Effectiveness of *Skuad Cakna Ubat* Programme to Improve Medication Knowledge and Use among Community in Kuala Nerus, Terengganu: An Interventional Study

Ng Shi Hui[1], Nor Baiti Solehah Nuawi[2], Mohd Syafiq Yusof [3]

[1] Klinik Kesihatan Seberang Takir, Kuala Nerus District Health Office, Terengganu, Ministry of Health Malaysia
[2] Klinik Kesihatan Batu Rakit, Kuala Nerus District Health Office, Terengganu, Ministry of Health Malaysia
[3] Pharmaceutical Services Division, Terengganu State Health Department, Ministry of Health Malaysia

Abstract

Introduction: It was reported that 55.6% of Malaysian consumers did not understand the proper use of their medicines. *Skuad Cakna Ubat* (SCU) was established to aid medication information delivery among community in Kuala Nerus, Terengganu. SCU utilised the concept of road tour to provide healthcare information services in a more casual approach.

Objectives: This study aimed to evaluate the effectiveness of SCU programme in terms of knowledge and practice of appropriate use of medicine among the community in Kuala Nerus, as well as to identify the association between demographic characteristics and knowledge and practice.

Methods: This was an interventional study involving consented participants from a few villages at selected eateries in the *Kuala Nerus* district from May to September 2019. The subjects were assessed on knowledge and practice of medication use through face-to-face interview using a *Malay* version validated questionnaire from the National Survey on the Use of Medicines (NSUM) III 2015. It was a 20-item questionnaire with eleven items in the knowledge domain and nine items in the practice domain. Pre- and post-interventional evaluations were done at 2-months interval.

Results: A total of 120 participants were recruited in this study. The mean age of the participants was 41.6 (standard deviation 14.8) years with the majority being male (66.7%) with secondary education and above (55.0%). There were significant improvements in the post-intervention mean knowledge and practice scores, with $p=0.002$ and $p<0.001$ respectively. Higher improvement in practice score (15.8%) was seen compared to knowledge score (5.7%). Knowledge and practice were negatively correlated with age (r_p=-0.205, p=0.025 and r_p=-0.127, p=0.167 respectively).

Conclusion: Findings revealed that the SCU programme imposed positive effects on the *Kuala Nerus* community's knowledge and practice on the appropriate use of medicines. Thus, extensive public engagement and collaboration with community pharmacy could be the future key in optimisation of pharmacy information delivery.

Keywords: National Survey on the Use of Medicines, pharmacist, *Skuad Cakna Ubat*, knowledge, practice

Corresponding author: Ng Shi Hui
Department of Pharmacy, Klinik Kesihatan Seberang Takir, Kampung Telok Ketapang, 21300 Terengganu
Email: shi_hui@hotmail.com

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Introduction

The proper diagnosis of disease and effective treatments are essential to an individual's prognosis and quality of life. Generally, the communities of developing countries have limited knowledge and awareness about the safety and proper storage of medicines commonly found at home (1). A few studies have shown that patients who use complementary medicines are unaware of the potential side effects and possible interactions with their prescribed medicines (2).

A national survey reported that 55.6% of Malaysian consumers did not understand the proper use of their medicines (4). A cross-sectional national survey among consumers in 2015 showed that 18.6% did not fully understand the proper use of their medicines, 46.8% were not able to identify the trade or generic name of their medicines, 17.0% had no knowledge on proper medicine storage, 29.7% were not aware of common side effects of their medicines and 31.6% were not aware of the possible interactions between traditional and modern medicines (3). Some individuals having difficulties in checking the expiry dates as well as lack of proper knowledge in disposing medications, often resulting in improper storage of medications

at home. This may lead to undesirable effects or unintentional risks like improper self-medication, accidental overdose and prescription drug abuse (5,6).

The *Skuad Cakna Ubat* (SCU) programme is an innovative programme founded by the pharmacy team from Kuala Nerus District Health Office (PKD), Ministry of Health Malaysia (MOH) in December 2016 in collaboration with the Pharmaceutical Service Division of Terengganu State Health Department (JKNT) and community pharmacies in the district. The SCU programme was established to aid medication information delivery in the community and enhance dissemination of healthcare information about the correct use of medications. By using the concept of road tour, SCU is able to provide health education to a wider population in a more relaxing approach. Correct usage of medications, antibiotic resistance, and the use of registered products are among the health information emphasised during the exposition. Participants are also encouraged to bring along their purchased health products to find out the status of product registration during the road tour.

In 2017, SCU had conducted activities in a total of 15 areas in the Kuala Nerus district, involving 1,328 participants. As the programme involved substantial efforts and commitment by the SCU team, it is important to ensure that it is able to produce its expected impact in the community. Therefore, this study was carried out to evaluate the effectiveness of SCU programme in terms of knowledge and practice on the appropriate use of medicines in the Kuala Nerus community, as well as to identify the association between demographic characteristics with knowledge and practice in Kuala Nerus.

Methods

Study Procedures

This study was conducted from May to September 2019. This study was conducted as a collaboration among the SCU team, JKNT, the Village Community Management Council (*Majlis Pengurusan Komuniti Kampung* (MPKK)) and the Non-Communicable Disease (NCD) team of Kuala Nerus district. The SCU programme was held bimonthly on Thursday from 8am to 12 noon. During every session, four trained pharmacists and one assistant pharmacist delivered the SCU programme and collected data for the study. Before the programme, all data collectors were briefed about the SCU module to ensure coherent interventions as well as standardised interview process. Layman terms were use throughout the process for better understanding by the participants.

Several locations of interests such as eateries with the most crowds were identified to carry out the SCU programme with the help of the village heads. Announcement such as promotions and banners about the details of SCU programme were made through social media, distribution of pamphlets at clinics, mosques and surrounding areas. A sample size of 120 participants was determined using PS Software version 3.1.6 based on literature review by Dawood et. al. (7). Approximately 25 recruitments were targeted in each SCU session during the study period. Subjects aged 18 years and above with no cognitive problem and with history of taking medicines were included into the study. Those who refused to participate or did not meet the inclusion criteria were given Meditips, an educational pamphlet on the proper use of medicines but were not counselled further.

Subjects who met the inclusion criteria were randomly selected and interviewed by the data collectors after obtaining their consent to participate in the study. Consented respondents first underwent a 10-minute one-on-one basis interview using the National Survey on the Use of Medicines (NSUM) III 2015 *Malay* version questionnaire as pre-intervention assessment. The SCU programme then began with self-introduction by the data collectors and brief introduction about the programme. SCU Interventions known as *Modul Sembang Santai* (Casual Conversation Module) was then delivered to the respondents. *Modul Sembang Santai* consists of five broad topics which are Know your medicines, 5B Concept, Registered medicines, Safe medicine storage and Drug allergy.

After two months, post-intervention evaluation was carried out using the same questionnaire by the same data collector via phone call. Those who cannot be reached by phone call after 2 months for post-intervention evaluation were counted as defaulted subjects and excluded from the final analysis. Figure 1 demonstrated the flow of study.
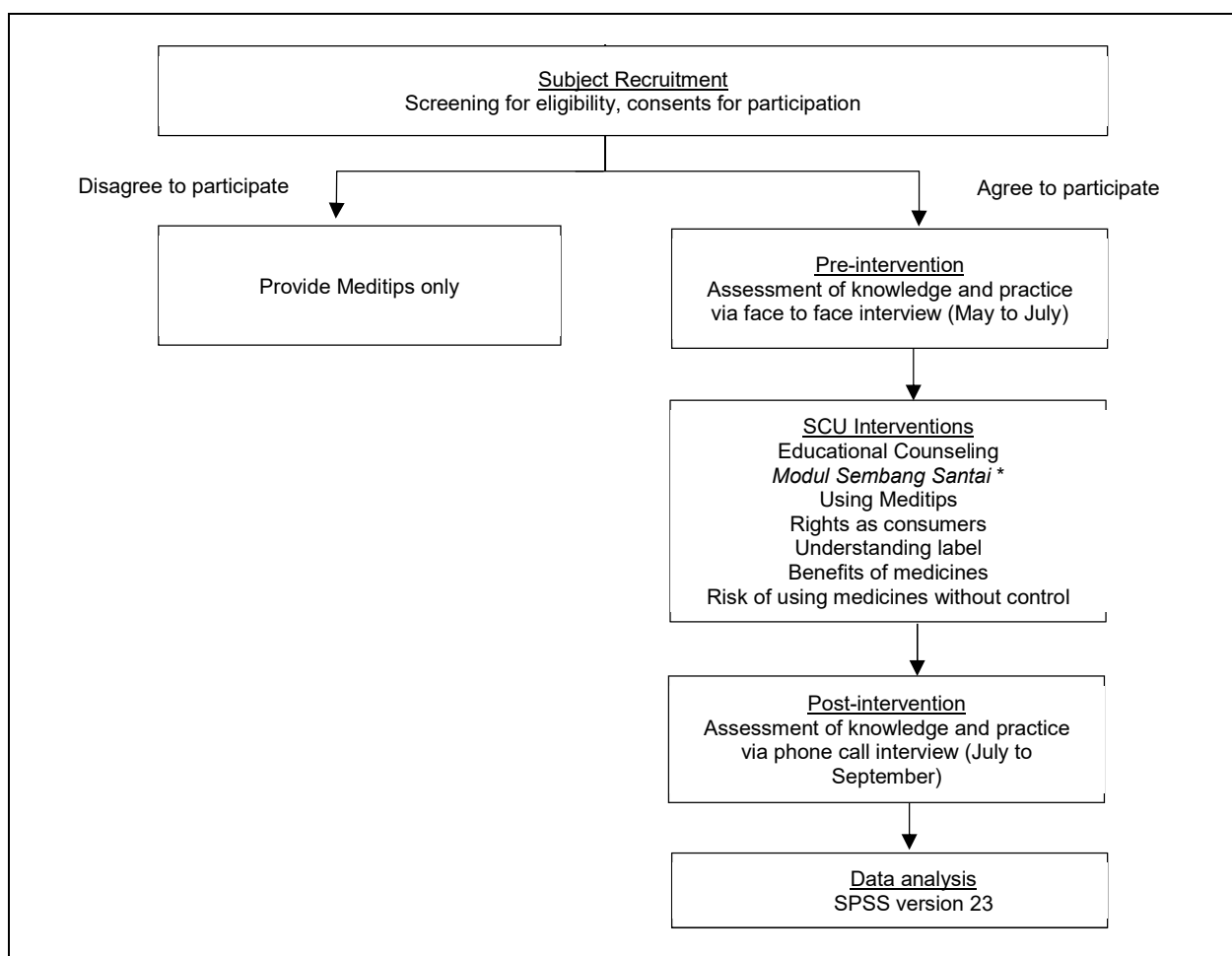
Data Collection Tool

The data collection tool was adopted from the validated NSUM by Malaysian Consumers III 2015 questionnaire. The questionnaire consists of respondents' demographic profile (seven items) - age, sex, ethnic group, education level, occupation, living status, monthly household income as well as contact number. The other two domains were knowledge (eleven items) and practice (9 items). The knowledge

domain contains eleven questions about generic name of medicines, understanding on proper use of medicines (5B), side-effects, contraindications and registered medicines. The practice domain contains nine questions about the storage of medicines and disposal of damaged / expired medicines. Every correct answer in both domains was given 1 score while incorrect answer was given 0 score. The maximum possible scores for the knowledge and practice domains were thus 11 and 9 respectively.

Statistical Analysis

Data were analysed using SPSS version 23. Descriptive statistics were used to describe the demographic characteristics of the respondents. Paired t-Test was used to determine the changes of mean knowledge and practice scores in the pre and post-interventions. The association between demographic factors and outcome variables were analysed using Pearson correlation coefficient test and one-way ANOVA. A value of $p<0.05$ was considered statistically significant.

* *Modul Sembang Santai* topics were Know your medicines, 5B Concept, Registered medicines, Safe medicine storage and Drug allergy

Figure 1: Study procedures and data collection during SCU

Results

A total of 155 respondents were recruited in this study initially but 35 participants were lost during follow up. Therefore, 120 respondents were included in the analysis. The mean age was 41.6 (standard deviation (SD) 14.8) years old and 66.7% of them were male. Majority of the participants were Malay (94.2%) while others were Chinese (5.8%). More than half of them had secondary education level (55%) and were currently employed (60%). Approximately 85.8% of them were living with their family members. Majority of the participants (73.3%) earn monthly income between RM501 to RM2,000 (Table 1).

Table 2 summarised respondents' knowledge and practice on medicines use scores. Our findings showed that the SCU participants had statistically significant increased mean knowledge score from pre-

intervention to post-intervention (p=0.002). Likewise, the same trend of result was found with the mean practice on medicines use score ($p<0.001$). The mean knowledge and practice on medicines use scores increased by 5.7% and 15.8% respectively.

Table 3 summarised the relationship between respondents' age and their knowledge and practice on medicine use (pre-SCU interventions). There was a statistically significant negative correlation between the respondents' age and knowledge (r=-0.205, p=0.025). Our study also analysed the association between respondents' demographic variables and their knowledge and practice on medicine use (pre-SCU interventions). There was no statistically significant association between the education level, living status and income with respondents' knowledge and practice on medicines use as shown in Table 4.

Table 1: Socio-demographic characteristics of study population (n=120)

Characteristics	Value
Age, year, mean (SD)	41.6 (14.8)
Gender, n (%)	
Male	80 (66.7)
Female	40 (33.3)
Ethnic, n (%)	
Malay	113 (94.2)
Chinese	7 (5.8)
Education level, n (%)	
Primary	6 (5.0)
Secondary	66 (55.0)
Tertiary	44 (36.7)
No education	4 (3.3)
Employment, n (%)	
Employed	72 (60.0)
Unemployed	48 (40.0)
Living status, n (%)	
Alone	14 (11.7)
With Family	103 (85.8)
Without Family	3 (2.5)
Monthly income, n (%)	
< RM500	24 (20.0)
RM501 – RM2,000	65 (54.2)
RM2,001 – RM3,500	18 (15.0)
RM3,501 – RM5,000	5 (4.2)
> RM5,000	8 (6.7)

Table 2: Knowledge and practice scores before and after taking part in SCU programme (n=120)

Domain	Pre-intervention score, mean (SD)	Post-intervention score, mean (SD)	P-value [a]
Knowledge on medicine use	8.283 (2.352)	8.758 (1.366)	0.002
Practice on medicine use	7.283 (1.330)	8.433 (0.877)	<0.001

[a] paired sample t-test, p<0.05 considered statistically significant
Abbreviation: SD – standard deviation

Table 3: Correlation between respondents' age and their knowledge and practice on medicines use (pre-SCU interventions) (n=120)

Domain	r	P-value [ß]
Knowledge	-0.205	0.025
Practice	-0.127	0.167

[ß] Pearson correlation coefficient, p<0.05 considered statistically significant
Abbreviation: r - Pearson correlation

Table 4: Association between respondents' demographic variables and their knowledge and practice on medicines use (pre-SCU interventions) (n=120)

	Variable	n	Knowledge			Practice		
			Mean	(SD)	P-value[Ø]	Mean	(SD)	P-value[Ø]
Education level	Primary	6	8.167	(1.941)		7.000	(1.095)	
	Secondary	66	7.893	(2.488)	0.091	7.151	(1.316)	0.426
	Tertiary	44	8.977	(1.836)		7.546	(1.302)	
	No Formal	4	7.250	(4.349)		7.000	(2.160)	
Living status	Alone	14	8.714	(1.684)		7.143	(1.351)	
	Family	103	8.175	(2.431)	0.321	7.282	(1.339)	0.602
	Non-family	3	10.00	(1.732)		8.000	(1.000)	
Income	< RM500	24	8.208	(2.377)		7.209	(1.103)	
	RM501–RM2,000	65	8.200	(2.545)		7.246	(1.370)	
	RM2,001–RM3,500	18	8.556	(2.036)	0.973	7.444	(1.247)	0.516
	RM3,501–RM5,000	5	8.200	(1.643)		6.600	(2.510)	
	> RM5,000	8	8.625	(2.066)		7.875	(0.835)	

[Ø] One-Way ANOVA, $p<0.05$ considered statistically significant
Abbreviation: SD - standard deviation

Discussion

The mean scores of participants' knowledge and practice of medications use significantly improved after the SCU programme with increment of 5.7% and 15.8% respectively. This finding was supported by a study in Saudi Arabia which revealed that counselling by pharmacists improved the patients' medications knowledge with half of them showing good to excellent knowledge (52.9%) compared to those who did not received counselling (12.5%) (8). In addition, a 2014 study illustrated that educational interventions often resulted in better adherence and improved medication knowledge, and the most successful interventions used were behavioural support or coaching to support patients. (9)

In our findings, there was a statistically significant negative correlation between age and knowledge of medications use among the respondents suggesting poor knowledge was associated with increase of age. This finding showed that community in Kuala Nerus is very similar to other populations whereby elderly was less likely to understand some information about their medications (10) and the cognitive ability that was becoming low in advancing age could lead to inappropriate use of medicines (11). Meanwhile, medications knowledge among those age over 80 years was shown to be lower. (12).

Thus, policy makers should design specific programmes for the geriatric population in optimising the quality use of medicines as the elderlies are often subject to polypharmacy. One of the possible strategies is to synergize the SCU programme with the pharmacist-managed Geriatric Medication Therapy Adherence Clinics (MTAC) provided in MOH facilities. Besides, moving forward, SCU programme can also collaborate with other non-government organisations (NGO) that focused on geriatric interests such as Malaysia Society of Geriatric Medicines to design more effective approaches in delivering effective medication information to this target group.

In our study, no significant association was found between other demographic factors such as education level, income and living status with patient's knowledge and practice on medicines use. Likewise, a study done in 2016 revealed that there was no statistically significant association between patients' educational level and their medication knowledge in older patients (12). In contrary, patients living independently with a partner were shown to be significantly more knowledgeable than others. This study reported that elderly patients were found to be more likely to adhere to medications if they were highly educated, had diseases, were more satisfied with counselling, had received sufficient explanation of their medications, and were subject to lower frequency of dosing (13).

Our study, however, did not assess the SCU participants' medication adherence, which could be explored in future study. There were also a few limitations of this study such as lack of randomization during respondent recruitment so our study population might not represent the whole population of Kuala Nerus. This study is suggested to be carried out in larger populations as the SCU programme has been expanded at the national level. With more extensive public engagement, SCU programmes in collaboration with the community pharmacies can be the future key in enhancing public's knowledge and medication use. The

involvement of private sector could help to improve patients' access and utilisation of medications information resources in the community while promoting quality use of medicines.

Conclusion

Our study demonstrated that SCU programme had positive effects in the *Kuala Nerus* community in terms of knowledge and practice on the appropriate use of medicines. The counselling module in the SCU programme successfully improved patient's knowledge and practice on medicines use. Our study also showed that geriatrics has poor knowledge on medicines use compared to younger generation. Therefore, intervention measures in improving appropriate use of medicines especially in elderly group should be given more attention by the SCU programme.

Acknowledgement

Conflict of Interest Statement

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