Cardiac outcomes 12 months post percutaneous coronary intervention

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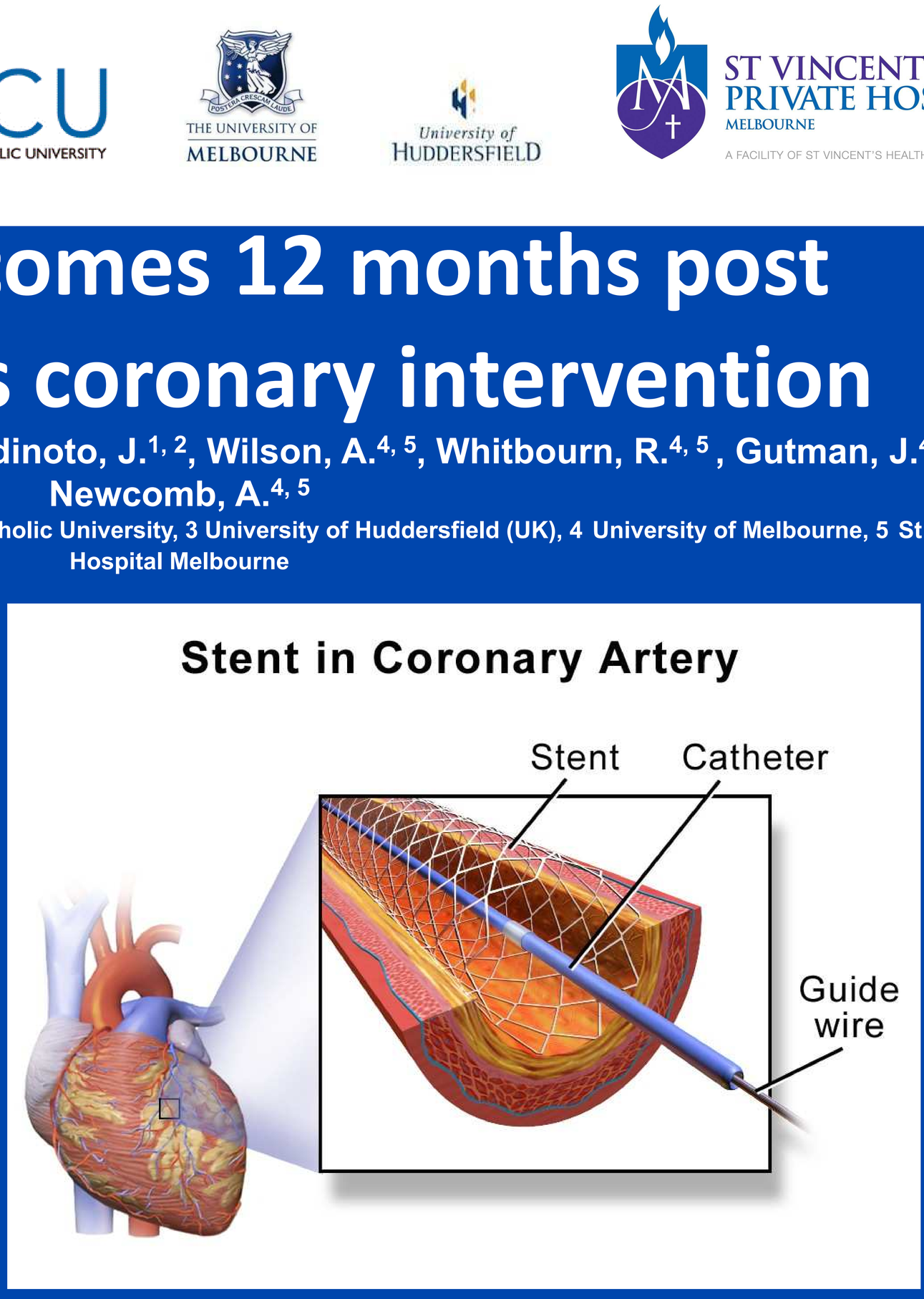
Introduction

Cardiovascular disease (CVD) has over the last decade emerged as the single most important cause for death worldwide [1]. Percutaneous coronary intervention (PCI) is a very common revascularisation procedure for coronary artery disease (CAD). Despite advancement in surgical technology, PCI is associated with a range of post-procedural complications, including physical [2] and psychological morbidity [3]. Research findings are inconclusive as to the impact of PCI on quality of life post-procedure. There also appears to be no studies that have examined the notion of personal resilience in this group of patients.

The aim of this longitudinal prognostic study was to evaluate cardiac outcomes including - health related quality of life (HRQoL), personal resilience, mental health and adherence behaviours in patients who have had undergone a PCI measured at two time points (6 months and 12 months) post-intervention.

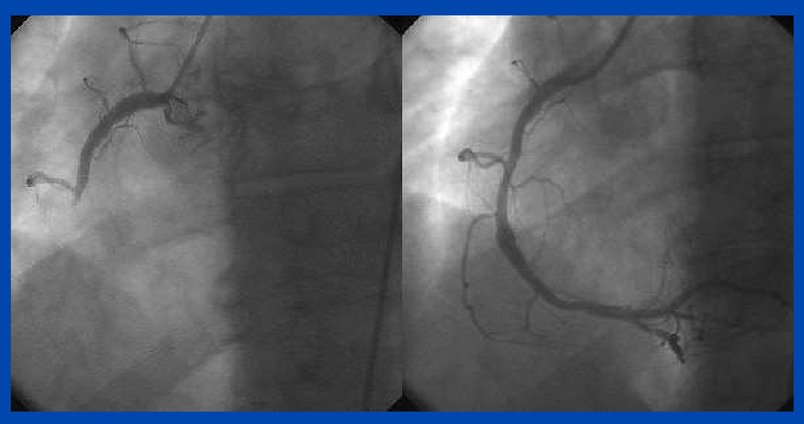


Method

A longitudinal pilot study was conducted to observe the cardiac outcomes across a cohort of patients who had undergone a PCI. Participants who had undergone PCI 6 months prior were invited to participate. Those participants who met the inclusion criteria and provided consent then completed a telephone survey (time point 1). These participants were then contacted 6 months later (i.e. 12 months post-intervention, time point 2) and the measures were repeated.

Sample size

As a pilot, the study was not powered to detect significant effects or was subject to a formal sample size calculation. However, a sample size was desired which would allow the assessment of incidence rates with a 95% confidence interval with +/- 10% precision (i.e. to have 95% confidence that the estimated rate was within 10% of its true value in the population) assuming a prevalence of hospital readmission of about 15%. The sample size also provided sufficient power to show that the correlation between continuously distributed variables (adherence, HRQoL etc.) and was statistically significant if the correlation coefficient was ≥ 0.39 and provided sufficient power to test 3-4 variables in multiple regression models without compromising stability of estimates.



Percutaneous Coronary Intervention before (left) and after (right) procedure. Image from Google images (free license)

Results

All patients (n=51) were recorded as being alive at time point 1. The multiple model indicated that controlling for other factors, gender was significantly associated with a linear combination of outcome measures (p=0.004). The effect was moderate in magnitude (partial-η^2=0.303), where males performed significantly better than females 6 months after the PCI procedure in regards to their physical health and their mood. Follow-up univariate ANOVAs indicated that gender differences were grounded in the scale measuring depression (PHQ-9) (p=0.005) and the physical component score of the short form measuring HRQoL (SF12-PCS) (p=0.003).

Thirteen patients were lost to follow-up between time points 1 and 2. One patient was confirmed to have passed away. The pattern of correlations between outcome measures at time point 2 revealed statistically significant negative correlation between the PHQ-9 instrument (measuring depression) and the resilience scale (CD-RISC) (r=-0.611; p<0.001); and the physical component score of the SF-12 instrument (r=-0.437; p=0.054). A substantive change was recorded in all measures except the CD-RISC measure between the two time points (see table 1).

Table 1. Summary of outcome measure scores at time points 1 and 2

Measure	Time point 1 (mean (SD)) – all patients	Time point 2 (mean (SD)) – all patients	p-value for change (calculated from patients providing values at both time points)
CD-RISC	83.3. (14.0)	80.6 (17.1)	0.083
PHQ-9	13.9 (5.16)	4.97 (5.26)	<0.001
BMQ	1.59 (0.876)	2.78 (2.24)	0.022
SF12-MCS	43.0 (9.57)	57.0 (8.28)	<0.001
SF12-PCS	51.4 (10.5)	39.7 (10.8)	0.004

CD-RISC – Connor-Davidson Resilience Scale, PHQ-9 – Patient Health Questionnaire (depression), BMQ – Brief Medication Questionnaire, SF12 - MCS - HRQoL scale (mental health component), SF12 - PCS - HRQoL scale (physical health component)

Conclusion

Men were performing better than women in the 6 months post-PCI, particularly in the areas of mood (depression) and physical health. The pilot study results indicate gender-sensitive practices are recommended particularly up to 6 months post-PCI. Any gender differences observed at 6 month appear to disappear at 12 months post-PCI. Further research into the management of mood particularly for women post-PCI is warranted. A more detailed inquiry related to access and or attendance to secondary prevention is also warranted.

References

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