Assessment of Prospective Physician Characteristics by SWOT Analysis

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Abstract

Background: Thailand is one of the developing countries encountering medical workforce shortage. From the national registry in 2006, there were 33 166 physicians: 41.5% worked in the government sector, 21.6% worked in the private sector, and the remaining worked in non-medical fields. There is no current data to confirm the effectiveness of the national policy to increase physician production. We demonstrate our findings from the strength, weakness, opportunity, and threat (SWOT) analysis in medical students and the potential impact on national workforce planning.

Methods: We introduced SWOT analysis to 568 medical students during the 2008–2010 academic years, with the objective of becoming "a good physician in the future".

Results: Pertinent issues were grouped into 4 categories: not wanting to be a doctor, having inadequate medical professional skills, not wanting to work in rural or community areas, and planning to pursue training in specialties with high salary/low workload/low risk for lawsuit. The percentages of medical students who described themselves as "do not want to be a doctor" and "do not want to work in rural or community areas" increased from 7.07% and 25.00% in 2008 to 12.56% and 29.65% in 2010, respectively.

Conclusion: Further intervention should be considered in order to change the medical students' attitudes on the profession and their impact on Thai health system.

Keywords: health planning, health systems plans, medical students, manpower

Introduction

Thailand is one of the developing countries encountering medical workforce shortage. According to the Thai Medical Council's latest registry in 2006, there were 33 166 physicians in the Thai health system. Of the total population, 41.5% worked in the government sector (12.6% at regional medical centres, 12.4% at general hospitals, and 16.5% at community hospitals), whereas 21.6% worked in the private sector; the remaining worked in non-medical fields (1,2).

Currently, there have been several measures implemented in order to produce more medical professionals in response to societal needs. For instance, the number of medical schools in Thailand rose from only a few to 18 medical schools in 2011. However, there is no data to confirm that increasing the doctors' population can efficiently serve the demand as expected.

The Faculty of Medicine, Chulalongkorn University, is one of the leading medical schools in Thailand, producing approximately 200 medical graduates per year, which is the highest among all medical institutions. Normally, the medical curriculum in Thailand requires a 6-year training, with an additional 1-year internship for every medical undergraduate and a 2-year government work according to the contract. From the faculty point of view, it has been noted that quite a high percentage of medical graduates were not present in the health system due to resignation from the hospitals before the end of their contracts or selecting further training in specialised areas that might not be needed by society. However, definite and up-to-date data are still lacking, and many agencies are searching for ways to obtain estimated data to verify the characteristics of medical workforce in the country.

An analysis of strengths, weaknesses, opportunities, and threats (SWOT) is one of the most popular analytical tools used by intelligence analysts. It can be used to analyse either individuals or agencies, and for strategic planning in either biomedical or public health fields (3–13). We have adopted this technique to assess the characteristics of 5th-year medical students with regards to their prospective physician status.

Subjects and Methods

We retrospectively analysed the data retrieved from the SWOT assignments of 5th-year medical students from 2008–2010 academic years at Chulalongkorn University. The SWOT assignment process begins with an introduction of SWOT techniques to analyse the status of individual and organisation levels with pre-defined statements or objectives. In this case, we set the objective/desired state for medical students as becoming "a good physician in the future". The SWOT analytical matrix is shown in Table 1.

All medical students were also advised to assess themselves using the following questions: in what way can the strengths be used to achieve the objective, how can the weaknesses be shored up, what is the best way to take advantage of each opportunity to achieve the objective, and what needs to be done to mitigate each threat.

In a tactical way, the students were instructed to formulate strategies in order to achieve the objective/desired state by matching the factors, as follows:

1. Strengths/Opportunities: formulate the ways that will use strengths so that opportunities can be realised
2. Weaknesses/Opportunities: formulate the ways to address weaknesses in order to provide relief so that opportunities can be followed
3. Strengths/Threats: formulate the ways that use strengths "offensively" to moderate threats
4. Weaknesses/Threats: formulate defensive ways that will protect against threats

Content analysis was done by focusing on pertinent characteristics in strength and weakness assessments that are potentially related with the national health workforce planning system. In order to test if the SWOT analysis could be used as a situation assessment tool to demonstrate the medical students' attitudes toward their prospective careers, we set the hypothesis that the attitude of "do not want to be a doctor" should be less than 5%. The sample size was calculated by using the following formula:

$$\text{Sample size} = \frac{Z^2 \times (p) \times (1-p)}{d^2}$$

where Z = Z value (1.96 for alpha = 0.05), p = proportion of the attitude of "do not want to be a doctor" (0.05), and d = acceptable margin of error for proportion (estimated at 0.05).

For a finite population, the sample size was corrected using the following formula:

$$\text{New sample size} = n/[1+(n-1/\text{pop})]$$

where pop = population.

From the sample size calculation, 53 subjects were needed per class year. STATA version 10.0 (StataCorp LP, Texas, US) was used to analyse the data. This study was approved by the Chulalongkorn University review board.

Results

A total of 568 medical students undertook the SWOT analysis assignments during the 2008–2010 academic years: 184 (male:female = 85:99), 185 (male:female = 94:91), and 199 (male:female = 78:121) medical students in each year, respectively.

From the content analysis, pertinent issues with potential impact on the national workforce planning from SWOT analysis were grouped into 4 categories:

1. Do not want to be a doctor
2. Have inadequate medical professional skills
3. Do not want to work in rural or community areas
4. Plan to pursue training in specialties with high salary/low workload/low risk for lawsuit

The summary of the results is presented in Table 2.

Although there was no significant differences in the number of times these 4 categories were expressed by medical students over the 3-year period, the percentages of medical students who described themselves as "do not want to be a doctor" and "do not want to work in rural or community areas" were continuously increasing from 7.07% and 25.00% in 2008 to 12.56% and 29.65% in 2010. Additionally, no statistically significant difference was detected between males and females students in all 4 categories during the 3-year period.

Table 1: Analysis of strengths, weaknesses, opportunities, and threats (SWOT)

Environment	Supportive	Detrimental
Internal	Strengths are the attributes associated with him/her that are conductive to achieving desired state, i.e., a good physician in the future.	Weaknesses are the attributes associated with him/her that are detrimental or may prevent achieving the desired state.
External	Opportunities are the conditions (political/economic/social/ technological/environment/legal) that would assist achieving the desired state.	Threats are the conditions (political/ economic/social/ technological/ environment/legal) that might be detrimental to the way he/she carries out to achieve the desired state.

Table 2: Comparative figures of pertinent issues and 3-year statistics

Issue	Number of expression						χ^2 (df)	P value*
	2008		2009		2010			
	N/Total (%)		N/Total (%)		N/Total (%)			
	Male (%)	Female (%)	Male (%)	Female (%)	Male (%)	Female (%)		
Do not want to be a doctor	13/184 (7.07%)		19/185 (10.27%)		25/199 (12.56%)		3.217 (2)	0.200
	8/85 (9.41%)	5/99 (5.05%)	10/94 (10.64%)	9/91 (9.89%)	11/78 (14.10%)	14/121 (11.57%)	4.546 (5)	0.474
Have inadequate medical professional skills	17/184 (9.24%)		22/185 (11.89%)		20/199 (10.05%)		0.735 (2)	0.693
	9/85 (10.59%)	8/99 (8.08%)	11/94 (11.70%)	11/85 (12.94 %)	12/99 (12.12%)	8/94 (8.51 %)	1.948 (5)	0.856
Do not want to work in rural or community areas	46/184 (25%)		48/185 (25.95%)		59/199 (29.65%)		1.187 (2)	0.553
	20/85 (23.53%)	26/99 (26.26%)	20/94 (21.28%)	28/85 (32.94%)	24/99 (24.24%)	35/94 (37.23%)	8.827 (5)	0.116
Plan to pursue training in specialties with high salary/low workload/low risk for lawsuit	37/184 (20.11%)		46/185 (24.86%)		47/199 (23.62%)		1.275 (2)	0.529
	14/85 (16.47%)	23/99 (23.23%)	22/94 (23.40%)	24/85 (28.24%)	20/99 (20.20%)	27/94 (28.72%)	5.441 (5)	0.364

* Pearson chi-square test
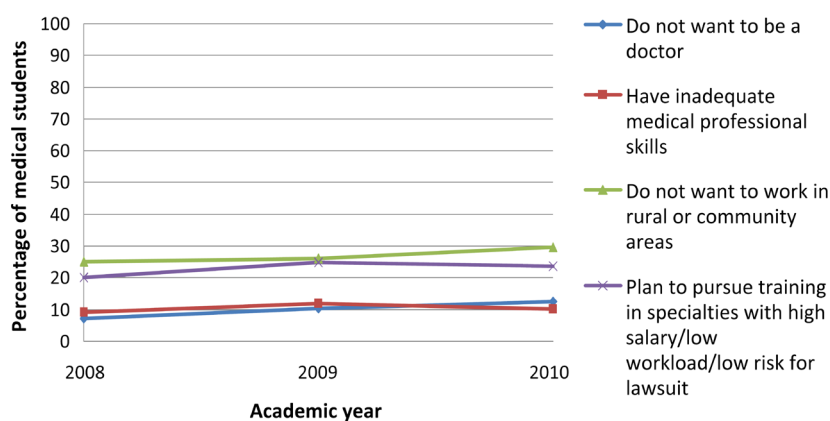
Figure 1: Three-year trend in 5th-year medical students

In terms of the total numbers of annual production, the results also showed increasing numbers of respondents expressing these responses in all 4 categories between 2008 and 2010. Comparative trends of all 4 issues from 2008–2010 academic years are shown in Figure 1.

Discussion

According to the latest national statistics in 2010, Thai medical schools have produced 1303 physicians to work in the government sector after graduation; 602 physicians (46%) resigned from the system after a 1-year period of internship. Although it has been estimated that the government sector currently needs at least 20 885 physicians, actual supplies are less than 8000(2).

Our study demonstrated the important issues that may affect the medical workforce planning of the national health system, such as a potential unwillingness to be a doctor, a feeling of inadequate medical professional skills, an unwillingness to work in the rural or community levels, as well as the desire to become specialists in high-salary/low-workload/low-risk-for-lawsuit environments.

It is possible for the results to be underestimated, since SWOT analysis was assigned to the medical students to complete with the provision of general guidelines and a common goal to be a good physician in the future, and some of them might not have wanted to reveal their attitudes toward the above issues. However, those pertinent expressions have been described by themselves, which, in turn, may indicate actual feelings or intentions at that point. Therefore, it should be of value to take those statistics into

account for monitoring how much these attitudes will impact on prospective workforce planning.

At Chulalongkorn University, which presently produces the highest number of medical graduates in the country (200 per year), at least US$30 000 has been spent for each doctor during the 6-year training period (2). If this trend of unwillingness continues after graduation, theoretically, the government will have spent more than US$1.7 million on educating doctors who will finally work outside the medical field. Moreover, the availability of doctors in the rural areas will be threatened by a 30% loss of the number produced each year. The solution to these problems requires a more careful and up-to-date medical workforce planning.

Not only do critical workforce shortage problems exist, our results also showed the potential overflow of specialties with high salary, low workloads, and low risk for lawsuit such as dermatology, radiology, ophthalmology, and otorhinolaryngology. At present, ongoing surveys from the National Health Insurance Office reveals some evidence of oversupply for those aforementioned specialties in most of the urban areas in Thailand (these results will be available in a forthcoming publication). Planning for medical workforce value chain management with an appropriate strategy to balance demand and supply should be considered a priority at the national level.

Normally, the 5th year of medical training is the last year before clerkship in the 6th year. Necessary knowledge and medical professional skills should be gained before completing the 5th year. However, the national policy to increase medical workforce production has resulted in an increasing trend of having inadequate medical

professional skills among medical students. This situation might be caused by the lack of resources within medical schools that disproportionately impact an increasing number of medical students. This finding may reflect the necessity for medical schools and related authorities to be aware of the quality problem in new graduates and to develop a suitable strategy to deal with the impact of this problem on the health system in the future.

This study has some limitations, such as the necessity of the instructor to introduce the concept of SWOT analysis with simplistic examples to the medical students, and, although this is a simple technique to implement, the data (content) analysis is quite labour-intensive if used as a tool to assess a situation, such as in this study. We suggest that the SWOT analysis should be further adopted and tested in multi-centred settings, as well as compared with existing workforce statistics within interested countries.

Conclusion

Increasing trends in unwillingness to be a doctor and to work in rural areas were demonstrated in this study using SWOT analysis. Further interventions should be considered to deal with the changes in medical students' attitudes and their potential impacts on health systems.

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Authors' Contribution

Conception and design, collection and assembly of the data, administrative, technical, or logistic support: TW
Analysis and interpretation of the data, drafting, critical revision, and final approval of the article: TW, PW

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