

Pharmacist Education and Telephone Follow-up after Hospitalization for an Acute Coronary Event: The Assessment of Cardiology peri-Discharge Counseling (ACDC) Pilot Study

Michael De Guzman, B.Sc.(Pharm), PharmD; Melanie Carter, B.Sc.(Pharm), ACPR, PharmD; Sean K. Gorman, B.Sc.(Pharm), ACPR, PharmD; Richard S. Slavik, B.Sc.(Pharm), ACPR, PharmD, FCSHP; Damian Rawnsley, RN, BScN, CCN(C)

BACKGROUND

- Adherence to medications after an Acute Coronary Syndrome (ACS) is poor, with 33% discontinuing at least 1 medication after 1 month and 50% by 1 year
- Studies to improve adherence have shown mixed results and involve complex pharmacist interventions that are difficult to replicate and implement.
- Patient beliefs about medications has been identified as a key modifiable barrier to adherence.

OBJECTIVES

- Primary:** To evaluate the feasibility of conducting a large randomized study to assess a pharmacist intervention, and the feasibility of the intervention itself
- Secondary:** To characterize this intervention's effect on patient beliefs about medications and medication adherence

METHODS

- Design:**
- Post-test only, with non-equivalent groups
- Setting and Sampling:**
- 22-bed Cardiology ward at Kelowna General Hospital
 - Time period-based, consecutive sampling
- Inclusion:**
- Adult ACS patients with planned discharge to home
 - Able to communicate in English; access to telephone
- Exclusion:**
- Receiving or planned cardiac surgery
 - Receiving an oral anticoagulant for any indication
 - Residing in a care facility or outside British Columbia
 - Cognitive impairment or requiring full-time assistance with medication administration
- Intervention:**
- Cardiology pharmacist inpatient counseling and telephone follow-up, focused on education to improve beliefs about medications; in addition to usual care
 - Patient handout with overview of ACS and angioplasty
- Control:**
- Usual care – orientation to medications, medication calendar and discharge prescription delivered by nurses
- Primary Feasibility Outcomes:**
- Recruitment and Attrition Rates
 - Duration of Pharmacist Intervention

METHODS

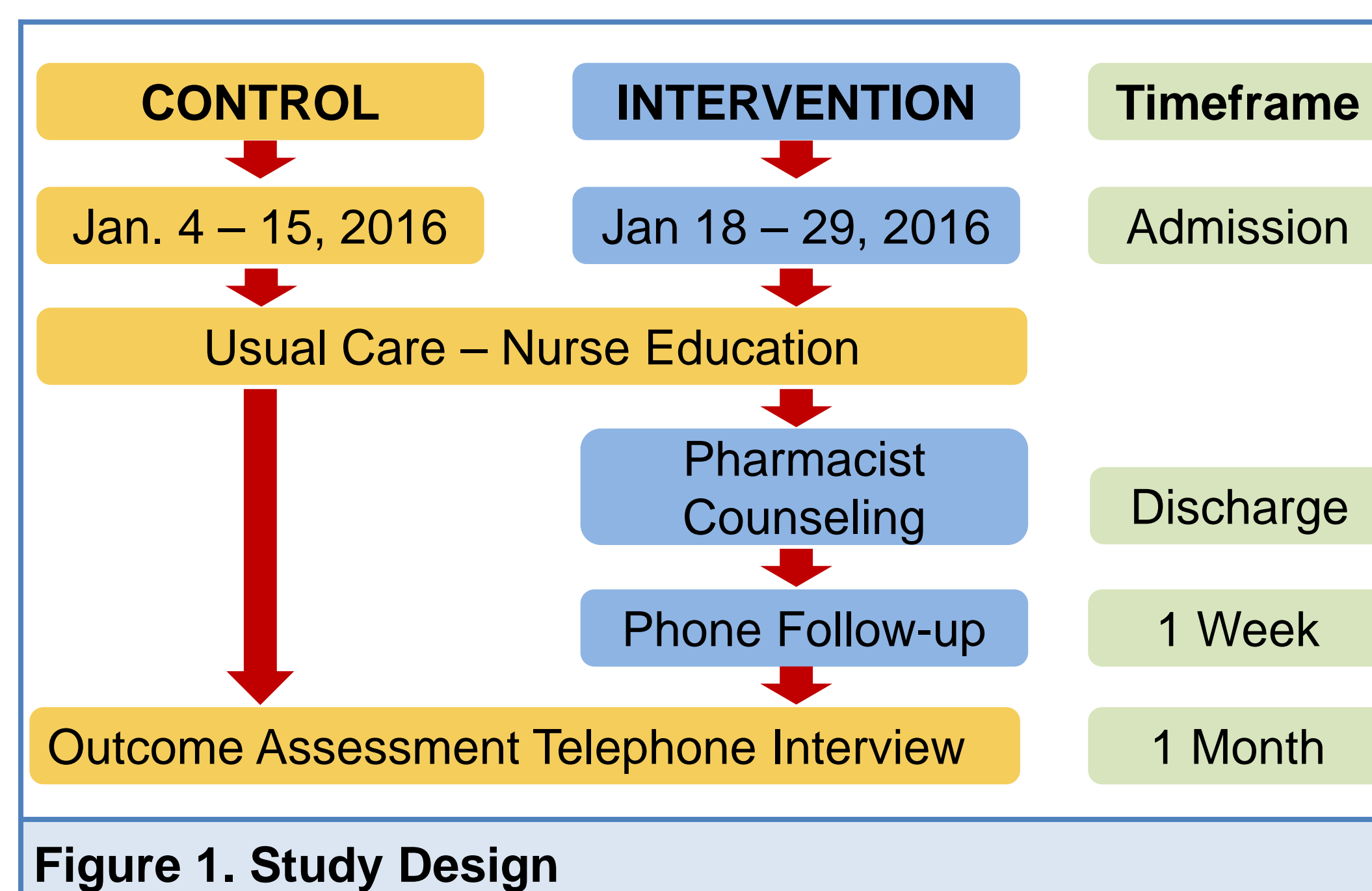
Secondary Efficacy Outcomes :

- Beliefs About Medicines Questionnaire (BMQ)
 - Validated to assess perceived benefits and harms of medications (Necessity & Concerns subscales)
 - ↑ Necessity & ↓ Concerns → Better Adherence
- 8-Item Morisky Medication Adherence Scale (MMAS-8)
 - Validated and correlates with refill rates
 - Score = 8 – High Adherence
 - Score = 6-7 – Medium Adherence
 - Score < 6 – Low Adherence

- Self-reported prescription fill rate

Statistical Analysis:

- Appropriate descriptive and non-parametric inferential statistics; Sample size of convenience



RESULTS

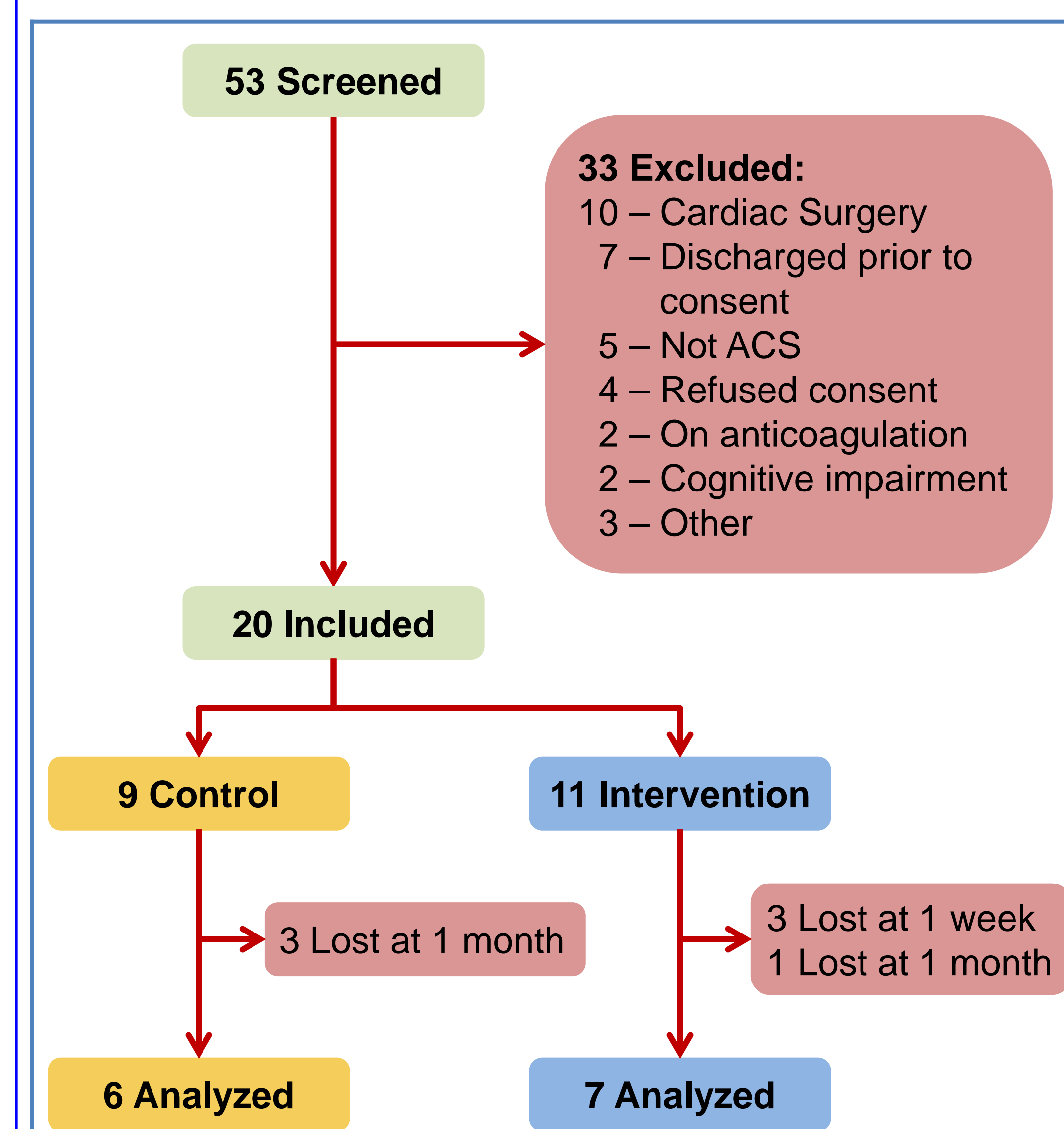


Figure 2. Study Flow Diagram

Table 2. Primary Feasibility Outcomes

Outcome	Value
Recruitment Rate ¹	20/53 (37.7%)
Attrition Rate	7/20 (35.0%)
Intervention Duration (minutes)	
Inpatient Counseling	15 (15 - 26.5)
Phone Follow-up	7 (5 - 11)
Total	25 (21 - 35)

Data reported as median(IQR) or n(%);
¹One Recruit per day, on average

Table 1. Participant Demographics

	Control (n = 9)	Intervention (n = 11)
Age	58 (52-68)	68 (53.5-74)
Males	9 (100%)	7 (64%)
ACS Type		
STEMI	2 (22%)	4 (36%)
NSTEMI	6 (67%)	7 (64%)
UA	1 (11%)	0
Comorbidities		
Hypertension	4 (44%)	5 (45%)
CAD	3 (33%)	3 (27%)
Diabetes	1 (11%)	1 (9%)
Other	1 (11%)	3 (27%)
Medications		
> Admission Total	4 (0 - 4)	3 (1 - 5)
Cardiac	0 (0 - 4)	2 (0 - 3.5)
> Discharge Total	8 (7 - 8)	7 (7 - 9)
Cardiac	6 (6 - 7)	6 (6 - 6)
Using a Blister Pack	0 (0%)	0 (0%)

Data reported as median(IQR) or n(%)

Table 3. Secondary Efficacy Outcomes (At 1 month)

	Control (n=6)	Intervention (n=7)	p-value ¹
MMAS-8 ²	8 (8 - 8)	8 (7 - 8)	0.430
Rx Fill	6 (100%)	7 (100%)	-

Data reported as median(IQR) or n(%);

¹Mann-Whitney U Test, 2-tailed; p ≤ 0.05 is significant

²MMAS-8 = Morisky Medication Adherence Scale (Score Range 0-8)

RESULTS

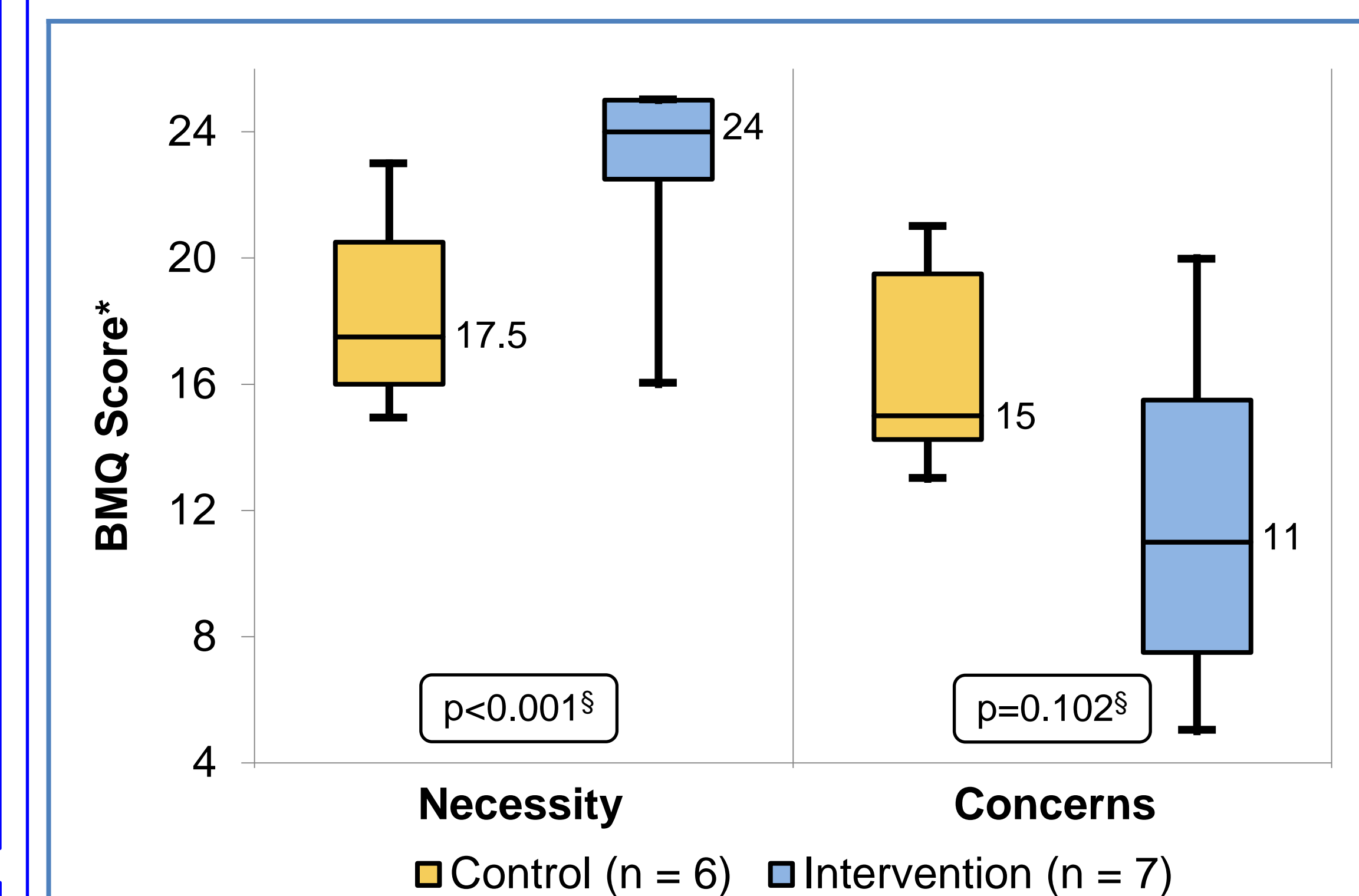


Figure 3. Beliefs About Medicines Questionnaire Scores

*Score Range 5-25

[§]Mann-Whitney U Test, 2-tailed; p ≤ 0.05 is significant

DISCUSSION

- Observed low recruitment rate and high attrition rate
- Need more rigorous recruitment and follow-up procedures
- Intervention not consistently feasible for a single pharmacist given variable number of discharges per day (typically 2 to 9 per day in our cardiology ward)
- Intervention improves medication necessity beliefs but did not alleviate concerns nor improve adherence.
- Need to modify intervention to more adequately address patients' concerns about medication adverse effects.

LIMITATIONS

- Small, non-randomized sample
- Short follow-up of beliefs and adherence endpoints, which may change with time
- Social desirability bias and response bias may falsely inflate belief scores and adherence measures
- Detection bias due to non-blinded efficacy outcomes assessment
- BMQ-Concerns, MMAS and self-report may not be sensitive enough to detect differences

CONCLUSIONS

- Replication of this study in a larger scale is feasible with more stringent recruitment and follow-up procedures but will require additional manpower and funding
- Efficacy results support the hypothesis that pharmacist discharge counseling and telephone follow-up may improve patients' beliefs about the necessity of their medications.

