Leadership Attitudes and Beliefs of Pharmacy Students: A cross-sectional Study from a Malaysian University

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ABSTRACT
Background: Pharmacy profession requires pharmacists to have leadership qualities to respond the challenges in healthcare system to meet the patient’s medication-related needs. Therefore, to build leadership qualities among pharmacists, it is essential to discuss it during the early training of the future pharmacists.
Aim: The study aims to evaluate leadership attitudes and beliefs of pharmacy students at School of Pharmaceutical Sciences, Universiti Sains Malaysia (USM).
Methods: The study was designed as a cross-sectional, descriptive survey. All undergraduate pharmacy students (n=478) were targeted for the study. The Leadership Attitudes and Beliefs Scale was used
Results: Three hundred and forty-five students responded to the survey (response rate = 72.1%). The mean scores for hierarchical and systemic thinking were 25.7±6.56 and 30.7±6.88 respectively. It indicates that most of the students believe in a high hierarchical-high systemic thinking. Significant associations observed in a comparison between ethnicity and leadership aspects: leader being responsible of controlling, keeping authority, and charge of the organization (p=0.002,p=0.024 and p=0.047respectively). Gender was reported to have a significant association with factors of participation (p=0.035) and security of the organization (p=0.014).
Conclusion: The study findings suggest that pharmacy undergraduates prefer a high hierarchical thinking and high systemic thinking approach to leadership. Therefore, specialized programs about leadership are suggested to be included as part of the students activities and training. In these programs, more emphasis on systemic thinking is needed rather than overly depending on hierarchical thinking. Moreover, students should be equipped with knowledge necessary to decide which style of leadership to adapt to promote the well-being of the organization.

INTRODUCTION
Pharmacy profession has witnessed a remarkable transformation in the recent decades (Ried and Posey, 2006). One of the key reasons of this transformation was the demand to acquire acquaintance, ability, and principles in developing an ideal pharmaceutical care model for the healthcare system (Sorensen and Biebighauser, 2003). Within this context, even though pharmacists were actively involved in creating a professional change, pharmacy profession progress in providing patient-oriented services was relatively slower compared to other healthcare professions (Sorensen and Biebighauser, 2003).

The changes in pharmacy profession need not only the leaders (e.g. directors) but every pharmacist to have some leadership qualities to meet the patient’s medication-related needs and respond to the challenges in the healthcare system. Therefore, it has been suggested that all pharmacists should have some leadership qualities/traits (White et al., 2003).
Critics foresee one of the possible solutions to build leadership qualities among pharmacists is by addressing this part during the early training of the future pharmacists (White et al., 2003; Hisholm-Burns et al., 2012).

However, if undergraduate programs are to be looked upon as ‘change agents’, policy makers have to make sure that leadership is an essential part of the pharmacy curriculum (Sorensen and Biebighauser, 2003). Preparing future leaders in pharmacy requires knowledge, skills, and values inclined towards professional leadership. Therefore, curriculum designers and policy makers must consider whether the current pharmacy-related programs are effective in preparing pharmacists to take up the role of change agents in future (Kotter 1996; Astin and Astin, 2000).

In addition, for the survival, performance and sustainability of the pharmacy profession, strong and effective leadership skills are also required. Therefore, it is crucial that institutions offering pharmacy education give many practical opportunities for students to develop leadership skills.

The leadership has been discussed in literature with several studies and perspectives are published (Wielkiewicz, 2000; Fischer et al., 2010; Lowhorn, 2011; Feller et al., 2016; Saleem et al., 2016; Waddell et al., 2016). Fischer et al (2010) stated that, according to ecological model of leadership, “effective leadership involves atention between hierarchical and systemic approaches to leadership”. In the hierarchal model of leadership, the leader is perceived to have a special or better knowledge than the group members. Moreover, the leader assumes full responsibility for the organization. Furthermore, in this model, the involvement of subordinates in the decision-making process and provision of their feedback is limited. As such, the group members are task-oriented with top-down flow of directives are given by the leader of the organization (Wielkiewicz, 2000; Fischer et al., 2010; Lowhorn, 2011).

On the contrary, systemic leadership provides the group/organization members with the freedom and feedback loops necessary for the involvement in the decision-making process and to facilitate the organization’s ability to adapt to changes (Fischer et al., 2010; Lowhorn, 2011). Therefore, Fischer et al (2010) stated in their conclusion that effective leaders are required to have the attitudes and beliefs necessary to act as both a systemic leader and a hierarchical leader.

The leader must also have knowledge necessary to decide which style of leadership to adapt to promote the well-being of the organization”. As development of leadership skills among students is currently an area of major interest for Pharmacy programs (Feller et al., 2016), the aim of this study is, therefore, to find the leadership attitudes and beliefs of pharmacy undergraduates enrolled at School of Pharmaceutical Sciences, USM. By assessing the results of the current leadership survey, the study can serve as a needs assessment for leadership training programs at pharmacy schools in the country, as it seems that yet no studies conducted on pharmacy undergraduates’ leadership style in Malaysia.

**METHODS**

**Study Design, Settings, and Sampling Frame**

The study was designed as a questionnaire-based, cross-sectional survey. All pharmacy undergraduates (n=478) enrolled at the School of Pharmaceutical Sciences, USM were targeted for the study and invited for participation.

**Study instrument**

The Leadership Attitudes and Beliefs Scale (LABS-III) was used to identify the leadership attitudes and beliefs (Wielkiewicz, 2000). The leadership model suggests that people can be categorized into one of four preferred styles of leadership, namely High hierarchical-High systemic (HH-HS), High hierarchical-Low systemic (HH-LS), Low hierarchical-High systemic (LH-HS) and Low hierarchical-Low systemic (LH-LS).

LABS-III is a 28-itemed, 5-point Likert-type instrument with responses ranging from strongly agree to strongly disagree. Of these items, 14 are hierarchical thinking while the other 14 related to systemic thinking (Wielkiewicz, 2000). Lower scores in hierarchical and systemic thinking are associated with stronger beliefs in each area (Scores range from 14 to 70). According to Wielkiewicz (2000), the hierarchical thinking suggests that the power and control are focused in the upper levels of the hierarchy and characterized by the belief that the authority extends downwards the hierarchy and members should seek guidance form the higher levels while the systemic thinking is characterized by the ability to relate the success of the organization to the complex interaction of several factors including the cooperation of all members (Wielkiewicz, 2000).

Prior to use the LABS-III permission was obtained from the developers. A panel of experts at School of Pharmaceutical Sciences conducted the validity analysis. The tool was piloted with 25 students to ensure the validity and reliability of the questionnaire in the Malaysian setting. With the recommendation of minor changes, alpha coefficient suggested a high level of internal consistency (α=0.871 and 0.783 for systemic and hierarchical scales respectively) with an alpha value of 0.801 for all 28 items collectively.

**Statistical analysis**

The data were entered and analysed using the Statistical Package for Social Sciences (SPSS version 18.0, SPSS Inc., Chicago, IL, USA).

The results of each item on the questionnaire were reported, as frequencies and percentages. The Kolmogrov-Smirnov test was used for normality assessment. The Chi-squared test was used to observe the significance of observed distribution. When significant associations were reported, effect size was calculated by using Phi or Cramer’s V constant wherever appropriate. The relationship between hierarchical thinking scale and systemic thinking scale was tested by using Spearman's rank correlation coefficient. P value of <0.05 was considered to be of a statistical significance.
Ethical approval
The Institutional Review Board of Discipline of Social and Administrative Pharmacy, School of Pharmaceutical Sciences, USM approved the study. Written and signed consent was also obtained from the respondents prior to data collection.

RESULTS
Demographics and characteristics of the study respondents
Three hundred and forty five students responded to the survey, giving a response rate of 72.1%. Majority of the respondents were female students (n=279, 80.9%) with mean age of 20.4 years.

The majority (n=294, 85.2%) had matriculation level of education before joining the pharmacy program. More than half of the respondents (n=184, 53.3%) reported themselves as Malay ethnic group (Table 1).

Table 1: Demographic characteristics of the study respondents.

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age (20.4±1.19)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>1</td>
<td>0.3</td>
</tr>
<tr>
<td>19</td>
<td>88</td>
<td>25.5</td>
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<tr>
<td>20</td>
<td>98</td>
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<td>21</td>
<td>72</td>
<td>20.9</td>
</tr>
<tr>
<td>22</td>
<td>76</td>
<td>22.0</td>
</tr>
<tr>
<td>23</td>
<td>8</td>
<td>2.3</td>
</tr>
<tr>
<td>24</td>
<td>2</td>
<td>0.6</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>66</td>
<td>19.1</td>
</tr>
<tr>
<td>Female</td>
<td>279</td>
<td>80.9</td>
</tr>
<tr>
<td><strong>Ethnicity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Malay</td>
<td>184</td>
<td>53.3</td>
</tr>
<tr>
<td>Chinese</td>
<td>127</td>
<td>36.8</td>
</tr>
<tr>
<td>Indians</td>
<td>23</td>
<td>6.7</td>
</tr>
<tr>
<td>Others</td>
<td>11</td>
<td>3.2</td>
</tr>
<tr>
<td><strong>Year of study</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>First year</td>
<td>100</td>
<td>29.0</td>
</tr>
<tr>
<td>Second year</td>
<td>90</td>
<td>26.1</td>
</tr>
<tr>
<td>Third year</td>
<td>69</td>
<td>20.0</td>
</tr>
<tr>
<td>Fourth year</td>
<td>86</td>
<td>24.9</td>
</tr>
<tr>
<td><strong>Mode of entry</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STPM</td>
<td>20</td>
<td>5.8</td>
</tr>
<tr>
<td>A-Levels</td>
<td>7</td>
<td>2.0</td>
</tr>
<tr>
<td>Matriculation</td>
<td>294</td>
<td>85.2</td>
</tr>
<tr>
<td>Diploma</td>
<td>3</td>
<td>0.9</td>
</tr>
<tr>
<td>Others</td>
<td>21</td>
<td>6.1</td>
</tr>
</tbody>
</table>

Leadership attitudes and beliefs of pharmacy undergraduates
Table 2 depicts the responses of pharmacy students towards LABS-III. Although the study participants were positive in their approach towards innovation, flexibility, adaptability and ethical issues of leadership, intrusive characteristics were still prevalent.

Within this context, 71% of the respondents agreed that the leadership should control, maintain authority, and take complete charge of the organization. Leadership was perceived as a characteristic of a single person in the organization; hence, 58% of the respondents were in favour of one group-one leader phenomenon. Furthermore, 43% of the respondents rated leaders as most important members of the organization and therefore expected that the leaders must carry out all decision and communications because of their risk taking responsibility.

The reported leadership attitudes and beliefs among respondents are presented in Figure 1. The mean scores (standard deviation) for reported hierarchical and systemic thinking were 25.7 (6.56) and 30.7 (6.88) respectively. Based on the study results, the majority of the respondents were reported to have a High hierarchical-High systemic thinking attitudes and beliefs regarding leaderships. Therefore, the study respondents believed leaders are overly dependent upon hierarchy thinking.

Comparison of study statements and demographic characteristics
Table 3 describes the cross-tabulation analysis of the study statements and demographic characteristics. Significant associations were observed when in a comparison between ethnicity and leadership aspects: leader being responsible of controlling, keeping authority, and charge of the organization (p=0.002, 0.024, and 0.047 respectively). The Cramer’s V constant reported a positive and moderate association among the three leadership characteristics (φc=0.421 for control, φc=0.399 for...
Organizations must be ready to adapt to changes that occur outside the organization.

Environmental preservation should be a core value of every organization.

Successful organizations make continuous learning their highest priority.

Good leadership requires that ethical issues have high priority.

It is important that a single leader emerges in a group.

Effective leadership seeks out resources needed to adapt to a changing world.

Leadership processes should foster discussions about the future.

The main task of a leader is to make the important decisions for an organization.

A leader should maintain complete authority.

Leadership should encourage innovation.

An organization needs flexibility in order to adapt to a rapidly changing world.

Organizations must be ready to adapt to changes that occur outside the organization.

Successful organizations make continuous learning their highest priority.

Leadership processes involve the participation of all organization members.

Everyone in an organization needs to be responsible for accomplishing organizational goals.

Leaders must maintain tight control of the organization.

Leadership should encourage innovation.

An organization needs flexibility in order to adapt to a rapidly changing world.

Organizations must be ready to adapt to changes that occur outside the organization.

It is important that a single leader emerge in a group.

Effective leadership seeks out resources needed to adapt to a changing world.

Leadership processes involve the participation of all organization members.

Leadership should encourage innovation.

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It is important that a single leader emerge in a group.

Effective leadership seeks out resources needed to adapt to a changing world.
authority and $\varphi_c=0.417$ for charge of the organization). In addition, significant association was also reported when ethnic group were compared with, ‘leaders are responsible for the security of organization members ($p=0.001$)’ with moderate and positive correlation ($\varphi_c=0.254$).

Gender was also reported to have a significant association with factors of participation and security of the organization. Majority of female participants suggested that leadership processes involve the participation of all organization members ($p=0.035$, $\varphi_c=0.521$). Furthermore, female participants reported higher agreement that leaders are responsible for the security of organization members ($p=0.014$, $\varphi_c=0.100$). In this study, however, no significant associations were found between the other items and rest of the study variables.

Spearman’s rank correlation coefficient was used to illustrate the nature and level of association among hierarchical and systemic thinking scales. There was a statistically significant positive and moderate relationship between hierarchical and systemic thinking scales ($r=0.478$, $p<0.01$).

**DISCUSSION**

The study aimed to evaluate the leadership attitudes and beliefs of pharmacy undergraduates. Based on the results, the tendency of pharmacy undergraduates to use systemic thinking in leadership process was directly related to that of hierarchical thinking. Furthermore, the level of hierarchical thinking of pharmacy undergraduates in our study was higher when compared with other similar studies (Wielkiewicz, 2000; Fischer et al., 2010). In addition to the difference of study subjects, a possible reason of this difference in leadership style could be attributed to the traditional views in some parts of Asia that typically use hierarchical thinking in leadership and place less emphasis on systemic thinking (Xin and Tsui, 1996). Within this context, people with hierarchical thinking in leadership, favour chain of command, oversee their subordinates, and support low-quality exchange relationships. Our proposition revolves around the leader-member exchange (LMX) theory that states that leaders with systemic thinking offer independence and responsibility to the employees, hence upholding high-quality relationships (Brower et al., 2000; Sahin 2012). In the light of this discussion, it is necessary to design leadership training modules for pharmacy undergraduates to develop the attitudes and beliefs necessary to act as both a systemic and a hierarchical leader. The students’ leadership attitudes and beliefs were associated with their ethnicity. Statistically, significant associations reported whereby the respondents agreed that a leader should maintain control, authority, and charge of the organization. In terms of organization permanence majority of the respondents, belonging to the Chinese and Indian ethnic groups strongly agreed that the organization should stay stable. It is reported that ethnic minority leaders might feel their ethnicity pose a barrier or challenge to accessing leadership roles (Chin, 2013), therefore, they have a higher agreement that it is important for the organization to remain stable as compared to the ethnic of the majority. The differences in the leadership styles among the ethnic groups in the present study could be related to the cultural and religious backgrounds in Malaysia as each ethnic group is influenced by different philosophies in their respective leadership styles (Selvarajah and Meyer 2008). In a country with a variety of subcultures resulting from the different races, the understanding of these cultural values is, therefore, important. Consequently, leadership-based activities must be designed according to these cultural values to make sure that the results from these activities can make the greatest impact on students’ perception and attitude towards professional leadership (Chong and Thomas, 1997).

In addition to the ethnic groups, there was a significant association between respondents’ gender and their opinion on leadership processes that involve the participation of all organization members with women having higher level of agreement with the statement. Therefore, the present study shows that women favour the participation of all organization members to carry out a given task. This is perhaps could be because women embrace more interpersonal leadership styles, since men are more task-oriented in their approach (Eagly and Karau, 1991). Moreover, a significant association was reported between gender and security of organization members. Females were more in support that leaders should play their role to secure all organization members. Within this context, security is reported as a priority issue while working in any kind of organization (Oldham et al., 1986) and women were reported to work openly in organizations that offer good security to them. In addition, females perceived that it is the job of the organization leaders to play their roles in providing security (Quesenberry and Trauth, 2007). This finding is confirmed by the present study.

**CONCLUSION**

The study findings suggest that pharmacy undergraduates at the School of Pharmaceutical Sciences, USM prefer a high hierarchical thinking and a high systemic thinking approach in leadership. Moreover, the student’s leadership style preference was influenced by their gender and ethnic group. Therefore, in order to develop effectual leadership skills among students, leadership development programs that consider the gender and ethnic group should be introduced at the school level. Such programs should be offered to fresh undergraduates more often to change their perceptions and hence produce the desired impact by developing leadership skills among students. Special attention should be given to developing leaders who recognize and value the importance of both hierarchical and systemic forms of leadership. This blend of hierarchical and systemic skills will help students understand and value the important role that leadership plays in facilitating the adaptation and long-term survival of the organization, at the same time, not devaluing the importance of embracing the role of hierarchical or systemic leadership when deemed necessary for the organization.
LIMITATIONS

The study was conducted in only one School of Pharmacy in Malaysia. Hence, the findings might not be possible to be generalized to the pharmacy schools in the country. Furthermore, the findings represented the students’ perspectives only. Hence, other stakeholders’ perspectives need to be explored to have a full picture about this aspect.

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