

Residents' Obstacles and Attitudes Toward Research during Residency Training

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Background: Many residents often encounter several problems to accomplish their research projects, a requirement to complete medical residency training in Thailand. This study aimed to explore perceived obstacles and attitude of Thai residents toward conducting research.

Material and Method: The questionnaires were distributed among 640 residents at King Chulalongkorn Memorial Hospital from November to December 2014. Structured-questionnaires explored the participants' characteristics, research experience, purpose of conducting research, motivations and perceived barriers to research. Five-pointed Likert scale was used to determine residents' attitude toward research. Descriptive statistical analysis was used.

Results: 246 respondents were achieved from 640 residents surveyed, yielding a response rate of 39.7%. The mean age was 28.21±1.60 years and 66.7% was female. Most of them were studying in internal medicine, pediatrics and anesthesiology. Residency year ranged from 1st-4th year and the ratio was 21.5: 20.8: 18: 1. The purposes to conduct the research were to meet the program requirement (72.4%), to develop research skills (23.6%), and to accrue credentials for future fellowship application (2.4%). While 52.4% pursued research in order to bolster research experience, 12.6% would like to publish and 4.5% would like to present in the international conference, as high as 39.8% had not motivation. Perceived barriers were limited statistical knowledge, inadequate time and, difficulty formulating research topic. In addition, 50.6% were assigned research topics from advisors. Most of the residents agreed that conducting research enhanced inquiry-based learning and enabled them to better understand research methodology. Nevertheless, they thought that researching was complicated, time-consuming, and tedious.

Conclusion: Most residents were motivated to conduct research projects but perceived obstacles and negative attitude might erode their motivation for research

Keywords: Residents, Research, Obstacles, Barriers, Attitude

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At this moment, all residency training programs in Thailand mandate research activity in their curricula⁽¹⁻⁵⁾. On the other hand, many programs in developed countries do not require research for graduation; they allow residents to conduct other scholarly activities instead of the research projects⁽⁶⁾.

Hamann et al elaborated that reasons to pursue research include intellectual curiosity, exploration of career choices, training program

requirement, and development of credentials for fellowship application⁽⁷⁾. Rivera et al findings were similar, stating that residents participated in research for various reasons, including intellectual curiosity (73%), career development (60%), and fulfilling a requirement (32%)⁽⁸⁾. Herbert et al suggested that residents' research curricula taught them how to articulate clinical questions, appraise literature, apply research skills, and work with mentors⁽⁹⁾. Accordingly, residency training programs expect their trainees to develop research mind and to be able to integrate and implement research skills in their daily life⁽¹⁾.

However, during research, residents often encounter several problems including inadequate competency, lack of interest, lack of creative thinking, lack of experience, and lack of motivation. Most of these

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negatively affect the quality of their researches.

Gill et al found that the three major obstacles to conducting residents' research were limited time (68%), residents' lack of interest (30%), and faculties' lack of interest (21%)⁽¹⁰⁾. Another study from Pakistan by Khan et al showed that hindrances to pursuing research were time (46%), infrastructure (20%), funding (20%), mentors (11%), and future benefit (3%)⁽¹¹⁾. The US Internal Medicine residents' survey by Rivera et al mentioned that the most common barriers were the lack of time (79%), lack of research skills (45%), and the lack of a research curriculum (44%)⁽⁸⁾. An anesthesiology residents' attitude study by Silcox et al explained many obstacles preventing resident involvement in research such as schedule conflicts (56%), inadequate mentors (48%), lack of research curriculum (29%), etc⁽¹²⁾.

The aim of the present study is to explore perceived barriers of Thai residents' research activity during training and their attitudes toward research.

Material and Method

This Cross-sectional descriptive study enrolled the present residents who, concurrently, are in training programs from all departments in Faculty of Medicine, Chulalongkorn University and King Chulalongkorn Memorial Hospital in academic year 2013. The survey was done in November 15-December 18, 2013. Data were kept confidential. The study was approved by the Faculty of Medicine, Chulalongkorn University Institutional Review Board.

The questionnaire was developed through the review of the literature and open-ended question responses piloted from 15 pediatric residents. The 2-page questionnaire was organized into 4 topic areas: 1) characteristics of participants, 2) previous research experience and ongoing research status, 3) resident' obstacles during conducting their research, and 4) resident's attitudes on scholarly work. It was distributed among 640 residents.

Descriptive statistics summarized the responses to all questions. Characteristics of the participants, research experience, purposes of research conduction, motivation, and barriers were shown in percentage and ratio. Research attitudes were categorized into 5-point Likert scales and presented as mean and 95% confidence interval. If means are more than 4.5, 3.5, 2.5, 1.5, and 0.5, they would be interpreted as strongly agree, agree, neither agree nor disagree, disagree, and strongly disagree to the phrases, respectively. Data were analyzed using SPSS for Windows version 17.

Results

Surveys were returned by 246 of the 640 participants (response rate 39.7%). Mean age of respondents was 28.20±1.60 years (24-38 years). Two thirds (66.7%) were female. Three major groups of participants came from Department of Internal medicine (29.7%), Pediatrics (19.5%) and Anesthesiology (11%). Residency years and residents' research status were shown in Table 1.

Residents' research experience

Form Table 1, 79.3% of residents learned research methodology and process during their undergraduate program. In addition, 74.4% had previous research experience before residency training.

Residents' research goal and motivation

The reasons that residents worked on their scholarly projects were shown in Table 2. More than half respondents (52.4%) would like to conduct scholarly activity to bolster their research experience. Some residents would like to publish their works in medical journals (12.6%) or present their work in international conferences (4.5%). However, more than one third (39.8%) lacked motivation to conduct a research.

Research topic formulation

Half of participants (50.6%) were assigned research topics by their mentors. On the contrary, some residents (30.2%) chose the topics of their interest. Few participants (9.4%) preferred simple and uncomplicated topics (Table 3).

Obstacles to research conduction

Residents commented on barriers to conducting their scholarly project. The most common barriers cited by residents were statistics and its applications (55.2%), limited time (53.8%), and topic formulation (51.4%) (Table 4)

Attitudes toward research

Most of the residents agreed that conducting research encouraged them to self-study and enabled them to better understand the principles of research methodology. Nevertheless, they thought that research was complicated, time-consuming, and tedious (Table 5, 6).

Discussion

Most participants conducted their research projects because of the mandatory condition in

residency training curriculum; only a quarter did it for professional development. This result showed the residents' perspective on research work. They conducted their works by the regulation rather than looking for the opportunity to develop their skills or fulfill their curiosity. Unsurprisingly, nearly forty percent

lacked motivation to run their scholarly projects. However, half of them hoped to develop their experience on research.

In addition, the author found that main obstacles were different from previous studies^(7,8,10-13). The most common problem in other studies was limited time to conduct scholarly works, but Thai residents reported that the most important problem was statistics and its applications. Although all respondents had to complete course work of statistics in research methodology during residency training and some of them also learned or even had direct experience since undergraduate level, they could not apply the knowledge or skills in real life. It could be assumed that the content of this course focused on theoretical more than practical points. However, lack of time was still the second-rank problem for Thai residents. Many residency programs did not allocate specific time for conducting research; therefore the resident could not dedicate themselves to their projects. Most of them ran their project during their regular service hours. Consequently, they preferred to choose simplified research topics over their interest. It might explain why some of them lacked motivation. When their working schedule was very tight, they felt burn out. One study

Table 1. Characteristics of participants (n = 246)

Characteristics	n (%)
Sex	
Male	81 (32.9)
Female	164 (66.7)
Not specified	1 (0.4)
Age (year)	
Mean	28.2±1.60
Range	24-38
Specialties	
Internal Medicine	73 (29.7)
Pediatrics	48 (19.5)
Anesthesiology	27 (11.0)
Radiology	23 (9.4)
Ophthalmology	17 (6.9)
Obstetrics and Gynecology	16 (6.5)
Rehabilitation Medicine	16 (6.5)
Psychiatry	8 (3.3)
Surgery	7 (2.9)
Child and Adolescent Psychiatry	6 (2.4)
Family Medicine	5 (2.0)
Residency year	
1	86 (35.0)
2	83 (33.7)
3	72 (29.3)
4	4 (1.6)
Not specified	1 (0.4)
Present research status	
Not begun	35 (14.2)
Ongoing topic formulation	15 (6.1)
Ongoing proposal writing	55 (22.4)
Ongoing IRB process	28 (11.4)
Ongoing data collection	60 (24.4)
Ongoing data analysis	14 (5.7)
Ongoing manuscript writing	25 (10.2)
Accomplished	11 (4.5)
Waiting for publication	2 (0.8)
Not specified	1 (0.4)
Previous research experience	
Yes	183 (74.4)
No	61 (24.8)
Not specified	2 (0.8)
Learned research methodology courses in undergraduate level	
Yes	195 (79.3)
No	50 (20.3)
Not specified	1 (0.4)

Table 2. Residents' research goal and motivation (n = 246)

	n (%)
Research goal	
Completion of program requirement	178 (72.4)
Research skills	58 (23.6)
Further training	6 (2.4)
Intellectual curiosity	2 (0.8)
Not specified	1 (0.4)
Research motivation	
Bolster research experience	129 (52.4)
Publication	31 (12.6)
Presentation in international conference	11 (4.5)
No motivation	98 (39.8)
Not specified	2 (0.8)

Table 3. Residents' research topic formulation (n = 246)

How residents formulate research topic ?	n (%)
Advisors' choice	125 (50.6)
Interesting topic	74 (30.2)
Easy topic	23 (9.4)
Others	24 (9.8)

Table 4. Obstacles to research conduction (n = 210)

Obstacles to conduct research	Yes, n (%)	No, n (%)	No response, n (%)
Lack of knowledge in statistics and its applications	116 (55.2)	72 (34.3)	22 (10.5)
Lack of time	113 (53.8)	77 (36.7)	20 (9.5)
Research topic formulation	108 (51.4)	99 (47.1)	3 (1.4)
Research process: process, planning, methodology, literature review	96 (45.7)	106 (50.5)	8 (3.8)
Lack of supporting staff e.g. scientists, statisticians	90 (42.9)	99 (47.1)	21 (10.0)
Complicated statistic software	87 (41.4)	103 (49.0)	20 (9.5)
Large sample size	78 (37.1)	111 (52.9)	21 (10.0)
IRB process	63 (30.0)	125 (59.5)	22 (0.5)
IT systems	51 (24.3)	140 (66.7)	19 (9.0)
Medical record accessibility	49 (23.3)	139 (66.2)	22 (10.5)
Funding	42 (20.0)	147 (70.0)	21 (10.0)
Mentors	38 (18.1)	168 (80.0)	4 (1.9)

IRB = institutional review board; IT = information technology

Table 5. Positive attitudes toward research

Positive attitudes	Mean (95% CI)	Interpretation
Encourage self-study	3.69 (3.58-3.80)	Agree
Understand research methodology	3.52 (3.42-3.63)	Agree
Understand knowledge-building process	3.32 (3.21-3.44)	Neutral
Synthesize interesting knowledge	3.18 (3.07-3.29)	Neutral
Challenge my ability	3.13 (3.02-3.24)	Neutral
Follow medical innovation	3.10 (2.99-3.21)	Neutral
Develop me into a complete specialist	3.04 (2.92-3.17)	Neutral
Improve my patient care	2.97 (2.85-3.08)	Neutral
Inspire me to create new projects	2.92 (2.80-3.04)	Neutral

Table 6. Negative attitudes toward research

Negative attitudes	Mean (95% CI)	Interpretation
Complicated	3.62 (3.50-3.74)	Agree
Bother personal time	3.54 (3.42-3.66)	Agree
Tedious	3.54 (3.41-3.66)	Agree
Interfere study time	3.45 (3.33-3.57)	Neutral
Interrupt clinical service	3.38 (3.27-3.49)	Neutral
Interfere patient-care time	3.04 (2.93-3.16)	Neutral

by Vinci et al suggested that a dedicated academic rotation that included substantial protected time can lead to productive research accomplishments⁽¹³⁾.

Interestingly, fifty-two percent of them complained that research topic formulation was a big obstacle and half of them had their topics assigned by their advisors. It could be inferred that some of the

residents were not able to generate a new idea or apply their previous knowledge to create a research question. This could be a significant barrier to develop an innovative research work in the future.

In the study, residents' attitude was assessed by 5-point Likert rating scale. From positive attitude items, residents agreed that research enhanced self-

study process and helped them understand research methodology. On the other hand, they thought that research in general was still complicated, tedious, and took away their private time. All of these could also explain why residents lacked motivation to conduct their research projects. From Table 4, thirty six residents didn't choose any choices in this part; so the author had to exclude them from the results.

Several limitations of this study should be considered. First, there was low response rate and unequal department distribution; hence the results may not represent the real population of residents across departments. Second, there was variation among each residency training curriculum in the institution. The residents might undergo the same statistics and research methodology course work, but some departments provided extra classes, facilities, or other supporting systems for them. Finally, each participant was in different phases of their research; some may not be familiar with every question in this survey.

Conclusion and recommendation

The study helped to elucidate the barriers and residents' attitude toward the research works. Even though the majority was motivated, they would face numerous barriers and possibly develop negative attitude. Lack of knowledge in statistics, limited time, and difficult research topic formulation were the primary obstacles in the residency research. The results of this study could help the faculties understand the nature of Thai residents and provide the facilities and time needed to promote the residents' research work. Ultimately, these supports would aid in accomplishing the goal of residency training programs.

What is already known on this topic?

There were many overseas studies which focused on residency research barriers and several met the most common factor was time constriction.

What this study adds?

There has been no study in Thai residency training program prior to this study which showed the different results from other previous studies. In addition, it presented the most important obstacles and suggested the idea for promoting the residency research works.

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Potential conflicts of interest

None.

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อุปสรรคและทัศนคติของแพทย์ประจำบ้านต่องานวิจัย

วรพล จรุงวุฒิขกุล, จิตลัดดา ตีโรจนวงศ์

ภูมิหลัง: การฝึกอบรมแพทย์ประจำบ้านในประเทศไทยกำหนดให้มีการทำวิจัยเป็นส่วนหนึ่งของการฝึกอบรม ซึ่งระหว่างดำเนินการแพทย์ประจำบ้านมักพบปัญหาและอุปสรรคต่างๆ ซึ่งอาจมีผลกระทบต่อคุณภาพของงานวิจัย การศึกษานี้เป็นการสำรวจปัญหา อุปสรรคและทัศนคติของแพทย์ประจำบ้านในการศึกษาระหว่างการฝึกอบรม

วัตถุประสงค์และวิธีการ: การวิจัยเชิงพรรณนา ณ จุดเวลาใดเวลาหนึ่งโดยศึกษาในแพทย์ประจำบ้านของโรงพยาบาลจุฬาลงกรณ์ และคณะแพทยศาสตร์ จุฬาลงกรณ์มหาวิทยาลัยทุกสาขาวิชา ระหว่างเดือนพฤศจิกายน-ธันวาคม พ.ศ. 2556 โดยใช้แบบสอบถามเพื่อเก็บข้อมูลลักษณะของผู้ตอบ ประสพการณ์วิจัย เป้าหมายและแรงจูงใจในการทำวิจัย ปัญหาอุปสรรค และทัศนคติที่มีต่องานวิจัย นำมาวิเคราะห์และนำเสนอในรูปแบบของสถิติเชิงพรรณนา

ผลการศึกษา: ผู้ตอบแบบสอบถามจำนวน 246 คนจากทั้งสิ้น 640 คนคิดเป็นร้อยละ 39.7 เป็นเพศหญิงร้อยละ 66.7 อายุเฉลี่ยอยู่ที่ 28.21±1.60 ปี (24-38 ปี) โดยมีสาขาวิชา 3 ลำดับแรกคือ สาขาอายุรศาสตร์ กุมารเวชศาสตร์ และวิสัญญีวิทยา จำแนกตามชั้นปีที่ 1-4 คิดเป็นสัดส่วนเท่ากับ 21.5: 20.8: 18: 1 ตามลำดับ พบว่าแพทย์ประจำบ้านส่วนใหญ่มีเป้าหมายการวิจัยดังนี้ เพื่อให้สำเร็จการศึกษาร้อยละ 72.4 เพื่อพัฒนาทักษะวิจัยร้อยละ 23.6 เพื่อการศึกษาต่อแพทย์ประจำบ้านต่อร้อยละ 2.4 แรงจูงใจที่ทำให้แพทย์ประจำบ้านอยากทำวิจัยได้แก่ สร้างเสริมประสบการณ์วิจัยร้อยละ 52.4 มีผลงานตีพิมพ์ในชื่อของคณร้อยละ 12.6 มีโอกาสนำเสนอผลงานในต่างประเทศร้อยละ 4.5 นอกจากนี้พบว่าร้อยละ 39.8 ขาดแรงจูงใจในการทำ ปัญหาที่พบบ่อยที่สุดในการทำวิจัย 3 ลำดับแรกได้แก่ ขาดความรู้เกี่ยวกับสถิติและการประยุกต์ใช้ มีเวลาในการทำวิจัยไม่เพียงพอ ประสพปัญหาการคิดหัวข้อวิจัย นอกจากนี้ยังพบว่าร้อยละ 50.6 อาจารย์ที่ปรึกษาเป็นผู้กำหนดหัวข้อการวิจัยสำหรับทัศนคติต่องานวิจัย แพทย์ประจำบ้านเห็นด้วยว่าการทำวิจัยทำให้ต้องการค้นคว้าความรู้เพิ่มเติมและทำให้เข้าใจระเบียบวิธีวิจัย นอกจากนี้ยังมองว่างานวิจัยเป็นเรื่องที่เข้าใจยาก ครอบคลุมเวลาพักผ่อน/เวลาส่วนตัวและน่าเบื่อหน่าย

สรุป: แม้ว่าแพทย์ประจำบ้านจะมีแรงจูงใจในการทำวิจัย แต่อุปสรรคหลายประการระหว่างดำเนินงานวิจัยประกอบกับทัศนคติเชิงลบ อาจส่งผลกระทบต่อแรงจูงใจในการทำวิจัย