Behavioural intervention to increase physical activity among patients with coronary heart disease in Jordan: a randomised controlled trial

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Middle Eastern Context

• Benefits of PA well-known in treatment of CHD
• BUT patients often do not follow prescribed physical activity (PA) recommendations (and % is declining – in Jordan 47% CHD patients inactive)
• Jordan - developing country with operational inefficiencies in provision of public healthcare; secondary prevention programmes such as CRPs not provided
• No structured PA interventions and no behavioural interventions for CHD patients
Study Design

• **Aim:** To increase physical activity levels in Jordanian CHD patients [not receiving CRP]

• **Randomised Controlled Trial**
  – **Intervention Group:** Usual care plus multi-component behavioural change programme
  – **Control Group:** Usual care (education and generic advice for active lifestyles)

• **Intervention:** 6 months
  – Nurse-led intervention
  – Tailored behavioural programme
Aim and Measures

- **Aim**: engage in at least 150 mins/week of moderate intensity physical activity

- **Primary outcomes**:
  - IPAQ [moderate PA/walking – frequency, duration, intensity: METS]

- **Secondary outcomes**:
  - BP, BMI
  - exercise self-efficacy scale
  - Mac-New Heart Disease HRQoL questionnaire

- **Data collection**: baseline and 6 months
Intervention

1 face-to-face consultation
Individualised, tailored, MI techniques

6 telephone consultations [1 per mth]
Goal-setting, monitoring, feedback

18 text messages [4 x month, reducing to 2 x month]
No-reply, Prompts, reminders
Recruitment Sites

Jordanian University Hospital
  • Located in Amman (Capital)
  • Public teaching hospital
  • 600 cardiac outpatients per week

King Abdullah University Hospital, Irbid
  • Located in Irbid (major city)
  • Private teaching hospital
  • 500 cardiac outpatients per week
Selection criteria

Inclusion (40-60% eligible)

- Clinical diagnosis of CHD including angina, myocardial infarction (MI), or revascularisation, such as angioplasty, stent and coronary artery bypass (heart surgery).
- Current outpatients
- Clinically stable
- Able to engage in moderate activity
- Understand and write Arabic
- Access to a mobile telephone

Exclusion

- Clinically unstable eg those with unstable dysrhythmia, persistent hypotension, severe joint diseases and chronic heart failure
- Co-morbidity which prevented engagement in moderate activity or comprehension of advice
Recruitment

- 278 eligible, 160 participants approached
  - 2 were regionally transferred
  - 2 did not consent
- 97.5% agreed to participate
- 156 participants randomised (78 per hospital)
  - Control = 85 (at 6m, n=79)
  - Intervention = 71 (at 6m, n=66)
- No baseline differences in sociodemographics, physical or psychological health
Physical activity

• **Active** = met the PA guidelines of 30 minutes of moderate intensity activity five days a week (150 minutes per week), or a combination of walking and moderate-intensity activities achieving a minimum of at least 600 METs-minutes/week.

• **Intervention:**
  – 24% active at baseline
  – 88% active at 6 months

• **Control:**
  – 26% active at baseline
  – 24% active at 6 months
IPAQ moderate PA

- **Increase in moderate PA** – (mean change):
  - **frequency**:
    - IG 0.7-0.93 days/week (+0.23);
    - CG 0.45-0.39 (-0.06)
  - **duration**:
    - IG 21.14-36.67 mins/week (+15.53);
    - CG 20.13-16.46 (-3.67)
  - **intensity**:
    - IG 83.18-114.23 (+31.05);
    - CG 77.97-63.29 (-14.68)
IPAQ - Walking

• **Increase in walking levels** – (mean change):
  
  – **frequency**:
    • IG 3 days/week – 6.15 (3.15)
    • CG 3 days/week – 3.40 (0.37)
  
  – **duration**:
    • IG (+150.90 minutes/week)
    • CG (+24 minutes/week)
  
  – **intensity**
    • IG 495 METs
    • CG 14.62 METs.

• **Reduction in sitting hours**
  
  – IG 7.45-6.5 hrs/day
  
  – CG 8.77 hrs/day – 8.84
Secondary outcomes

- **Reduction in systolic BP**
  - mean reduction -6.12 mm Hg
- **Reduction in diastolic BP**
  - mean reduction -1.79 mm Hg
- **Reduction in body weight, BMI, obesity**
  - IG -5.30kg; control +0.16 kg
  - IG 10% reduction in obesity, CG 6% increase in obesity
- **Improvement in HRQoL**
  - emotional, social and physical – mean change in total HRQoL IG = +1.09; CG -0.15
- **Increase in exercise self-efficacy**
  - mean change in ESE, IG = +3.77; CG = -0.02
Process evaluation

• Survey at 9 months: Intervention participants (n=66, 93%)
• Patients perceived intervention positively

Arising themes:
• Trust in the cardiac nurse
• Overcoming their barriers to physical activity
• Learning how to set their own goals
• Providing motivation to change existing behaviours
• Providing regular reminders to act
• Feeling supported by the healthcare system
• All elements valued (face-to-face, telephone support and text messaging)
• Participant lifestyle changes and maintenance of PA behaviours
Conclusions

- First study to use behavioural strategies to increase PA in CHD patients in Jordan
- High participation, good compliance, low attrition
- Intervention effectively: increased physical activity, improved body composition, improved physiological and psychological outcomes.
- Magnitude of change in PA frequency, duration and intensity was larger than found in western studies with CHD patients
- Further research to investigate long-term maintenance of PA habits, dose-response and cost-effectiveness of the intervention.