

Background

Multimorbidity, defined as the co-existence of two or more long-term conditions, presents a multitude of challenges to both the individual and healthcare services. There is a need to develop interventions to improve outcomes for individuals with multimorbidity (Smith SM et al. Cochrane review, 2012) and exploratory work indicated that an occupational therapy intervention may be effective (O'Toole, Connolly & Smith, 2013).

Objectives

The objective of this study was to evaluate the effectiveness of an occupation-based self-management programme (OPTIMAL) in a sample of adults with multimorbidity.

Methods

This research was guided by the Medical Research Council Framework for the development and evaluation of complex interventions (MRC, 2008). This current study was an exploratory RCT in the preliminary stages of Phase III. The Consolidated Standards of Reporting Trials (CONSORT) guidelines were used to guide the research.

Participants were recruited from primary care team members, primarily GPs, in the South Inner City Dublin region. Eligibility criteria included age over eighteen years, a minimum of two chronic conditions and a minimum of four repeat medications. Following baseline data collection, participants were randomised by an individual, independent of the research team, using a computer generated random sequence:

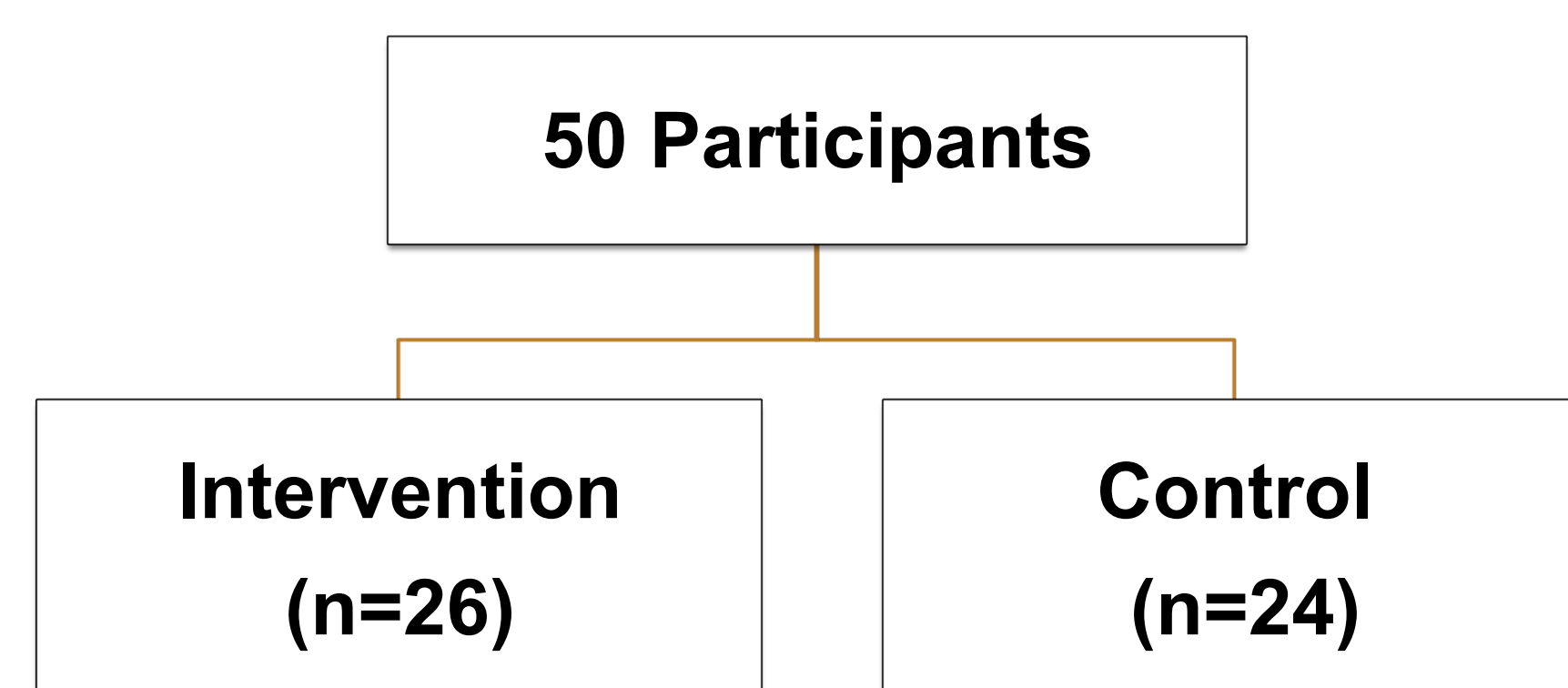


Figure 1.

The intervention group received the OPTIMAL programme and the control group continued to receive care as usual.

OPTIMAL aimed to increase occupational participation and covered a range of topics that included fatigue management, diet, physical activity levels, stress/anxiety management, medication management and communication skills. The primary components of OPTIMAL were education and goal-setting, with multidisciplinary input from a physiotherapist and pharmacist.

The **primary outcome** measure was the Frenchay Activities Index (FAI).

Secondary outcome measures included:

- Canadian Occupational Performance Measure (COPM)
- Nottingham Extended Activities of Daily Living (NEADL)
- Stanford Self-Efficacy 6-item scale,
- Hospital Anxiety and Depression Scale (HADS),
- EuroQol (EQ-5D & EQ-VAS)
- Health Education Impact Questionnaire (HeiQ),
- Healthcare utilisation
- Goal attainment scaling (GAS)

Under the guidance of the CONSORT statement, an intention-to-treat analysis was used.

Participant Profile

	Intervention Group (n=26)	Control Group (n=24)
Median Age (Range)	65 (50-83)	67.5 (42-84)
Male	9 (34.6%)	9 (37.5%)
Female	17 (65.4%)	15 (62.5%)
Median No. of Conditions (Range)	4 (2-9)	5 (2-9)
Median No. of Medications (Range)	7 (4-16)	11 (4-21)

Table 1

Results

Primary Outcome

Six participants were lost to follow up (4 intervention and 2 control) giving 84% follow up data.

The majority of participants attended three or more of the six sessions (69%) but 23% never attended any session

A multiple linear regression model found that group allocation (intervention/control) had a significant effect on FAI outcome scores (Mean difference 4.53 (CI: 1.60-7.47) p=0.003), after adjusting for baseline variability and confounding variables, including age, sex, marital status, occupational status and number of chronic conditions. See Table 2.

Group	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Intervention	25.61	1.101	23.28	27.85
Control	21.08	1.178	18.69	23.48

Table 2

The Adjusted R Squared value from the regression model was 0.705, indicating that 70.5% of the variation in FAI outcomes was explained by allocation to group

Secondary Outcomes

There were significant differences across a range of secondary outcomes. See Table 3.

	Intervention Group Mean (SD)		Control Group Mean (SD)		P-value
	Baseline (n=26)	Follow-up (n=22)	Baseline (n=24)	Follow-up (n=22)	
COPM-Performance	4.28 (1.82)	5.77 (1.27)	4.27 (1.35)	4.1 (1.35)	≤0.001
COPM-Satisfaction	3.69 (2.33)	5.57 (1.99)	3.04 (1.65)	3.42 (1.88)	≤0.001
NEADL Total	43.81 (13.16)	47.18 (11.87)	44.29 (11.05)	40.73 (10.71)	≤0.001
Stanford Self-Efficacy	5.77 (1.98)	6.79 (1.51)	5.78 (1.97)	5.32 (1.92)	≤0.001
EQ-VAS	53.92 (24.32)	65.73 (20.18)	54.13 (19.88)	50.50 (16.30)	0.001
HeiQ: PAE	2.59 (0.61)	2.93 (0.63)	2.56 (0.43)	2.62 (0.56)	0.002
HADS-Anxiety	8.73 (5.33)	9.50 (4.71)	10.04 (5.09)	9.09 (4.96)	0.317
HADS-Depression	6.42 (3.93)	6.32 (4.19)	6.54 (3.22)	7.82 (3.83)	0.412
HADS-Total	15.35 (8.62)	15.59 (8.31)	16.79 (6.84)	16.68 (8.16)	0.663
Number of GP visits	3.45 (2.65)	3.32 (3.37)	2.64 (1.79)	1.64 (1.40)	0.109
Number of PN visits	0.27 (0.46)	0.41 (1.33)	0.41 (0.67)	0.23 (0.43)	0.957
Number of Hospital Admissions	0.05 (0.21)	0.18 (0.39)	0.09 (0.29)	0.14 (0.35)	0.531

Table 3

The GAS was used with the intervention group participants to set specific programme goals. A paired sample t-test revealed a highly significant difference between baseline and follow-up (p≤0.001).

Commonly cited goals set using the GAS:

- Maintaining or improving fitness levels
- Losing weight
- Increasing confidence levels
- Improving diet

Feedback from intervention group participants showed high levels of agreement from group members that the programme was an enjoyable, worthwhile experience and was reported as beneficial to participants.

Discussion

Overall, this RCT found significant improvements in primary and secondary outcomes providing evidence to support the effectiveness of OPTIMAL.

- The strong occupation focus of OPTIMAL may account for the significant change in participants' occupational performance and participation.
- A number of areas have been identified as problematic for individuals with multimorbidity, including fatigue, anxiety, communication with health professionals and medication management (Noel et al., 2005), all of which were addressed by the OPTIMAL programme content and facilitators. Goal setting enabled participants to apply their learning and understanding of programme topics to their occupational performance and to enhance and develop self-management skills.
- In contrast to previous self-management programmes, which have primarily been peer-led, OPTIMAL is facilitated by occupational therapists, yet still enables peer support throughout the programme (EPP, 2008; Lorig et al., 2001). This combination of occupational therapist input and peer support is likely to be instrumental in its effectiveness but requires further testing.
- The lack of change in health care utilisation figures reflects the short follow-up period (2 weeks), which is insufficient to identify changes in patterns of usage. The programme focuses on developing effective communication skills and increasing confidence levels, particularly when interacting with healthcare professionals. This may not necessarily result in decreased utilization, but may result in more efficient and effective use of services over a longer period of time. This requires further investigation.

Limitations

- Small sample size: A larger number of participants is required for a definitive RCT
- Short follow-up: Longer follow-up is needed to ascertain whether benefits were sustained.
- Blinding of participants and intervention delivery teams is not possible for this intervention but additional resources would allow blinding of outcome assessors

Implications for Practice and Future Research

- Occupational therapists have seldom been involved in the delivery of self-management programmes, yet this study indicates an emerging role in occupational therapy practice.
- GPs and practice nurses play an important role in the future implementation of the OPTIMAL Programme, in raising awareness and recruiting suitable patients for the programme
- The OPTIMAL programme requires minimal training resources. Groups cater for 10 to 15 participants at one time; highlighting the potential cost effectiveness of programme delivery compared to individual OT interventions.
- This trial contributes towards much needed evidence on the effectiveness of interventions for patients with multimorbidity. The results have supported the application for a definitive intervention trial that will test the cost effectiveness and sustainability of the OPTIMAL programme over a wider range of practices in Irish primary care.

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References

All references are available upon request. Please contact Jess Garvey at garveyjm@tcd.ie.

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Ethical Approval granted by TCD Research Ethics Committee