

**UNIVERSITI SAINS MALAYSIA
GERAN PENYELIDIKAN UNIVERSITI
PENYELIDIKAN
LAPORAN AKHIR**

**BAISC LIFE SUPPORT EDUCATION IN SECONDARY
SCHOOLS : THE EFFECTS OF MULTICENTER
CONTROLLED TRIAL OF BLS OUTREACH PROGRAM ON
KNOWLEDGE & PERCEPTION TOWARD RESUSCITATION
AMONG THE SECONDARY SCHOOL TEACHERS &
CHILDREN**

PENYELIDIK

**PROFESOR MADYA DR NIK HISAMUDDIN
NIK AB RAHMAN**

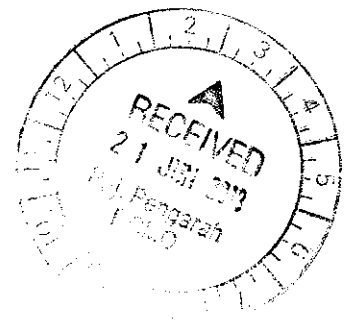
PENYELIDIK BERSAMA

**PUAN HASLINDA DAN
PROFESOR DR KAMARUDDIN JAALAM
PROFESOR MADYA KAMARUL IMRAN MUSA
MOHD IDZWAN ZAKARIA
PUAN ROSIDAH MOHD
SHAHARUDIN HAMZAH
DR SHAIK FARID ABDULL WAHAB
DR TUAN HAIRULNIZAM TUAN KAMAUZAMAN**

2013

LAPORAN AKHIR GERAN PENYELIDIKAN UNIVERSITI

SILID



**BASIC LIFE SUPPORT EDUCATION IN SECONDARY SCHOOLS:
THE EFFECTS OF MULTICENTER CONTROLLED TRIAL OF BLS
OUTREACH PROGRAM ON KNOWLEDGE & PERCEPTION
TOWARD RESUSCITATION AMONG THE SECONDARY SCHOOL
TEACHERS & CHILDREN**

(1001/PPSP/812091)

UNIVERSITI SAINS MALAYSIA

DITERIMA

21 MAY 2013

**Pejabat Bahagian Penyelidikan
Pusat Pengajian Sains Perubatan**

PROF MADYA DR NIK HISAMUDDIN NIK AB RAHMAN

JABATAN KECEMASAN

UNIVERSITI SAINS MALAYSIA



**UNIVERSITY RESEARCH GRANT
FINAL REPORT**
*Geran Penyelidikan Universiti
Laporan Akhir*

Please email a copy of this report to rcmo@usm.my
Sila emel salinan laporan ini ke rcmo@usm.my

A.	PARTICULARS OF RESEARCH / MAKLUMAT PENYELIDIKAN:
(i)	<p>Title of Research: TITLE: BASIC LIFE SUPPORT EDUCATION IN SECONDARY SCHOOLS: THE EFFECTS OF MULTICENTER CONTROLLED TRIAL OF BLS OUTREACH PROGRAM ON KNOWLEDGE & PERCEPTION TOWARD RESUSCITATION AMONG THE SECONDARY SCHOOL TEACHERS & CHILDREN</p> <p><i>Tajuk Penyelidikan:</i></p>
(ii)	<p>Account Number: 1001/PPSP/812091</p> <p><i>Nombor Akaun:</i></p>
B.	PERSONAL PARTICULARS OF RESEARCHER / MAKLUMAT PENYELIDIK:
(i)	<p>Name of Research Leader: Nik Hisamuddin Nik Ab Rahman</p> <p><i>Nama Ketua Penyelidik:</i></p>
	<p>Name of Co-Researcher: <i>Nama Penyelidik Bersama:</i> DR. CHEW KENG SHENG PUAN HASLINDA BINTI DAN PROFESOR DR. KAMARUDDIN JAALAM PROFESOR MADYA KAMARUL IMRAN BIN MUSA MOHD IDZWAN BIN ZAKARIA PUAN ROSIDAH BINTI MOHD SHAHARUDIN HAMZAH DR. SHAIK FARID ABDULL WAHAB DR. TUAN HAIRULNIZAM B. TUAN KAMAUZAMAN</p>
(ii)	<p>School/Institute/Centre/Unit: Emergency Medicine Department, School of Medical Sciences, Health Campus, USM</p> <p><i>Pusat Pengajian /Institut/Pusat/Unit:</i></p>
D.	<p>Duration of this research: <i>Tempoh masa penyelidikan ini:</i></p> <p>*Duration : 2 years <i>Tempoh :</i></p> <p>From : 15/03/2011 To 01/05/2013 <i>Dari :</i> <i>Ke :</i></p>

<p>E.</p>	<p>ABSTRACT OF RESEARCH (An abstract of between 100 and 200 words must be prepared in Bahasa Malaysia and in English. This abstract will be included in the Annual Report of the Research and Innovation Section at a later date as a means of presenting the project findings of the researcher/s to the University and the community at large)</p> <p>Abstrak Penyelidikan (Perlu disediakan di antara 100 - 200 perkataan di dalam Bahasa Malaysia dan juga Bahasa Inggeris. Abstrak ini akan dimuatkan dalam Laporan Tahunan Bahagian Penyelidikan & Inovasi sebagai satu cara untuk menyampaikan dapatan projek tuan/puan kepada pihak Universiti & masyarakat luar).</p> <p>AS ATTACHED ON SEPARATE SHEET</p>
<p>F.</p>	<p>SUMMARY OF RESEARCH FINDINGS <i>Ringkasan dapatan Projek Penyelidikan</i></p> <ol style="list-style-type: none"> 1. The validation study, “RESQ” can be used for intervention studies in the near future to evaluate the knowledge & perception toward resuscitation carried out on public. This is necessary to raise awareness about the importance of CPR programs to the community as a preparation for life-saving situations using the correct techniques before medical help arrives. 2. It is shown that the level of knowledge and attitudes in CPR among teachers & secondary school children were above average even at the baseline level. Furthermore, following a brief CPR training program, it has improved their level of knowledge and attitudes significantly.

G. COMPREHENSIVE TECHNICAL REPORT

Laporan Teknikal Lengkap

Applicants are required to prepare a comprehensive technical report explaining the project.
(This report must be attached separately)

Sila sediakan laporan teknikal lengkap yang menerangkan keseluruhan projek ini.

[Laporan ini mesti dikepilkkan]

AS ATTACHED ON SEPARATE SHEET

List the key words that reflect our research:

Senaraikan kata kunci yang mencerminkan penyelidikan anda:

English	Bahasa Malaysia
RESUSCITATION	RESUSITASI
BASIC LIFE SUPPORT	BANTUAN ASAS HAYAT
CPR	CPR

H.

a) Results/Benefits of this research

Hasil Penyelidikan

No. Bil:	Category/Number: Kategori/ Bilangan:	Promised	Achieved
1.	Research Publications (Specify target journals) <i>Penerbitan Penyelidikan (Nyatakan sasaran jurnal)</i>	6	3
2.	Human Capital Development		
	a. Ph. D Students	0	0
	b. Masters Students	3	3
	c. Undergraduates (Final Year Project)	2	2
	d. Research Officers	0	0
	e. Research Assisstants	2	2
	f. Other: Please specify		1 BOOK
3.	Patents <i>Paten</i>	0	1
4.	Specific / Potential Applications <i>Spesifik/Potensi aplikasi</i>		
5.	Networking & Linkages <i>Jaringan & Jalinan</i>	3	3
6.	Possible External Research Grants to be Acquired <i>Jangkaan Geran Penyelidikan Luar Diperoleh</i>		

- Kindly provide copies/evidence for Category 1 to 6.

b) Equipment used for this research.

Peralatan yang telah digunakan dalam penyelidikan ini.

Items Perkara	Approved Equipment	Approved Requested Equipment	Location
Specialized Equipment Peralatan khusus	COMPUTER DESKTOP BLS MANIKIN	COMPUTER DESKTOP BLS MANIKIN	PPSP, USM
Facility Kemudahan			
Infrastructure Infrastruktur			

- Please attach appendix if necessary.

I. BUDGET / BAJET

Total Approved Budget : RM 182,600.00
Total Additional Budget : RM 0
Grand Total of Approved Budget : RM 163,100.00

Yearly Budget Distributed

Year 1 : RM 91,300.00
Year 2 : RM 71,800.00
Year 3 : RM 0

Additional Budget Approved

Year 1 : RM 0
Year 2 : RM 0
Year 3 : RM 0

Total Expenditure : RM
Balance : RM

- Please attach final account statement from Treasury



Signature of Researcher
Tandatangan Penyelidik

20/5/13
Date
Tarikh

ASSOC. PROF. DR. NIK HISAMUDDIN NIK AB RAHMAN
MMC NO. 32959
MBChB (Glasgow), mmed (USM)
ACEP (USA), Hyperbaric Medicine (Florida)
Consultant Emergency Medicine
School of Medical Sciences
USM, Kubang Kerian,
16150 Malaysia.

H.

COMMENTS OF PTJ'S RESEARCH COMMITTEE
KOMEN JAWATANKUASA PENYELIDIKAN PERINGKAT PTJ

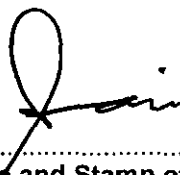
General Comments:

Ulasan Umum:

Diperakunkan

PROFESOR (DR) NIK SORIANI YAACOB

Chairman Of Research committee
School Of Medical Sciences
Health Campus
Universiti Sains Malaysia
16150 Kubang Kerian, Kelantan.



Signature and Stamp of Chairperson of PTJ's Evaluation Committee

Tandatangan dan Cop Pengerusi Jawatankuasa Penilaian PTJ

Date : *13/4/13*

Tarikh :

Signature and Stamp of Dean/ Director of PTJ

Tandatangan dan Cop Dekan/ Pengarah PTJ

by Dina 16/6

PROFESOR (DR) AHMAD SUKARI HALIM

Dekan
Pusat Pengajian Sains Perubatan
Kampus Kesihatan
Universiti Sains Malaysia
16150 Kubang Kerian, Kelantan.

Date :

Tarikh :

FINAL REPORT ON RUI GRANT (1001/PPSP/812091)

TITLE: BASIC LIFE SUPPORT EDUCATION IN SECONDARY SCHOOLS: THE EFFECTS OF MULTICENTER CONTROLLED TRIAL OF BLS OUTREACH PROGRAM ON KNOWLEDGE & PERCEPTION TOWARD RESUSCITATION AMONG THE SECONDARY SCHOOL TEACHERS & CHILDREN

GRANT ALLOCATION MARCH 2011 (YEAR 1) : RM 91,300.00

GRANT ALLOCATION MARCH 2012 (YEAR 2) : RM 71,800.00

NO THIRD ALLOCATION APPROVED

Brief report:

All objectives achieved within the time frame allocated.

A total of 477 secondary school children and 456 school teachers involved in the trial from within Kota Bharu District

Initial approval for the trials in schools was given by the Ministry of Education Malaysia and State Education Department.

The teaching of CPR also involved facilitators from the Civil Defense Malaysia, St John's Ambulance Kota Bharu, Medical Students PPSP USM, and Staff from the Emergency Medicine Dept PPSP USM.

Outcome:

3 MMed students in Emergency Medicine

2 MD students PPSP USM

One Full Validated Questionnaire "RESQ" : To be patented

One book publication

2 Journal publications under review (European Journal of Emergency Medicine & The Journal of Resuscitation)

Brief Abstract of Research Outcome:

PHASE 1

DEVELOPING AND VALIDATING RESUSCITATION QUESTIONNAIRE (RESQ) AMONG SCHOOL TEACHERS & CHILDREN IN MELAKA

Objectives: To develop and validate Resuscitation Questionnaire (RESQ) - a questionnaire on knowledge and attitudes towards heart attack, CPR and resuscitation.

Patients and Methods: This study uses a traditional paper and pencils distributed to the students involved and they answered the questions on the same question paper. This study was conducted sometime in June 2011 until June 2012. The questionnaire was created and structured by the Emergency Physician based on literature review available. The methods used to validate resuscitation questionnaire (RESQ) included translational validity, construct validity and reliability test.

Results: Random sample of 216 teachers & children from two schools from Form 3 in Melaka Tengah has been undergoing the test. 52 people again, from two different schools in the district have undergone the test twice in the interval of 10 days to assess the reliability of the question. The majority of participants were the Malays of 64.4%. A total of nineteen items from the knowledge of heart attack has been removed due to the low correlation. Factor loading using principal components (PCA) and varimax rotation is between the 0.410 to 0.871. Cronbach's alpha were used in assessing internal consistency RESQ ranging from 0.435 to 0.871. Intraclass correlation coefficient (ICC) was used to assess the reliability of the "test-retest" RESQ and the result is very good. The process of validation and reliability are acceptable in developing RESQ.

Conclusion: From this validation study, RESQ can be used for intervention studies in the near future to evaluate the effectiveness of resuscitation carried out on secondary school teachers & children. This is necessary to raise awareness about the importance of CPR programs to the community as a preparation for life-saving situations using the correct techniques before medical help arrives.

PHASE 2

Introduction: We took the opportunity to perform a multi-center controlled trial to assess the knowledge and attitude (KA) toward cardiopulmonary resuscitation (CPR) among the secondary school teachers & children in a district in Malaysia.

Methodology: This was a prospective interventional study. The primary end point of the study was to determine the level of KA towards resuscitation after CPR training. The six schools and classes from selected schools would be chosen by randomization among the form three and four classes by using sealed envelopes. A full validated questionnaire consisted of three sections (socio-demographic, knowledge and attitude) was given to the teachers & pupils before and two weeks after the intervention. The intervention group was given a lecture, video show, pamphlet and a one hour practical session on CPR training. The control group received a placebo in order to overcome learning effect. The maximum score for the knowledge and attitude sections were 72 and 28 marks respectively. Repeated Measures ANOVA analysis was used for specific objectives to determine the changes of knowledge and attitude level at pre

and post intervention for both study groups. P-value less than 0.05 were taken as significant at 95% confidence interval.

Results: The mean (SD) total knowledge scores for intervention (n=336) and the control (n=372 groups) were 62.43 (13.68) and 62.29 (12.11) respectively (Maximum score 72). ($p>0.05$) On the other hand, for attitude, the mean (SD) total attitude scores for intervention and the control groups were 19.33 (4.51) and 17.85 (4.52) respectively (Maximum score 28) ($p<0.001$). There were significant differences of mean knowledge and attitude scores between intervention and control groups with regard to time (pre & post intervention). The mean difference of knowledge & attitude scores between both study groups was 8.31 ($p<0.001$) & 2.39 ($p<0.001$) respectively.

Conclusions: It is shown that the level of knowledge and attitudes of secondary school teachers & children were above average even at the baseline level. Furthermore, following a brief CPR training program, it has improved their level of knowledge and attitudes significantly as compared to those who have never been trained.

FULL VALIDATED QUESTIONNAIRE "RESQ" : To be patented

Knowledge	Answer				
	Very sure	Sure	Don't know	Unsure	Very unsure
About cardiac arrest:					
Cardiac arrest is due to arterial occlusion					
Central chest pain is a sign of cardiac arrest					
Shortness of breath is a warning sign of cardiac arrest.					
Cardiac arrest can be treated.					
Healthy lifestyle reduces the risk of cardiac arrest.					
Risk factors of heart attack:					
Old age					
Stress					
Smoking					
Hypertension					
Hyperlipidaemia					
Alcohol					
Diabetes Mellitus					
Overweight					
Lack of exercise					
CPR (2010 Guidelines):					
"C-A-B" stands for: C=CIRCULATION A=AIRWAY B=BREATHING					
Rate of compression is 100/minute					
To check for response, gentle tap on the victim's shoulder and call patient with loud voice.					
Give 2 mouth-to-mouth rescue breathing					

Attitude	Answer				
	Strongly agree	Agree	Not sure	Disagree	Strongly disagree
You are 65 year old with underlying hypertension and hyperlipidaemia, suddenly had heart attack leading to cardiac arrest. Do you want CPR performed on you?					
You are 75 year old with stroke and heart attack, had second heart attack leading to cardiac arrest. Do you want CPR performed on you?					
You are a 85 year old, very ill with underlying advanced cancer and heart failure, suddenly had cardiac arrest. Do you want CPR performed on you?					
You are a 90 year old, healthy, suddenly had cardiac arrest. Do you want CPR performed on you?					
Are you willing to perform MMV to your family members?					
Do you think teaching a school children CPR / BLS is appropriate?					

ABSTRAK

KEBERKESANAN LATIHAN RESUSITASI KARDIOPULMONARI (CPR) KE ATAS TAHAP PENGETAHUAN DAN SIKAP DI KALANGAN GURU DAN PELAJAR SEKOLAH MENENGAH DI KOTA BHARU, KELANTAN

PENGENALAN

Serangan jantung yang berlaku di luar hospital (OHCA) adalah merupakan masalah utama masa kini yang melibatkan komuniti di seluruh dunia. Salah satu punca utama serangan jantung ialah infaksi miokardium. Walaubagaimanapun, bukan mudah untuk mengenalpasti tanda-tanda serangan jantung terutama dikalangan orang awam. Justeru itu, kadar kebarangkalian untuk hidup bagi mangsa OHCA adalah tipis. Tindakan awal CPR yang dilakukan oleh orang awam merupakan salah satu faktor penting bagi meningkatkan kadar kebarangkalian untuk hidup dikalangan OHCA. Kami mensasarkan pelajar-pelajar sekolah kerana mereka cepat belajar, bermotivasi tinggi serasi kompeten dalam melakukan tekanan dada secara efektif. Kajian ini bertujuan untuk mengenalpasti keberkesanan latihan CPR ke atas tahap pengetahuan dan sikap dikalangan pelajar-pelajar sekolah menengah di Kota Bharu, Kelantan. Kajian ini diharap dapat menyediakan bank maklumat agar pusat perubatan lain dapat menyumbang terhadapnya serta dapat dikongsi bersama.

KAEDAH

Kajian ini merupakan satu kajian intervensi secara prospektif. Ia dijalankan bermula pada Januari 2012 sehingga Jun 2012. Soalan kajian telah dibuat berdasarkan garis panduan AHA 2010 dan telah disahkan tahap kesesuaian, konsistensi dan ketepatan soalan. Sebanyak 6 buah sekolah menengah di Kota Bharu, Kelantan telah dipilih untuk menyertai kajian ini. Tiga daripadanya dipilih sebagai kumpulan kawalan dan selebihnya sebagai kumpulan intervensi. Guru-guru dan pelajar-pelajar yang terlibat dalam kajian ini dipilih secara rawak dari satu kelas tingkatan 2, 3 dan 4 bagi kedua-dua kumpulan kajian. Kumpulan intervensi telah diberikan ceramah, pertunjukan video, pamphlet serta sesi praktikal berkenaan latihan CPR. Sementara itu, kumpulan kawalan pula telah diberikan sebuah buku mengenai bahaya merokok bertujuan untuk mengelakkan "learning effect". Soalan kajian telah diagihkan sebelum dan dua minggu selepas intervensi serta dikumpul oleh pengkaji pada hari yang sama. Analisis statistik telah dilakukan dengan menggunakan program SPSS versi 18.0.1.

KEPUTUSAN

Seramai 967 orang pelajar sekolah menengah telah dianalisa. Ia terdiri daripada 372 kumpulan kawalan dan 336 kumpulan intervensi. Majoriti guru & pelajar yang terlibat dalam kajian ini ialah pelajar Melayu. Tiada perbezaan ketara dikenalpasti dari segi pengagihan guru & pelajar mengikut tingkatan

($p=0.356$) dan kategori sekolah ($p=0.086$). Kebanyakan guru & pelajar dari kumpulan kawalan 73.9% (167) dan kumpulan intervensi 64.5% (152) tidak pernah mempelajari CPR sebelum ini. Hanya segelintir sahaja pelajar dari kumpulan kawalan 26.1% (59) dan intervensi 35.8% (89) pernah mempelajari CPR. Kadar purata (SD) keseluruhan tahap pengetahuan guru & pelajar ialah sebanyak 62.43 (13.68) untuk kumpulan intervensi dan 62.29 (12.11) untuk kumpulan kawalan berbanding markah penuh iaitu 100 markah. Bagi sikap pula, kadar purata (SD) keseluruhan ialah sebanyak 19.33 (4.51) untuk kumpulan intervensi serta 17.85 (4.52) untuk kumpulan kawalan berbanding markah penuh iaitu 28 markah. Perbezaan purata keseluruhan bagi tahap pengetahuan dan sikap bagi kedua-dua kumpulan kajian pula ialah 8.31 ($p<0.001$) dan 2.39 ($p<0.001$) tanpa mengira masa.

KESIMPULAN

Di peringkat awal kajian, didapati responden di kedua-dua kumpulan kajian mempunyai tahap pengetahuan yang sederhana tinggi serta sikap positif yang baik berkaitan dengan resusitasi. Setelah melalui program latihan CPR, didapati tahap pengetahuan dan sikap guru-guru & pelajar-pelajar di dalam kumpulan intervensi telah meningkat secara mendadak berbanding pelajar-pelajar di dalam kumpulan kawalan. Memandangkan masih terdapat ramai lagi dikalangan guru-guru & pelajar-pelajar sekolah yang tidak pernah mempelajari CPR, kami mencadangkan agar semua pelajar sekolah dibekalkan dengan latihan CPR. Selain daripada itu, matapelajaran CPR juga perlulah dimasukkan ke dalam kurikulum sekolah.

ABSTRACT

THE EFFECTIVENESS OF CARDIOPULMONARY RESUSCITATION (CPR) TRAINING ON KNOWLEDGE AND ATTITUDE TOWARDS BASIC LIFE SUPPORT AMONG SECONDARY SCHOOL TEACHERS & CHILDREN IN KOTA BHARU, KELANTAN

INTRODUCTION

Out-of-hospital cardiac arrest (OHCA) is a major public health problem. It affects all communities worldwide. One of the most common causes of cardiac arrest is acute myocardial infarction. However, recognition of cardiac arrest is not always straightforward especially for laypersons. Therefore, the survival rates among OHCA victim still remain low. Early bystander CPR is one of the most important factors to improve rate of survival among OHCA. We targeted the school teachers & children because they are quick learners, easy to motivate and also competent to provide effective chest compression. The aim of this study was to determine the effectiveness of CPR training on knowledge and attitude among secondary school children in Kota Bharu, Kelantan. This study also serves as a starting point to create a database that other centres in the nation will be able to add on to.

METHODOLOGY

This is a prospective interventional study. It was conducted from January 2012 until June 2012. The validated questionnaire was designed based on AHA Guidelines 2010. Six secondary schools in Kota Bharu, Kelantan were chosen to be part of this study. Three schools were selected as a control group and remaining three as an intervention group. The study subjects were obtained from one class of Form 2, 3 and 4 based on simple randomization for both study groups. The intervention group was given a lecture, video show, pamphlet and practical session on CPR training. Meanwhile, the control group was given a booklet on hazard of smoking to overcome learning effect. The questionnaires were distributed pre-intervention and two weeks post-intervention for both study groups and collected on the same day by the researcher. Statistical analysis was used using software SPSS version 18.0.1.

RESULTS

A total of 967 secondary school teachers & children were analyzed. It comprised of 372 respondents in the control group and 336 respondents in the intervention group. Majority of the study subjects were Malays. No significant difference in the distribution of study subjects according to form ($p=0.356$) and school category ($p=0.086$). Majority of the study subjects in the control 73.9% (167) and intervention groups 64.5% (162) had no CPR training prior to this study. Only 26.1% (59) from control