

School CPR training by Non-CPR teaching experienced teacher: A pilot study of targeting 1000 chest compressions hands-on practice during 50 min of PWW-based QCPR Classroom training

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BACKGROUND

School CPR training is one way to increase bystander cardiopulmonary resuscitation (CPR) rate. We wanted to assess if “QCPR Classroom” has the same effect among students between CPR teaching experienced teacher and non-CPR teaching experienced teacher.

METHOD

A cluster randomized trial was conducted to assess effectiveness of 50 min of Practice While Watch (PWW)-based QCPR Classroom training. A total of 57 students was recruited, and the Group 1 was led by non-CPR teaching experienced teacher (n=30) and the Group 2 was led by CPR teaching experienced teacher. QCPR Classroom comprise 42 manikins connected with Bluetooth to provide real-time feedback on CPR performance for the teacher during training. Psychomotor and cognitive tests were measured on pre- and post-training. Primary outcomes were compression depth (mm) and rate (cpm) on post, and improvement adequate depth (%), recoil (%), and overall score (%). Means and standard deviations were used to describe continuous data.

RESULT

The both groups demonstrated similar skill improvement in overall score with training: 36.4±25.9% in the group 1 vs. 27.0±27.7% in the group 2 ($p=0.21$). Mean improvement adequate depth was 22.4±35.4% in the group 1 and 32.5±40.0 in the group 2 ($p=0.33$). Group 1 improved by 36.4%±25.9% ($p<0.001$), whereas Group 2 improved by 27.0%±27.7% ($p<0.001$).



Figure 2. The display of the feedback icon and the class it actually held

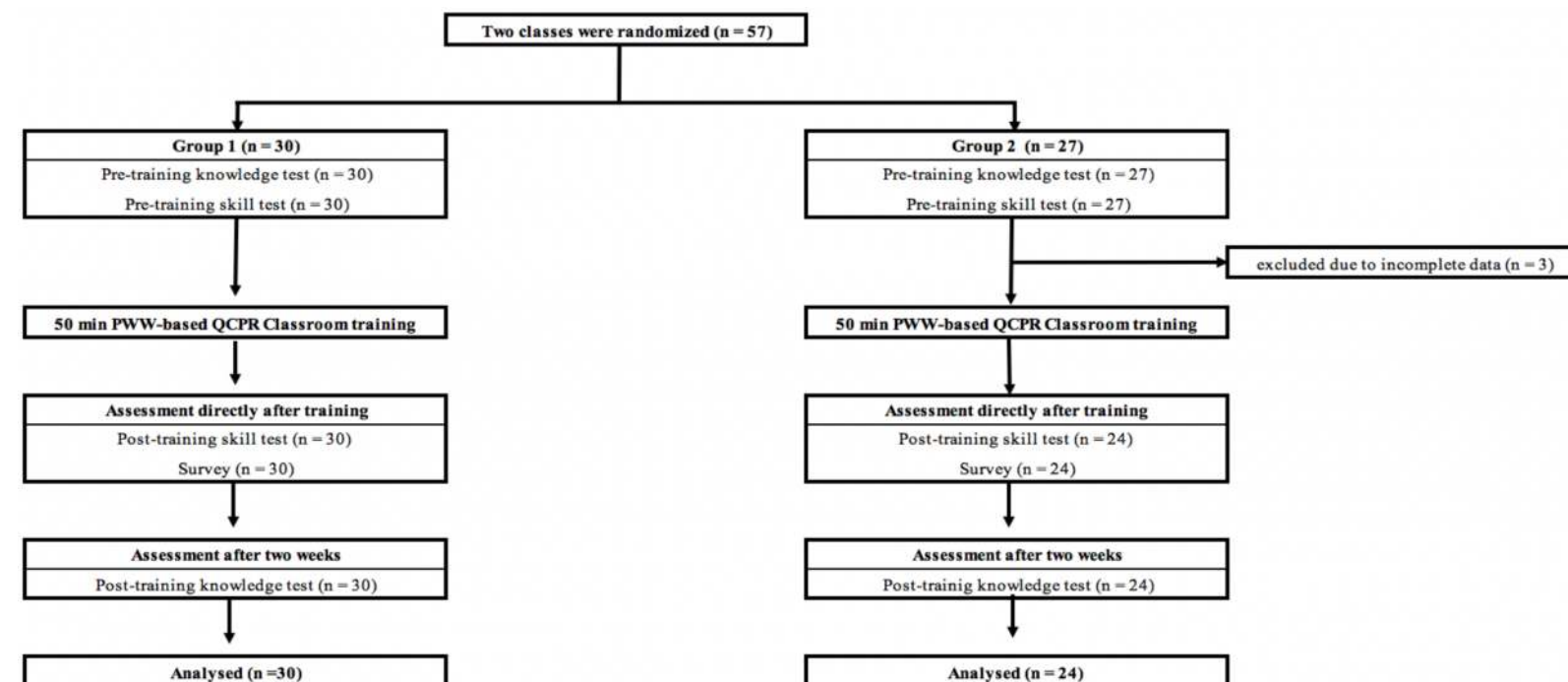


Figure 1. Flow chart on randomization and inclusion
PWW, Practice While Watch

CONCLUSION

From this pilot study, we suggest that QCPR Classroom and PWW-based teaching used by school teachers who are not CPR instructors, deliver similar or better training outcome among school children as CPR instructors can. Use of PWW-based QCPR Classroom will provide adequate quality to get students ready for CPR. This would be the next training model for increasing bystander rate and possibility to carry mass-CPR training instructed by any school teacher.

Table 1. CPR performance on pre- and post-training

	Group 1: Non-CPR teaching experienced school teacher (n=30)	Group 2: CPR teaching experienced school teacher (n=24)	p-value
Pre-training			
rate, cpm	117.0 ±19.0	112.4 ±15.5	0.34
depth, mm	56.1 ±12.3	48.8 ±12.8	0.04*
adequate depth, %	70.9 ±39.6	42.3 ±39.7	0.01*
recoil, %	58.9 ±6.2	68.9 ±6.9	0.28
overall, %	57.9 ±27.2	54.6 ±31.1	0.67
Post-training			
rate, cpm	118.0 ±3.6	119.8 ±5.4	0.17
depth, mm	62.1 ±7.7	57.4 ±9.8	0.05
adequate depth, %	93.3 ±10.6	74.8 ±35.0	0.008*
recoil, %	79.9 ±26.9	82.0 ±23.6	0.77
overall, %	94.3 ±12.8	81.5 ±22.5	0.01*
Improvement			
rate, cpm	1.0 ±20.0	7.3 ±12.8	0.18
depth, mm	6.0 ±9.8	8.6 ±9.6	0.33
adequate depth, %	22.4 ±35.4	32.5 ±40.0	0.33
recoil, %	21.1 ±38.5	13.1 ±28.9	0.40
overall, %	36.4 ±25.9	27.0 ±27.7	0.21

Mean±Standard Deviation

Chi-square test and non-paired t-test

* $p > 0.05$

Table 2. CPR performance on pre- and post-training in each groups

	Group 1			Group 2		
	Pre-training	Post-training	p-value	Pre-training	Post-training	p-value
rate, cpm	117.0 ±19.0	118.0 ±3.6	0.79	112.4 ±15.5	119.8 ±5.4	0.01 *
depth, mm	56.1 ±12.3	62.1 ±7.7	0.002 *	48.8 ±12.8	57.4 ±9.8	<0.001 *
adequate depth, %	70.9 ±39.6	93.3 ±10.6	0.002 *	42.3 ±39.7	74.8 ±35.0	<0.001 *
recoil, %	58.9 ±6.2	79.9 ±26.9	0.006 *	68.9 ±6.9	82.0 ±23.6	0.04 *
overall, %	57.9 ±27.2	94.3 ±12.8	<0.001 *	54.6 ±31.1	81.5 ±22.5	<0.001 *

Mean±Standard Deviation

paired t-test

* $p > 0.05$