HA Convention 2010

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Presentation Topic

- The effects of Nurse Follow-Up Dietary Intervention (NFDI) on dietary modification behaviour, knowledge of myocardial infarction, blood lipid level among post myocardial infarction patients in Hong Kong: a randomized controlled trial.

Content

- Background
- Purpose of the study
- Study Design and Method
- Description of Intervention (NFDI)
- Setting
- Sampling and Inclusion Criteria
- Exclusion Criteria
- Data collection
- Ethical Consideration
- Data Analysis
- Results and Discussion
- The Dropout Vs Completers, flow chart and dropout reasons
- Demographic Data
- Limitations and Recommendations to Practice
- Conclusion
- References and Q & A

Background

- Coronary artery disease (CAD) was reported to be the second leading cause of death between 1961-1998(Census and Statistic Department, 1998)
- Among CAD categories, myocardial infarction (MI) is one of the major categories reported to be increasing in Hong Kong (Lam et al., 1998).
- As in China, CAD claiming 2.6 million lives per year. (Zhao, 2001).
- CAD might be largely preventable by an appropriate lifestyle as defined in great detail while it is common to attempt to modify the risk by drug treatment (Hu et al, 2000; Stampfer et al, 2000; Hu & Willett, 2002).

Background

- Dietary behaviour is a crucial contributor to increase the risk of AMI (Stampher, et al., 2000).
- It has been reported that CHD risk increases by 2% for each 1% increase in cholesterol among the middle-aged population, and decreased by 1.25% for each 1% decrease in LDL (Durrington, 2003).
- The nurse follow-up provides an invaluable opportunity to evaluate patient education, identify trends that may require improvement in practice, determine compliance with discharge instructions, and assess overall impressions of performance. (Barnes, 2000)

Purpose of the Study

- The purpose of this study is to examine the effects of a Nurse Follow-up Dietary Intervention (NFDI) on dietary modification behaviour, knowledge of MI and blood lipid profile among post myocardial infarction patients.

Study Design

- A randomized controlled trial design.
- Random allocation into 2 groups (Control and Intervention) .

  Control Group : Attend dietary class in Cardiac Rehabilitation Program conducted by dietitian

  Intervention Group: Attend dietary class in Cardiac Rehabilitation Program conducted by dietitian + Nurse Follow-Up Dietary Intervention(NFDI)

- Data were collected at 3 time points:

  T(0): 1 week before intervention. (baseline=around 1 week after MI)

  T(1): 1 weeks after intervention. (on the 9th week after MI)

  T(2): 3 months after intervention. (on the 21st week after MI)

Intervention Program-NFDI (Nurse Follow-up Dietary Intervention)

- The Intervention Programme:

  8 weeks Mediterranean Diet with booklet provided and telephone reinforcement at 2 weeks interval, with aims of improving the participants' awareness of their own health signals and actively involving them in self-care management of their own health for secondary coronary arteries disease prevention.

Description of Intervention (NFDI)

- Promotion of Mediterranean Diet in small class around 15 clients/class.
- Class duration total 30 minutes
- Biweekly Telephone reinforcement

  - 8-week schedule.

  - A phone call directly to each participant at 2-week interval following a standardized procedure including

  1.Assess compliance for the past 3 days with a log book as reminder.

  2.Provided advice on dietary intake and cooking method.

  3.Questions and answer.

Setting

- Participants had been recruited in CCU, general medical wards, admission wards.
- Dietary class by dietitian was organized in a lecture theatre.
- NFDI was conducted in a seminar room.

Sampling and Inclusion Criteria

- Convenience sampling
- Inclusion Criteria

1. Clients diagnosed MI and medically stable.

   -Their medical condition were stabilized with documentation by doctors – without angina and haemodynamically stable (with stable blood pressure, heart rate, respiration, normal ECG and chest pain free).

2. Clients with borderline TG/TC/HDL/LDL level and who are not receiving medications.
3. Clients willing to attend general dietary class from the Cardiac Rehabilitation Program.
4. To be contactable through telephone after discharge.
5. Able to communicate in Cantonese and/or English.

Exclusion criteria

- 1.Patients with cognitive impairment or history of psychiatric illness;
- 2. Patients on any special dietary pattern /with feeding problem (e.g. swallowing problem, on nasogastric feeding, renal patients on renal diet).
- 3. Patients participated in interventions other than the designated Dietary Class from the Cardiac Rehabilitation Program.

Data Collection

- Face-to-face interview with the use of structured questionnaires collected by 3 independent trained research helpers whom are not involved in project design and implement and they are blinded about subject groups allocation .
- Blood were taken by the Cardiac Rehabilitation APN at Cardiac Rehab.Clinic.

Ethical Considerations

The following was considered in planning and implementation stages of the study:

- Principle of beneficence

  -Freedom from harm

  -Freedom from exploitation
- Respect for human dignity

  -The right to self-determination

  -The right to full disclosure

  -Informed consent
- Principle of justice

  -The right to fair treatment

  -The right to privacy

Ethical Consideration

The following had been done in this study:

- The approval of ethical appropriateness of the study had been obtained from the Hospital Ethical Committee (KCC Cluster)
- Written informed consents were obtained
- Subject’s data were restricted to research team and kept no longer than required.

Data Analysis

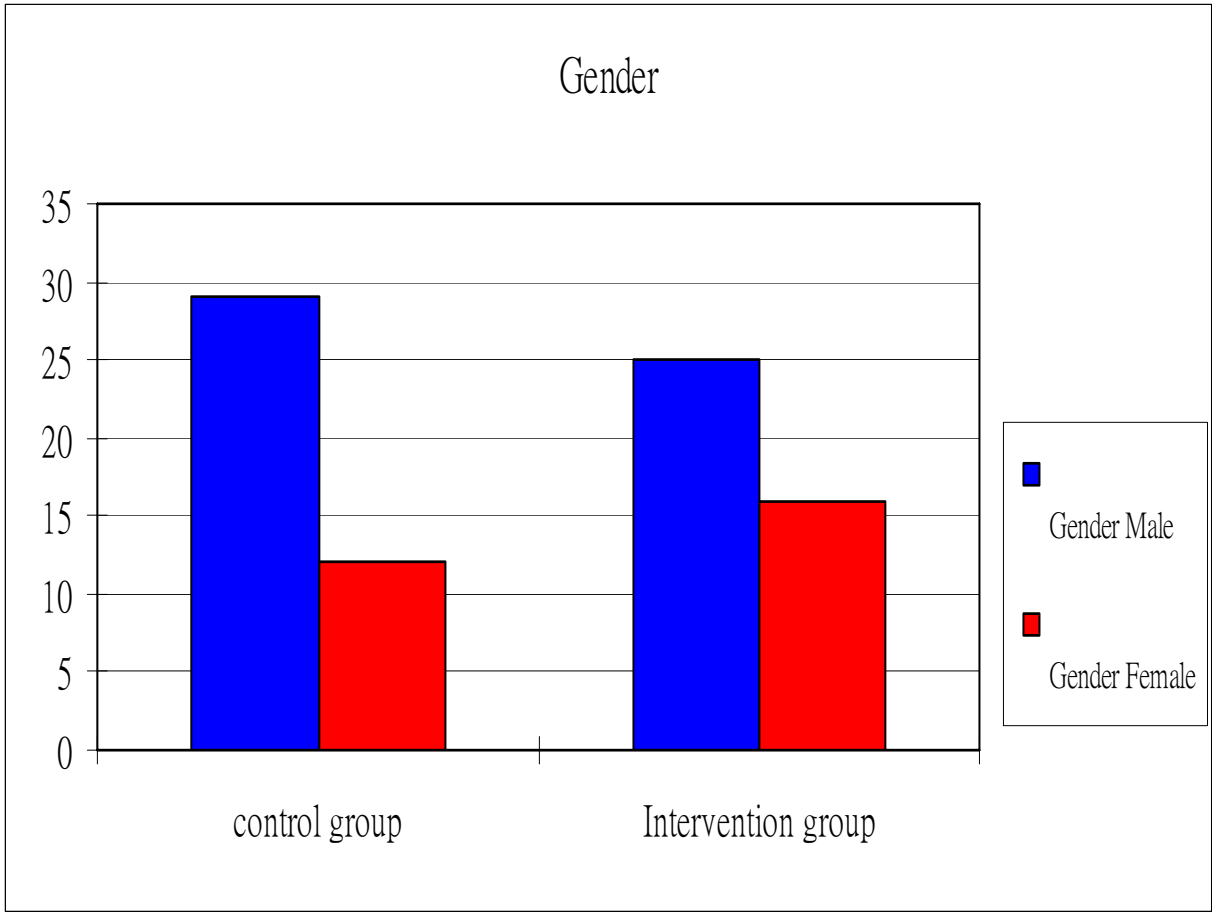
- Intention-to-treat analysis was performed.
- Descriptive statistics were used for summarising demographics data and the outcome variables.
  - Mean and standard deviations were reported for continuous data
  - Median and mean rank were reported for ordinal data
  - Frequency and percentage were reported for nominal data

Data Analysis

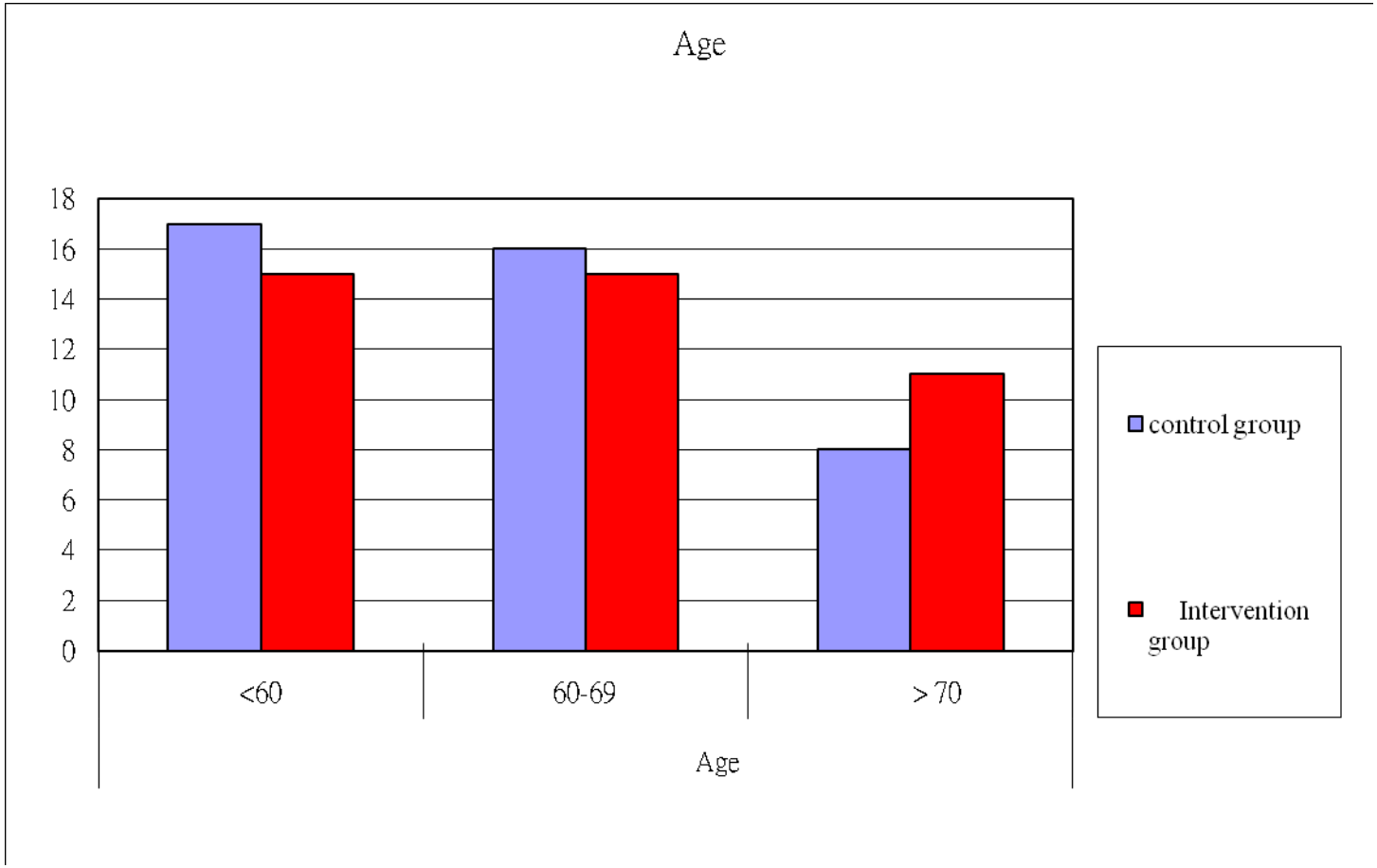
- Baseline characteristics in the intervention and control groups were compared using summary statistics.
- Intention-to-treat analysis was conducted to compare changes over the 3-time points.
- For examining between group difference, the following tests were performed
  - Mann-Whitney U test for ordinal data;
  - Chi-square test for norminal data.
- For examining within group difference,
  - Friedman Test for continuous data

Results and Discussion

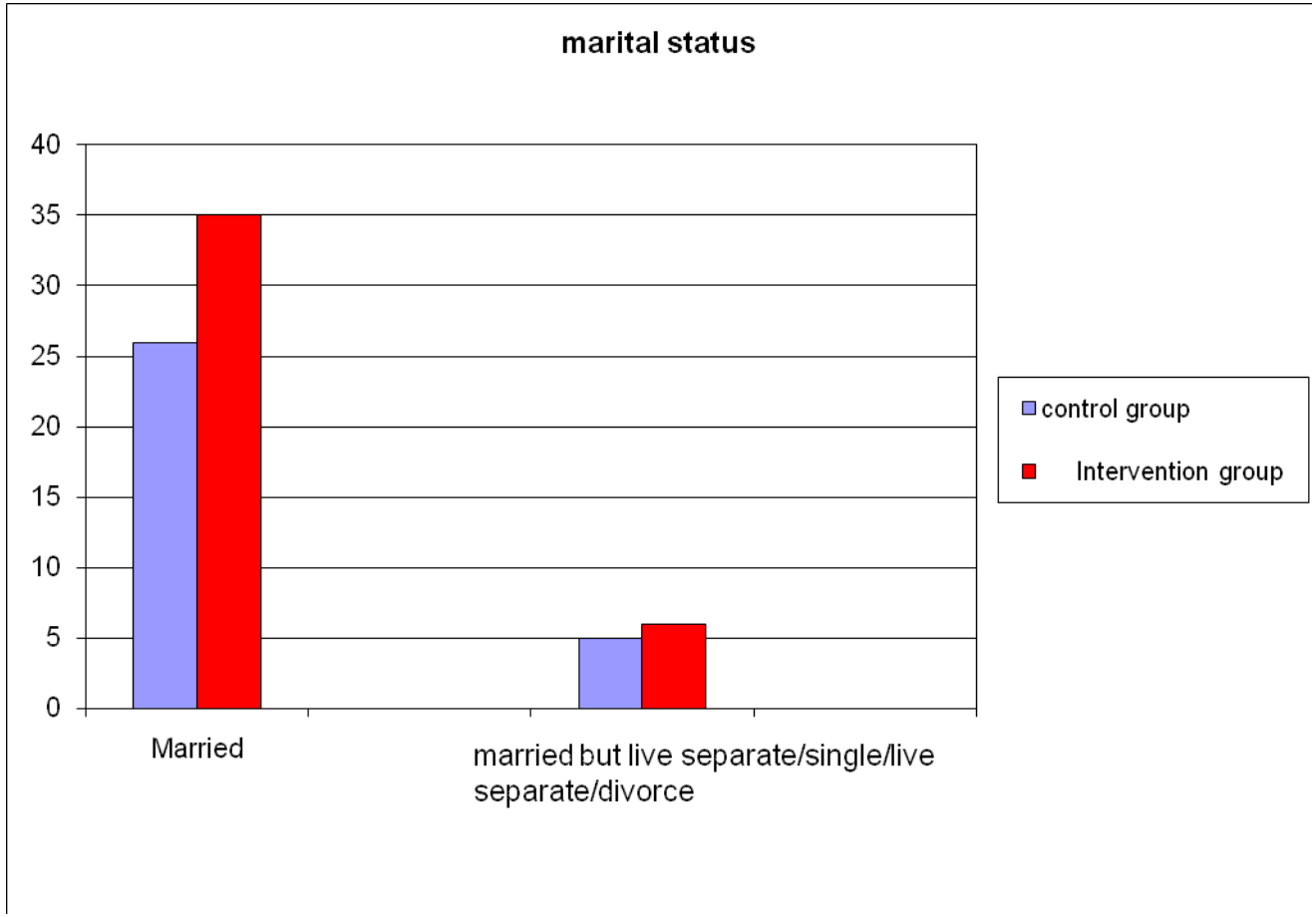
Demographic Data-Gender



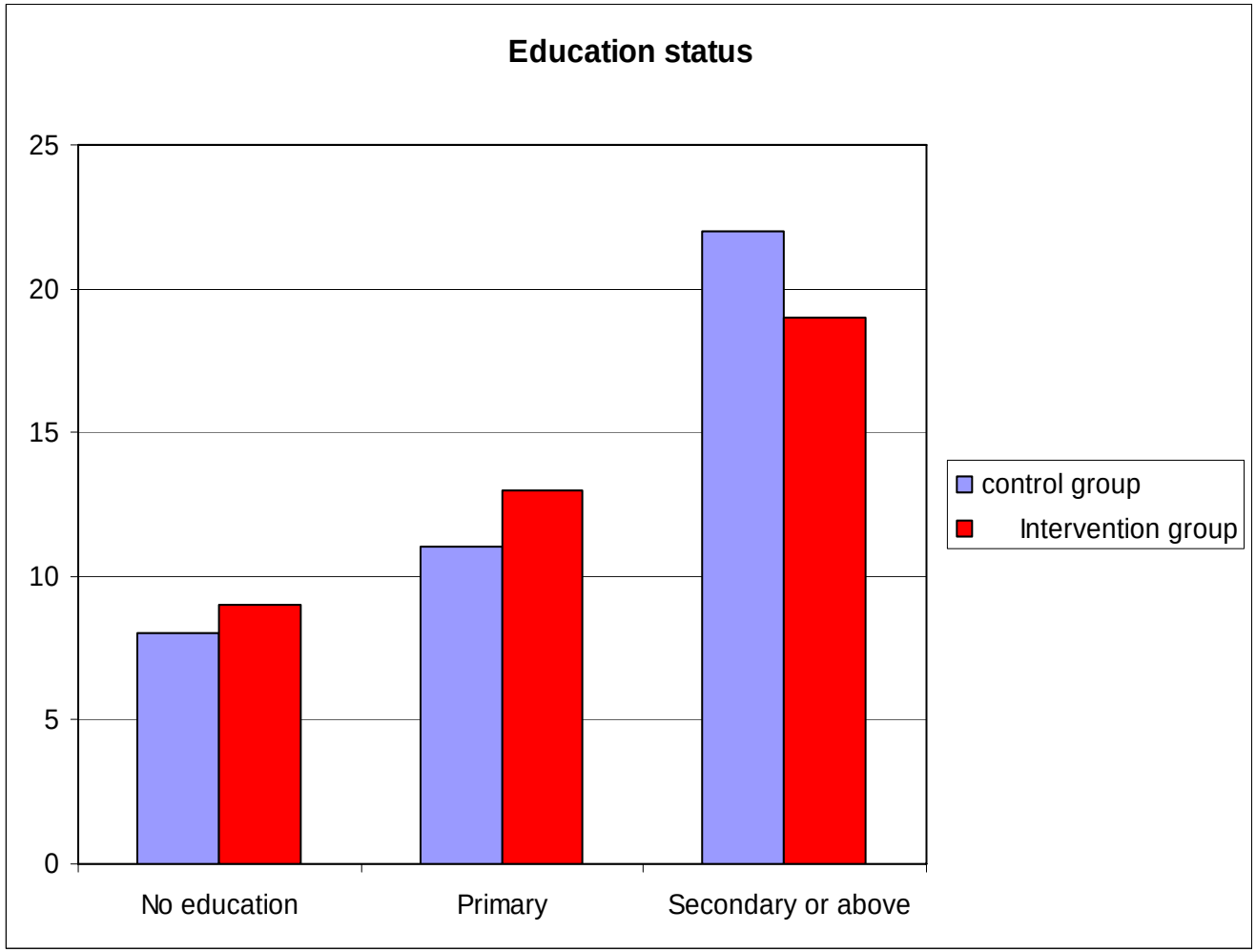
Demographic Data- Age



Demographic Data- Marital Status

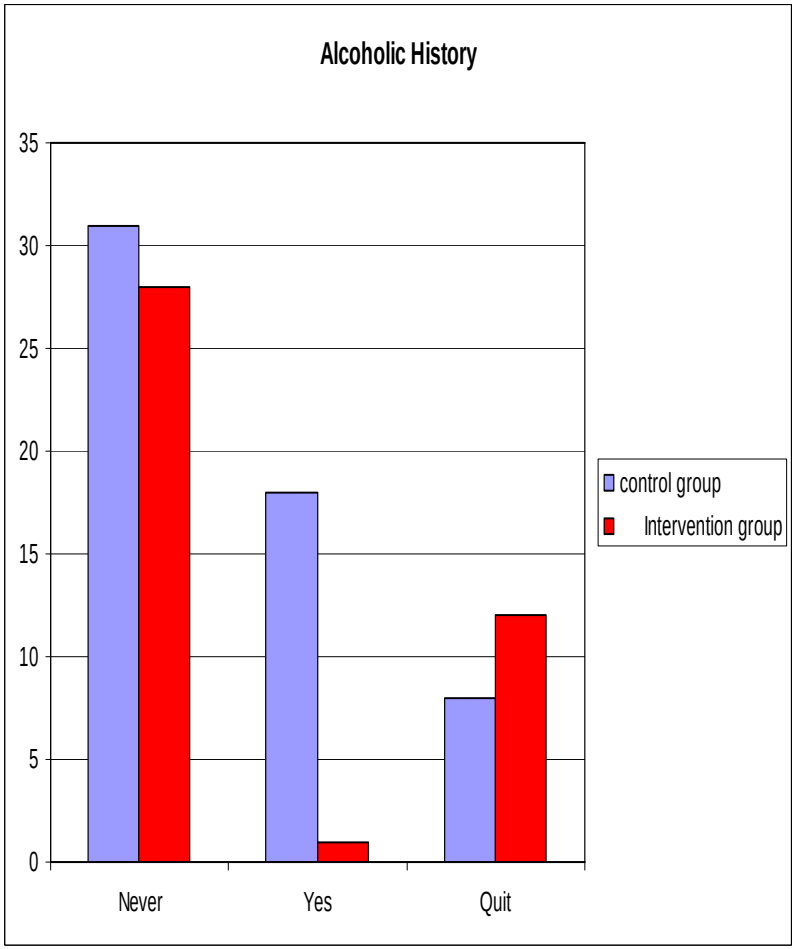


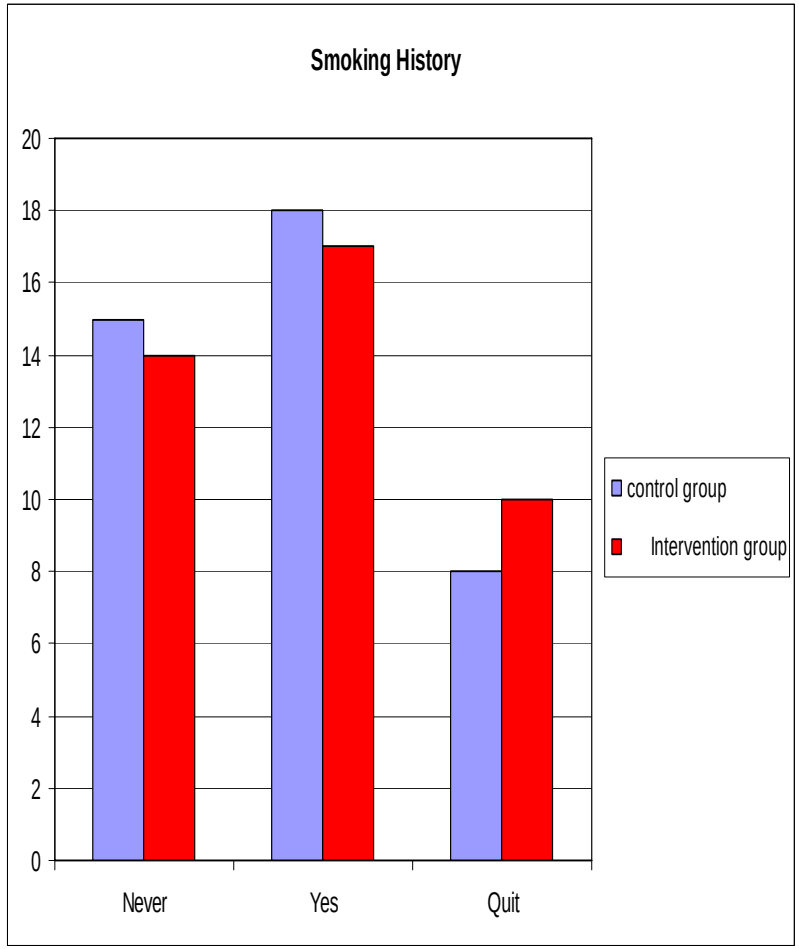
Demographic Data- Education Status



Demographic Data-Occupational Status

Demographic Data- Smoking and Alcohol History

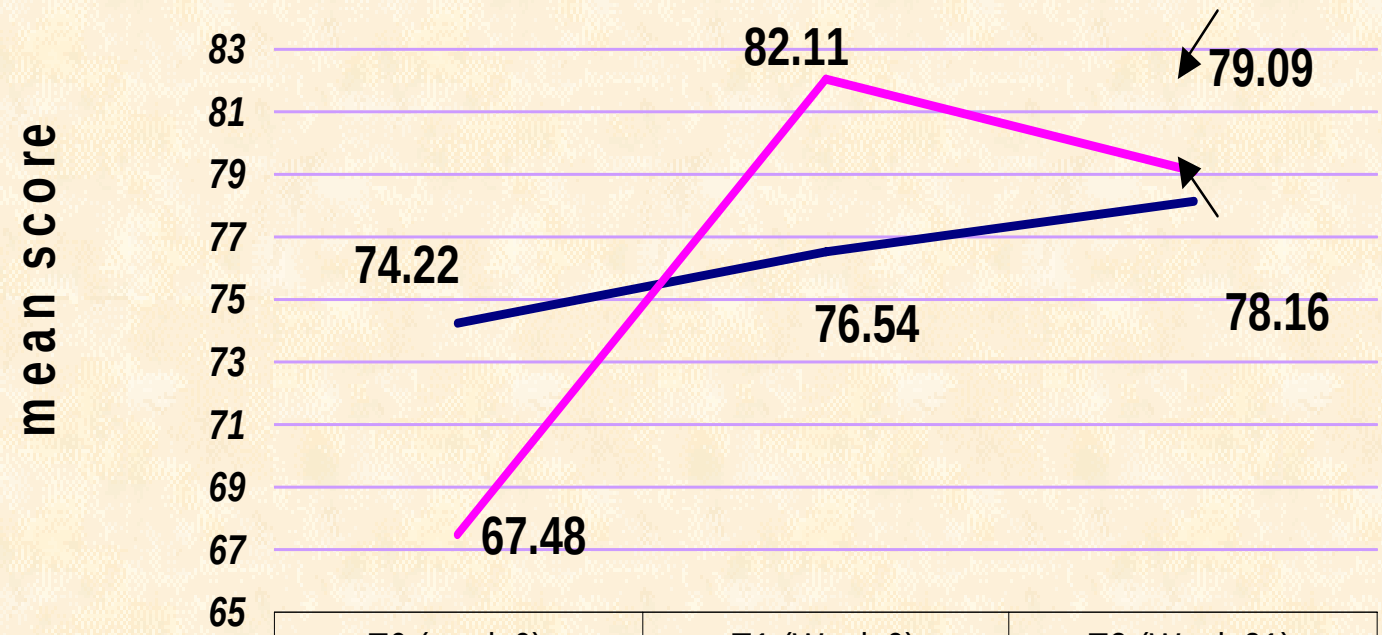




Research Question 1

- Is there any difference in the knowledge level of CAD risk factors between control group and intervention group?

Knowledge level comparison



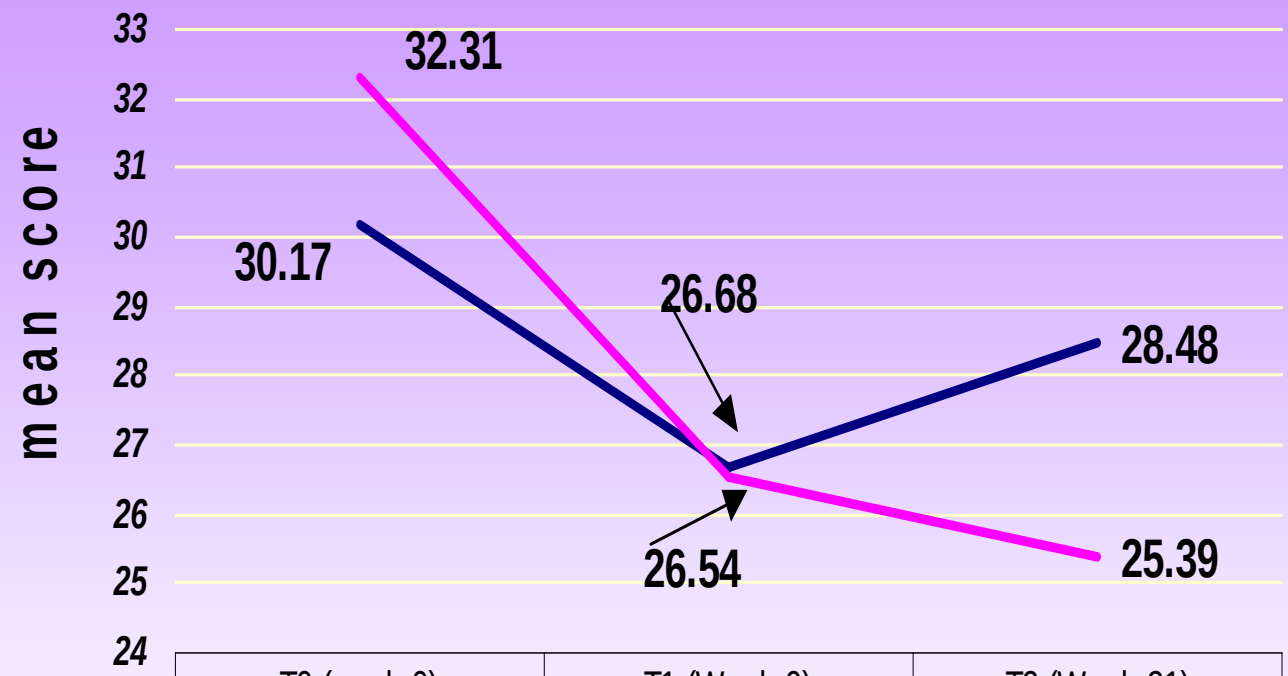
	T0 (week 0)	T1 (Week 9)	T2 (Week 21)
control group	74.22	76.54	78.16
Intervention group	67.48	82.11	79.09
p-value	0.41	0.58	0.79

N=82		Table 2 Knowledge Level Comparison		
	Control	Intervention		
	Mean (SD)	Mean(SD)	Mann-Whiteney Test	p-value
Knowledge level T0	74.22(20.23)	67.48(23.47)	622.5	0.41
Knowledge level T1	76.54(19.2)	82.11(8.23)	783	0.58
Knowledge level T2	78.16(14.59)	79.09(7.29)	812	0.79
Friedman Test	χ^2=4.789	χ^2 = 24.791		
	df = 2	df = 2		
	p = 0.091	p<0.001		

Research Question 2

- Is there any difference in the dietary behaviour between control group and intervention group?

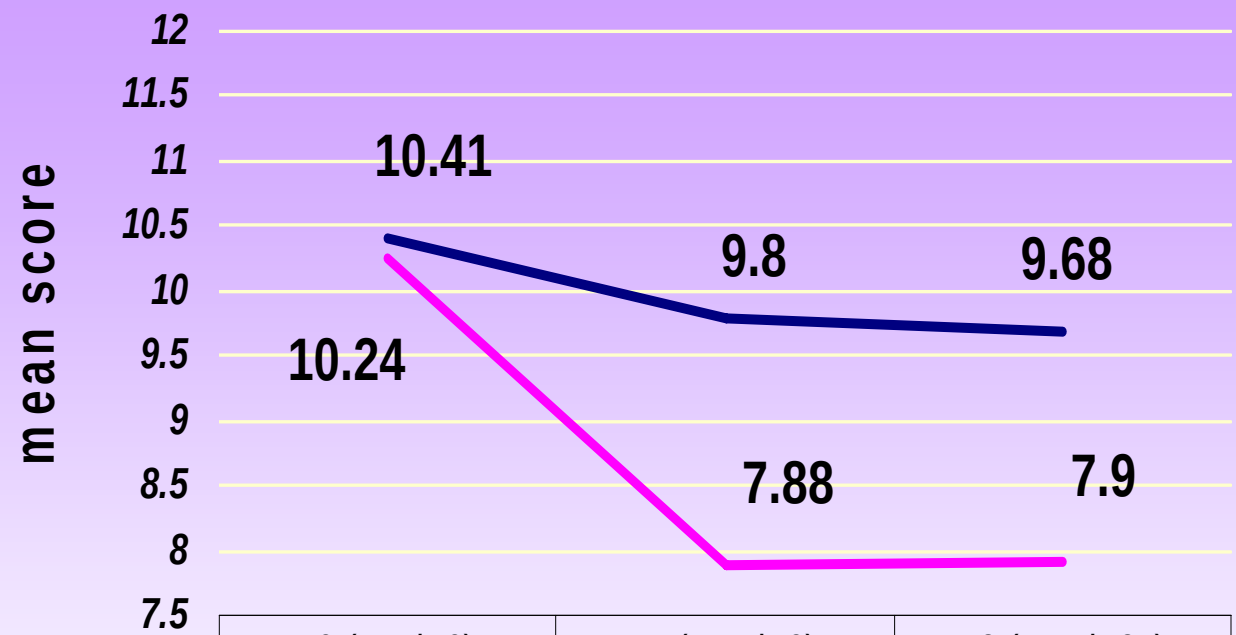
Eating habit comparison (High fat comsumption)



	T0 (week 0)	T1 (Week 9)	T2 (Week 21)
control group	30.17	26.68	28.48
Intervention group	32.31	26.54	25.39
p-value	0.12	0.159	0.017

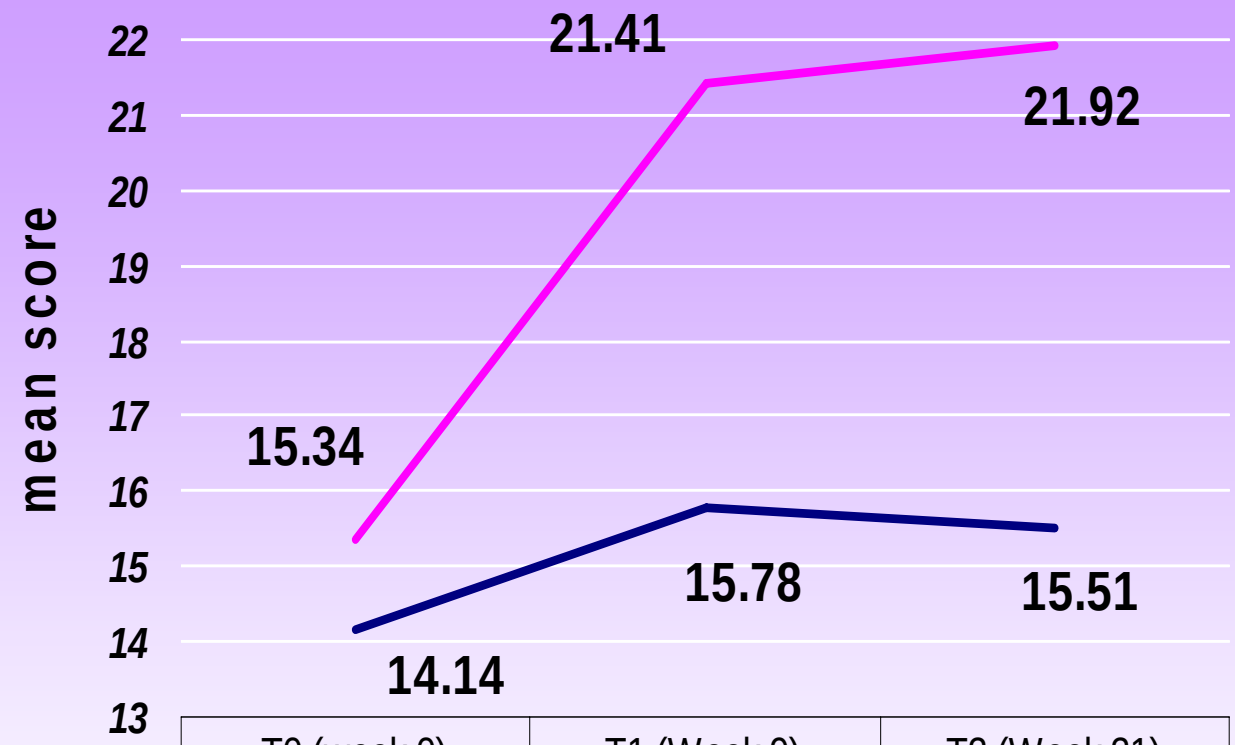
control group *Intervention group*

Eating habit comparison (high salt consumption)



	T0 (week 0)	T1 (Week 9)	T2 (Week 21)
control group	10.41	9.8	9.68
Intervention group	10.24	7.88	7.9
p-value	0.46	0.001	0.001

Eating habit comparison (Mediterranean diet)



	T0 (week 0)	T1 (Week 9)	T2 (Week 21)
control group	14.14	15.78	15.51
Intervention group	15.34	21.41	21.92
p-value	0.113	0.001	0.001

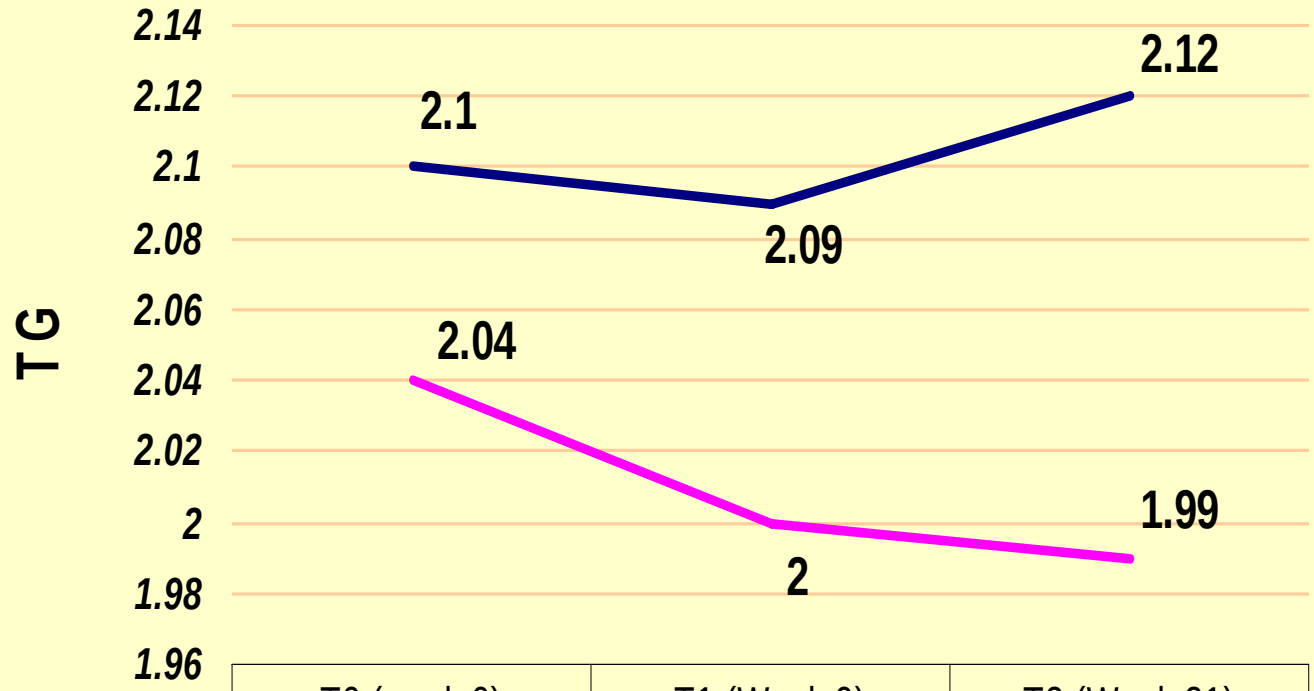
N=82 **Table 3 Eating habit Comparison**

	Control	Intervention		
	Mean (SD)	X (SD)	Mann-Whiteney Test	p-value
Highfat total T0	30.17(7.61)	32.31(6.84)	673.5	0.12
Highfat total T1	26.68(7.48)	26.54(6.73)	689	0.159
Highfat total T2	28.48(7.11)	25.39(6.53)	583	0.017
Friedman Test	$\chi^2 = 8.288$	$\chi^2 = 54.23$		
	df = 2	df = 2		
	p = 0.016	p<0.001		
Highsalt total T0	10.41(2.39)	10.24(1.79)	762	0.46
Highsalt total T1	9.80(2.46)	7.88(1.93)	423	P<0.001
Highsalt total T2	9.68(2.36)	7.90(2.14)	449	P<0.001
Friedman Test	$\chi^2 = 14.18$	$\chi^2 = 48.905$		
	df = 2	df = 2		
	p = 0.001	p<0.001		
Medi total T0	14.14(2.95)	15.34(3.29)	670.5	0.113
Medi total T1	15.78(3.38)	21.41(3.56)	214.5	P<0.001
Medi total T2	15.51(3.35)	21.92(4.07)	201	P<0.001
Friedman Test	$\chi^2 = 36.99$	$\chi^2 = 56.61$		
	df = 2	df = 2		
	p <0.001	p<0.001		

Research Question 3

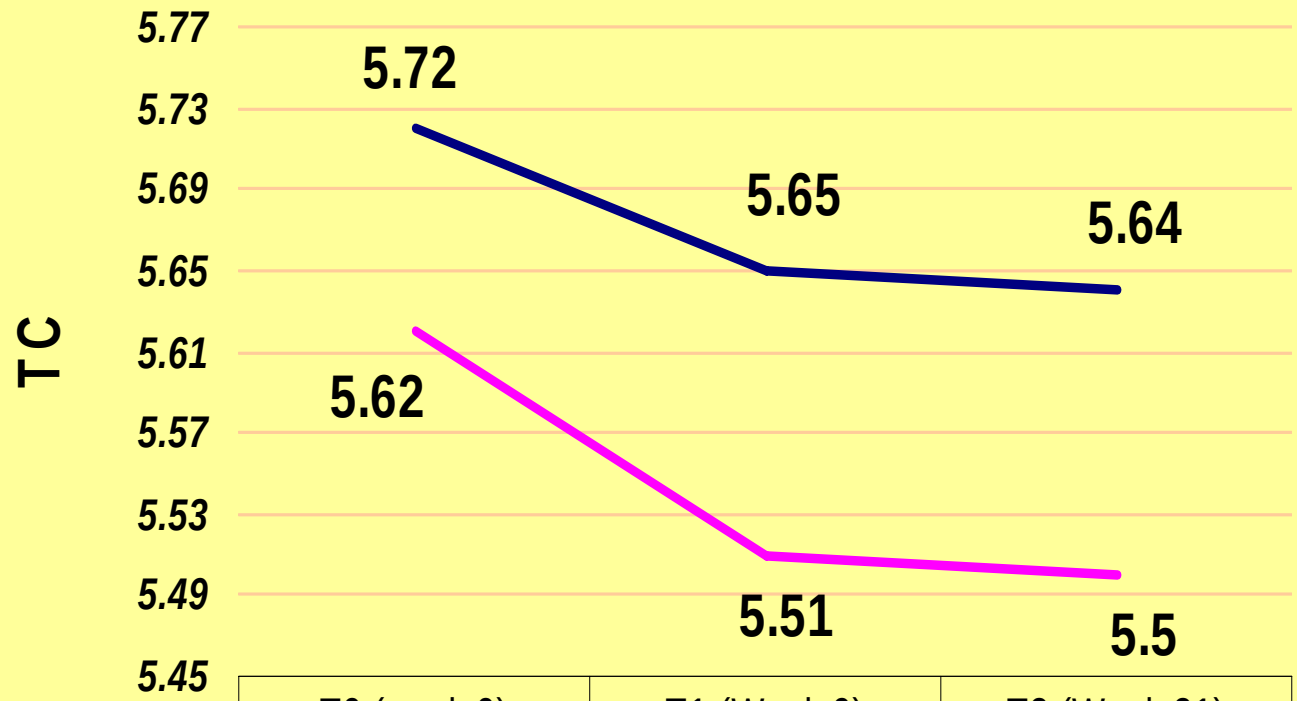
- Is there any difference in the blood lipid level between control group and intervention group?

CVD Risk Factor Comparsion (TG)



	T0 (week 0)	T1 (Week 9)	T2 (Week 21)
control group	2.1	2.09	2.12
Intervention group	2.04	2	1.99
p-value	0.528	0.244	0.188

CVD Risk Factor Comparison (TC)

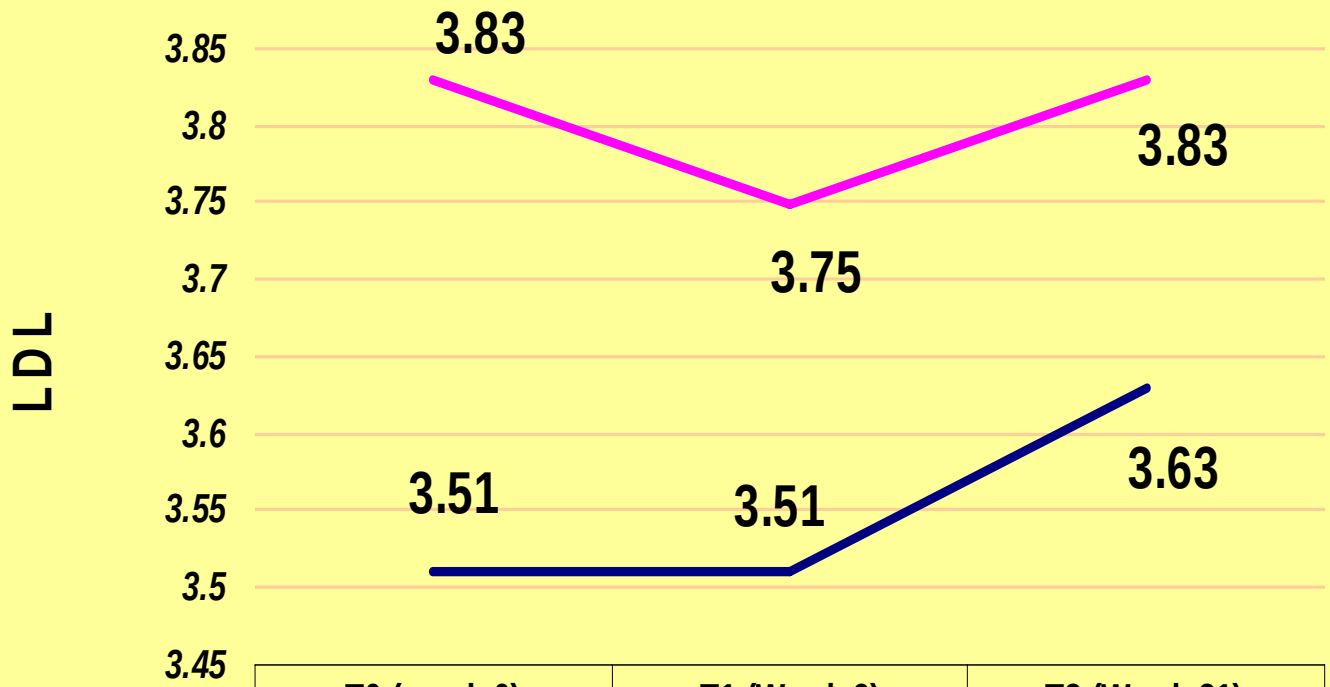


	T0 (week 0)	T1 (Week 9)	T2 (Week 21)
control group	5.72	5.65	5.64
Intervention group	5.62	5.51	5.5
p-value	0.54	0.38	0.237

CVD Risk Factor Comparsion (HDL)

	T0 (week 0)	T1 (Week 9)	T2 (Week 21)
control group	1.01	0.92	0.95
Intervention group	0.96	1.01	1.02
p-value	0.494	0.21	0.166

CVD Risk Factor Comparison (LDL)



	T0 (week 0)	T1 (Week 9)	T2 (Week 21)
control group	3.51	3.51	3.63
Intervention group	3.83	3.75	3.83
p-value	0.001	0.003	0.002

N=82		Table 4 CVD risk factor Comparison		
	Control	Intervention		
	X (SD)	X (SD)	Mann-Whiteney Test	p-value
SBP T0	139.61(13.56)	143.46(15.73)	709.5	0.222
SBP T1	148.13(13.32)	136.10(13.41)	430	P<0.001
SBP T2	142.51(15.1)	141.27(13.73)	815	0.813
Friedman Test	$\chi^2 = 21.108$	$\chi^2 = 13.523$		
	df = 2	df = 2		
	p <0.001	p<0.001		
DBP T0	71.02(9.54)	68.02(9.1)	680.5	0.132
DBP T1	71.95(8.69)	66.15(7.59)	505	0.002
DBP T2	68.85(9.67)	65.61(7.43)	676	0.126
Friedman Test	$\chi^2 = 4.752$	$\chi^2 = 3.405$		
	df = 2	df = 2		
	p = 0.093	p = 0.182		
TG T0	2.10(0.37)	2.04(0.41)	773	0.528
TG T1	2.09(0.39)	2.00(0.37)	715.5	0.244
TG T2	2.12(0.36)	1.99(0.36)	699	0.188
Friedman Test	$\chi^2 = 0.415$	$\chi^2 = 2.364$		
	df = 2	df = 2		
	p = 0.812	p = 0.307		
TC T1	5.72(0.64)	5.62(0.56)	775.5	0.54
TC T2	5.65(0.660	5.51(0.52)	747	0.38
TC T0	5.64(0.59)	5.50(0.48)	713.5	0.237
Friedman Test	$\chi^2 = 8.254$	$\chi^2 = 14.777$		
	df = 2	df = 2		
	p = 0.016	p <0.001		

N=82		Table 4 CVD risk factor Comparison		
HDL T0	1.01(0.28)	0.96(0.24)	767.5	0.494
HDL T1	0.92(0.23)	1.01(0.19)	595.5	0.21
HDL T2	0.95(0.24)	1.02(0.18)	693	0.166
Friedman Test	$\chi^2 = 6.673$	$\chi^2 = 5.382$		
	df = 2	df = 2		
	p = 0.36	p = 0.068		
LDL T0	3.51(0.45)	3.83(0.34)	455	P<0.001
LDL T1	3.51(0.49)	3.75(0.3)	518.5	0.003
LDL T2	3.63(0.54)	3.83(0.29)	508.5	0.002
Friedman Test	$\chi^2 = 6.365$	$\chi^2 = 7.155$		
	df = 2	df = 2		
	p = 0.041	p = 0.028		
FBS T0	5.57(0.61)	5.42(0.53)	721.5	0.268
FBS T1	5.61(0.59)	5.38(0.39)	663.5	0.099
FBS T2	5.75(0.65)	5.54(0.41)	683.5	0.143
Friedman Test	$\chi^2 = 3.535$	$\chi^2 = 7.155$		
	df = 2	df = 2		
	p = 0.171	p = 0.028		
BMI T0	23.95(3.07)	23.41(2.59)	737	0.33
BMI T1	23.83(3.02)	23.29(2.52)	745.5	0.375
BMI T2	23.73(2.84)	23.17(2.22)	744.5	0.368
Friedman Test	$\chi^2 = 4.2$	$\chi^2 = 5.053$		
	df = 2	df = 2		
	p = 0.122	p = 0.080		

Limitations

- Hawthrone effect
- Outcome Measures: Dose-dependent relationships between Mediterranean Type Food intake and Blood Lipid level.

Recommendation to Practice

- Despite intervention group showed significant improvement in Mediterranean type diet, there was no significant difference between intervention and control group in lipid level, therefore the dose-dependent relationships might need further studies.

Recommendation to Practice

- Nurses' role in cardiac rehabilitation should be extended and expanded.
- Exercise rehabilitation is specialized by Physiotherapy.
- Nurses should focus more on follow-up support to patients.
- Apart from the wide spread use of Statin (anti-lipid drug), the change of dietary habits is also need to be promoted in primary and secondary prevention.

Conclusion

- This study was an implementation of a cardiac rehabilitation program among post MI patients for secondary CAD prevention. The findings showed significant improvement among participants in CAD risk factors identification as well as dietary behaviour modifications for health maintenance.
- Relevance to clinical practice: Effective intervention program by professional nurses helped clients integrate their learned knowledge into their real-life practice. This empowering, that is, the taking of responsibility by the clients for their own self-care management on a daily basis, affirms that patient education has moved beyond teaching people facts.

Conclusion

- This study has demonstrated that nurse follow-up intervention does have positive bearings on patients with coronary artery disease.
- Such kind of nurse follow-up intervention program in Hong Kong is limited. It is hoped that this study can generate momentum and set the direction for the development of evidence-based cardiac rehabilitation nursing in Hong Kong.

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Thank You

Questions and Answers