

การศึกษาเปรียบเทียบผลสัมฤทธิ์ทางการศึกษาในชั้นคลินิก ระหว่างนิสิตแพทย์หลักสูตรโครงการร่วม มหาวิทยาลัยนอตติงแฮมกับนิสิตแพทย์หลักสูตรปกติ มหาวิทยาลัยศรีนครินทรวิโรฒ

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บทคัดย่อ

คณะแพทยศาสตร์ มหาวิทยาลัยศรีนครินทรวิโรฒเปิดสอนนิสิตระดับปริญญาแพทยศาสตรบัณฑิต อยู่สองหลักสูตร ได้แก่ หลักสูตรปกติ และหลักสูตรโครงการร่วมกับมหาวิทยาลัยนอตติงแฮม หลักสูตรปกติ นั้น ใช้ระบบการคัดเลือกนิสิตผ่านกลุ่มสถาบันแพทยศาสตร์แห่งประเทศไทย และจัดการเรียนการสอนตลอดหลักสูตร ที่คณะแพทยศาสตร์ มหาวิทยาลัยศรีนครินทรวิโรฒ ประเทศไทย ในขณะที่หลักสูตรแพทยศาสตรบัณฑิตโครงการ ร่วมกับมหาวิทยาลัยนอตติงแฮม (SWU – UoN) นั้น จัดระบบการรับสมัครและสอบคัดเลือกนิสิตในหลักสูตร โดยตรง โดยเปิดรับนักเรียนจากทั้งโรงเรียนไทยและโรงเรียนนานาชาติ นิสิตในหลักสูตร SWU – UoN ศึกษา รายวิชาเกี่ยวกับวิทยาศาสตร์ชีวการแพทย์ เป็นเวลาสามปีที่มหาวิทยาลัยนอตติงแฮม สหราชอาณาจักร แล้วกลับมา ประเทศไทยเพื่อศึกษารายวิชาในชั้นคลินิกอีกเป็นเวลาสามปีจนจบหลักสูตร คณะผู้วิจัยได้ศึกษาเพื่อเปรียบเทียบ ผลสัมฤทธิ์ทางการศึกษาของนิสิตที่กำลังศึกษาในชั้นปีที่ 5 ทั้งสองหลักสูตร โดยการเก็บข้อมูลในปีการศึกษา 2556, 2557 และ 2558 คณะผู้วิจัยใช้เกรดเฉลี่ยสะสม และคะแนนสอบเพื่อรับใบประกอบวิชาชีพเวชกรรม ขั้นตอนที่ 2 (NLE step2) ซึ่งเป็นการทดสอบความรู้วิทยาศาสตร์การแพทย์คลินิกที่เป็นข้อสอบปรนัยจำนวน 300 ข้อ เป็นตัววัดผลสัมฤทธิ์ทางการศึกษา ผลจากการวิเคราะห์ข้อมูลของนิสิตจำนวน 382 คน พบว่า คะแนนเฉลี่ยของการสอบ NLE step2 ของนิสิตทั้งสองหลักสูตรไม่มีความแตกต่างกันยังมีนัยสำคัญทางสถิติ (184.6 versus 179.1, $p = 0.15$) โดยนิสิตในหลักสูตรปกติ ($n = 353$) มีคะแนนเฉลี่ย 184.6 (จากคะแนนเต็ม 300) และนิสิตในหลักสูตรโครงการร่วมฯ ($n = 29$) มีคะแนนเฉลี่ย 179.1 ส่วนเกรดเฉลี่ยสะสมของนิสิตทั้งสองหลักสูตรก็ไม่มีความแตกต่างอย่างมีนัยสำคัญทางสถิติเช่นเดียวกัน (3.20 versus 3.25, $p = 0.53$) โดยค่าเฉลี่ยของเกรดเฉลี่ยสะสมของนิสิตในหลักสูตรปกติเท่ากับ 3.20 และของนิสิตในหลักสูตรโครงการร่วมเท่ากับ 3.25

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Comparative study of academic achievement in clinical phase between the joint medical program (SWU – UoN) and the regular medical program students, Srinakharinwirot university

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Abstract

The Faculty of Medicine, Srinakarinwirot University offers two curricular programs for Doctor of Medicine degree. The regular medical program recruits students from admission test regulated by the consortium of Thai medical school, and all the courses were taught at Srinakarinwirot University (SWU), Thailand. The Joint Medical program (SWU-UoN) recruits students directly from Thai and international high schools and the students' study three years of biomedical sciences at the University of Nottingham, UK and then return to SWU to complete their medical degree. We compared the academic achievement of 5th- year students of the two programs for the academic year 2013, 2014 and 2015. Outcome variables were students' five years cumulative grade point average (CGPA) and the National License Examination step 2 (NLE step 2) scores. The NLE step 2 is a paper-based 300 multiple choice questions covering clinical science subjects. The data from a total of 382 students were included in this study. There was no statistically significant difference between the regular program (N = 353) and the joint medical program (N = 29) in terms of students' CPGA and NLE scores (3.20 versus 3.25, $p = 0.53$, and 184.6 versus 179.1, $p = 0.15$ respectively)

Keywords: Medical education, International medical program

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Introduction

The Faculty of Medicine, Srinakharinwirot University offers two curricular programs for Doctor of Medicine degree. The regular medical program and The joint medical program (SWU-UoN). The SWU-UoN is collaboration between Faculty of Medicine, Srinakharinwirot University and Faculty of Medicine and Health Sciences, the University of Nottingham, UK. A Memorandum of Understanding between the two universities was signed in 2002 and the program started taking first batch of students in 2003. Students enrolled in the SWU-UoN programs attend basic medical science courses at the University of Nottingham for 3 years and receive the Bachelor of Medical Science (BMedSci) degree. After when, they will return to Thailand and continue their study in clinical phase at Faculty of Medicine, Srinakharinwirot University for another 3 years. Upon completion of their study, they will receive the Doctor of Medicine (M.D.) degree from Srinakharinwirot University.

The SWU-UoN has its uniqueness and is different from the regular medical program in many aspects. The regular medical program recruits students from an admission test regulated by the Consortium of Thai Medical School, which is held annually at national level. The SWU-UoN recruits students directly using both written multiple choice questions (MCQs) scores (50%) and interview scores (50%). In comparison, the SWU-UoN weight their assessment equally on cognitive skills (written MCQs) and non-cognitive skills (interview), while the regular medical programs

recruitment scrutinizes mainly on cognitive skills (MCQs score). It should be noted that the admission process of a regular medical program also consists of an interview, however, such interview is intended to serve as a tool to exclude students who deems unfit for medical practice (for example, students with psychiatric problems). The decision to accept the student into the regular program still fundamentally based on the written examination score. Previous studies have shown that student selection process effects the study performance and dropout rate of the students.^{1,2}

Students applying for the SWU-UoN program are mostly graduates from international high schools, either in Thailand or abroad. On the other hand, almost all of the students applying for the regular program are graduates from Thai secondary school. A previous study in Thailand has shown that the difference in students' high school background results in difference in academic performance during a program.³ The content of the taught courses during the preclinical years at the University of Nottingham also differs from the courses taught at Srinakharinwirot University. Another difference is the learning cultures between the western and the eastern world (including Thailand), as it was believed that Eastern students tend to be a rote learner rather than engaging in critical thinking compared to the Western students.⁴

Despite the differences between the two programs stated above, the SWU-UoN students have to blend in with the students of

the Regular program during their clinical years in Thailand. Ideally, the academic achievement of the students of the two programs is expected to be comparable. We perform a study to compare the students' academic achievement in the clinical phase between the Regular medical program and the SWU-UoN program using the cumulative grade point average (CGPA) and the National License Examination step 2 (NLE step 2) score as the outcome measurement.

Methods

We conducted a single center retrospective cohort study at Faculty of Medicine, Srinakharinwirot University. Studied population was 3 batches of Srinakharinwirot University medical students who sat the National License Examination step 2 (clinical science) in the year 2013, 2014 and 2015, which is a total of 382 students. Students who studied the whole curriculum in at the Faculty of Medicine, Srinakharinwirot University were defined as "Regular program students" while students who studied their pre-clinical years at the University of Nottingham and continued their clinical years at Srinakharinwirot University were categorized as "SWU-UON students". The CPGA in this study is defined as the grade point average during the 6 years curriculum. The NLE step 2 is a paper-based 300 multiple choice questions covering clinical science subject held at the national level and is

regulated by the Center for Medical Competency Assessment and Accreditation (CMA) of Thailand.

The CPGA and NLE scores of all students were obtained from the Medical Education Unit, Faculty of Medicine, Srinakharinwirot University. Two research assistants manually entered the raw data into the SPSS program. We ensure that the identity of each student was confidential during the data analysis by assigning a code to each student rather than their name. We assigned the student into two groups, students who registered with the regular medical program and students who registered with the joint medical program (SWU-UoN). The data was checked for any missing data, outliers, and accuracy of group (regular program or SWU-UoN) identification for all students. SPSS version 14 (SPSS Inc., Chicago, IL, USA) was used for data analysis. Independent *t*-test was used to compare mean CPGA and NLE step 2 score between the two groups. A *p* value of less than 0.05 was considered statistically significant.

Results

The data from a total of 382 students were included in this study. All the collected data were analysed and none was excluded. The number of students in each program who sat the NLE step 2 and the average NLE scores for each year were shown in Table 1

The difference in CPGA and NLE scores between the two groups are shown in Table 2. For the regular program, the average students' CPGA was 3.20 ± 0.40 and the average NLE step2 score was 184.6 ± 19.4 . For the joint medical program (SWU-UoN), the average

students' CPGA was 3.25 ± 0.42 and the average NLE step 2 score was 179.1 ± 19.4 . There was no statistically significant difference in both the CPGA and NLE step 2 score between the two groups ($p = 0.53$ and $p = 0.15$ respectively).

Table 1 Average score and number of students in each program who sat the NLE step 2 exam in the year 2013, 2014 and 2015

	Total students	Regular program	SWU – UoN	NLE step 2 score	Minimum score	Maximum score
Year 2013	127	118	9	184.5 ± 18.3	118	228
Year 2014	128	118	10	178.1 ± 21.0	109	238
Year 2015	129	117	10	189.0 ± 18.2	146	239

Table 2 Results comparing the differences in cumulative grade point average (CPGA) and National License step 2 (NLE step 2) score between the regular program students and the joint medical program (SWU-UoN) students.

Group	Regular program (N = 29)	SWU - UoN (N = 353)	Mean difference (95% CIs)	<i>p</i> value
CPGA (Mean \pm SD)	3.20 ± 0.40	3.25 ± 0.42	0.04 (-0.10 to 0.20)	0.53
NLE step2 score (Mean \pm SD)	184.6 ± 19.4	179.1 ± 19.4	5.4 (-12.9 to 2.0)	0.15

Discussion

The joint medical program between Srinakharinwirot university and The university of Nottingham UK is a unique program which integrates the preclinical years in the western world with clinical years in the eastern world. From an extensive literature search, there was no previous published study regarding academic achievement of medical students who enrolled in an international medical program. The reason for lack of study in this area of medical education is possibly due to the fact that there are only a few programs which offer an international medical degree. For example, a MBBS graduate entry medical programme from St George's University of London to the University of Nicosia in Cyprus⁵ which the medical students study preclinical sciences in Cyprus and then continue their clinical phase in the hospitals in the USA, Puerto Rico or Israel. The St George's University of London and the University of Nicosia Cyprus has been taking students into the program for only 4 years, thus, there was no published data regarding how well the students of this program performed yet.

Ideally, it is expected that the students of the two programs should be comparable in terms of their academic performance. However, despite the differences in students' characteristic and educational environment during the preclinical years, there is still uncertainty that students' performance may be different. Regarding this issue, there was a previous study comparing the students' academic performance in the pre-clinical years

between the regular program and the SWU-UoN program. The study examine the passing rate of students sitting for the NLE step 1 in the year 2011, 2012 and 2013 and the result showed that there was a difference in the proportion of students passing the NLE step 1 examination between the two programs. Students of the regular program had the passing rate of 92.5% , 99.1% and 99.1% for the year 2011, 2012 and 2013, respectively, while students of the joint medical program had the passing rate of 40.0%, 22.3% and 100%.⁶ However, there has never been a study that looks into the students' performance during the clinical phase.

From the result of this study, the students' NLE step 2 score and CPGA were not difference between the joint medical program and the regular medical program. Therefore, it is suggested that the differences in students' characteristic and the educational environment during the preclinical years have little or no effect on how well the student perform during their clinical years. The hardest year for the students of the joint medical program is the 4th year, when they have to deal with moving from the UK back to Thailand and adjusting themselves to new study environment and culture. Because this study evaluate their performance at the 5th year (normal timing for students to sit the NLE step 2 examination), students of the joint medical program may have been well blended with the students of the regular program. However, it is important to note that this study was not controlled for other factors that may effects the academic

performance. Another limitation of this study is that, due to the unequal sample sizes between the two groups, the statistical power to detect the mean difference may be flawed.

It was suggested that the assessment clinical competence should be multifaceted as different format of examination assess difference aspect of students' clinical competence.⁷ The limitation of this study is that this study only measures the cognitive aspect of students' performance in the clinical phase as the author use only the NLE step 2 scores and CPGA as the outcome measurement. Other aspects of clinical competence such as communication skills, psychomotor skills or professionalism was not assessed and compared. We recommend that another study which compare all of the aspects of clinical competence (including NLE step 3 Objective structured clinical examination scores, Long case scores, Written case reports scores) should be done to confirm that the students of the two programs are comparable in terms of their clinical competence, which is a hallmark when medical school is making decision about a student's medical qualification and fitness to practice.

Conclusion

Despite the difference in the courses content and studying culture during preclinical years. The students' academic performance in the clinical phase does not differ between the SWU regular medical program and the SWU –

UoN medical program. Further study which will compare other aspects of clinical competence such as communication skills, patient interaction, psychomotor skills and professionalism between the students of the two programs is recommended

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References

1. Urlings-Strop LC, Themmen AP, Stijnen T, Splinter TA. Selected medical students achieve better than lottery-admitted students during clerkships. *Med Educ.* 2011;45(10):1032-40.
2. Schripsema NR, Trigt AM, Borleffs JC, Cohen-Schotanus J. Selection and study performance: comparing three admission processes within one medical school. *Med Educ.* 2014;48(12):1201-10.
3. Wilaem W. Correlation between academic record of high school students and achievement of the First year Pre-medical students. In: Harden RM, editor. Association of Medical Education in Europe (AMEE) conference; 30 August - 3 September; Milan, Italy 2014. p.430.
4. Tavakol M, Dennick R. Are Asian international medical students just rote learners? *Adv Health Sci Educ. Theory Pract* 2010;15(3):369-77.

5. University of Nicosia Medical school. Overview of the Curriculum: St George's University of London medical degree in Cyprus. 2015 [cited 2016 29 June]; Available from: <http://www.nicosia.sgul.ac.cy/education/curriculum/overview-of-the-curriculum>.
6. Werawong C, Sakorn A, Narkwichead A, Thongsaard W. Comparison of the achievement in the Medical National License Examination Step 1 between the Joint Medical Programme SWU-UoN and the Thai Programme In: Harden RM, editor. Association of Medical Education in Europe (AMEE) conference; 30 August - 3 September Milan, Italy;2014. p. 236.
7. Wass V, Van der Vleuten C, Shatzer J, Jones R. Assessment of clinical competence. *The Lancet*. 2001;357(9260):945-9.