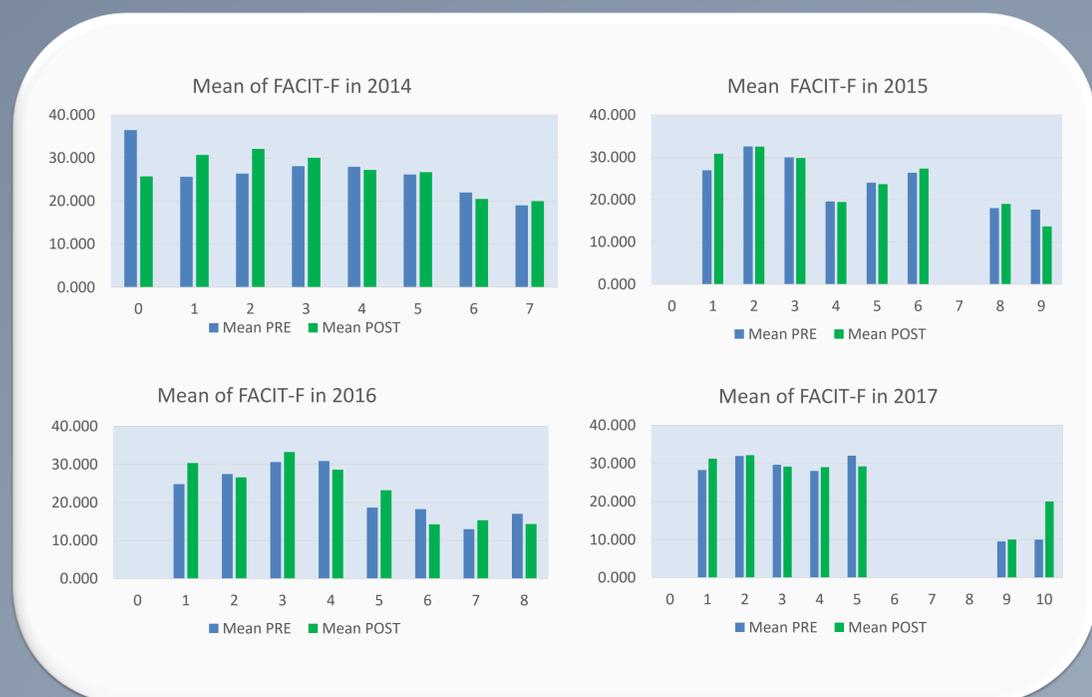


Figure 1 Mean values for FACIT-F PRE and POST exercise class

Discussion and conclusion:

The results imply that people might benefit from exercise classes provided by a cancer rehabilitation service in South Wales. However, significant change was found typically in Episode 1. Based on the effect sizes, further episodes might have had a medium to large effect on fatigue, although these results are not generalizable due to small sample size. In some episodes FACIT-F indicated deterioration in fatigue levels. This could be caused by the nature of cancer that health deterioration could happen any time. Outcome measures should be frequently analysed to help guide the prescription of therapeutic episodes tailored to people's individual needs. This could facilitate more effective use of resources.

References:
Cohen (1998). *Statistical Power Analysis for the Behavioral Sciences*, New York: Academic Press.
Hunter et al. (2017). *The American Journal of Occupational Therapy*, 72(2), 1-11.
Rosenthal (1991) *Meta-analytic procedures for social research*, Newbury Park, CA: Sage

Contact: Judit Csontos via e-mail:
CsontosJK@Cardiff.ac.uk
Date of preparation: 09/10/2019