



... (2%), ...  
 ... 10, ... 12, % ... 1,13 ... 20 ... % ... 11 ... 12 ... 13-1 ...  
 ... 10 ... 32% ... 2% ... 20 ... 3.1 ... 0% ... (3) ... 3 ... 10.3 ... 21 ... 1,0 ... 21 ... 22 ... 2011 ... ( ) ... 1,12 ... 1, 2 ... 1, % ... 10% ... 1 ...

... 1 ... 30 ... 23 ... 2 ... 2,2 ... 2 ... 2 ... 1) ... 2) ...

**Methods**

... 2012 ... 1 ... 3 ... 2 ... 113( ... 3 3(

Participants were assigned to one of the two groups based on the random number generated by the computer. The assignment was performed by the researcher who was not involved in the data analysis.

The participants in the control group received the standard health education materials. The participants in the intervention group received the health education materials and the self-management program. The self-management program was developed by the researcher and was based on the health education materials. The self-management program consisted of the following components: (1) self-monitoring of blood sugar; (2) self-management of diet; (3) self-management of exercise; (4) self-management of stress; (5) self-management of medication; (6) self-management of foot care; (7) self-management of eye care; (8) self-management of dental care; (9) self-management of smoking and alcohol use; (10) self-management of social support.

#### Ethical considerations

The study was approved by the Institutional Review Board of the University of Illinois at Chicago. All participants gave their informed consent before participating in the study. The study was conducted in accordance with the ethical standards of the Institutional Review Board of the University of Illinois at Chicago.

#### Results

##### Participants' characteristics

The study included 120 participants (60 in the control group and 60 in the intervention group). The participants were aged 45-75 years (mean = 60.5 years, SD = 12.3 years). The majority of the participants were female (78%).



**Table 4 Socio-demographic characteristics: differences in mean total contraceptive knowledge score of all participants, female participants and male participants**

Socio-demographic variables	Frequency of overall participants (%)			Frequency (Female)			Frequency (Male)		
	N (483)	Mean ± SD (0-5)	p	N (226)	Mean ± SD (0-5)	p	N(257)	Mean ± SD (0-5)	p
Age									
18-25	363	3.10 (1.54)	NS	169	3.21 (1.50)	NS	194	2.99 (1.59)	NS
26-35	120	3.13 (1.59)		57	3.24 (1.29)		63	3.02 (1.50)	
Gender									
Male	257	3.02 (1.60)	0.03	—	—		—	—	
Female	226	3.28 (1.48)		—	—		—	—	
Ethnicity									
Malay	403	3.14 (1.56)	NS	189	3.29 (1.40)	NS	214	2.99 (1.49)	NS
Non-Malay	80	3.07 (1.48)		37	3.11 (1.52)		43	3.02 (1.52)	
Religion									
Muslim	409	3.12 (1.54)	NS	192	3.28 (1.56)	NS	217	2.97 (1.62)	NS
Non-Muslim	74	3.09 (1.49)		34	3.15 (1.45)		40	3.03 (1.50)	
Level of education *									
Primary school	192	3.08 (1.57)	NS	97	3.27 (1.51)	NS	95	2.89 (1.59)	NS
secondary school	281	3.17 (1.54)		129	3.26 (1.48)		152	3.09 (1.61)	
Average monthly household income									
<2000	351	3.12 (1.57)	NS	164	3.22 (1.57)	NS	187	3.02 (1.54)	NS
≥2000	132	3.01 (1.51)		62	3.10 (1.26)		70	2.92 (1.63)	

\* p < 0.05, p > 0.05, NS = Not Significant

## Discussion

The present study was conducted in a rural area of Sabah, Malaysia. The mean total contraceptive knowledge score of all participants was 3.10 (SD 1.54). The mean total contraceptive knowledge score of female participants was 3.28 (SD 1.48) and the mean total contraceptive knowledge score of male participants was 3.02 (SD 1.60). The difference in mean total contraceptive knowledge score between female and male participants was statistically significant (p = 0.03). The mean total contraceptive knowledge score of participants with primary school education was 3.08 (SD 1.57) and the mean total contraceptive knowledge score of participants with secondary school education was 3.17 (SD 1.54). The difference in mean total contraceptive knowledge score between participants with primary school education and participants with secondary school education was not statistically significant (p = NS). The mean total contraceptive knowledge score of participants with average monthly household income < 2000 was 3.12 (SD 1.57) and the mean total contraceptive knowledge score of participants with average monthly household income ≥ 2000 was 3.01 (SD 1.51). The difference in mean total contraceptive knowledge score between participants with average monthly household income < 2000 and participants with average monthly household income ≥ 2000 was not statistically significant (p = NS).

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Authors' details  
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