

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=0.047 respectively). 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).

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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 effectual 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 attention between hierarchical and systemic approaches to leadership". In the hierarchical 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 from 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 ($\alpha=0.871$ 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 Kolmogorov-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.

Characteristics	Frequency	Percentage
Age (20.4±1.19)		
18	1	0.3
19	88	25.5
20	98	28.4
21	72	20.9
22	76	22.0
23	8	2.3
24	2	0.6
Gender		
Male	66	19.1
Female	279	80.9
Ethnicity		
Malay	184	53.3
Chinese	127	36.8
Indians	23	6.7
Others	11	3.2
Year of study		
First year	100	29.0
Second year	90	26.1
Third year	69	20.0
Fourth year	86	24.9
Mode of entry		
STPM	20	5.8
A-Levels	7	2.0
Matriculation	294	85.2
Diploma	3	0.9
Others	21	6.1

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.

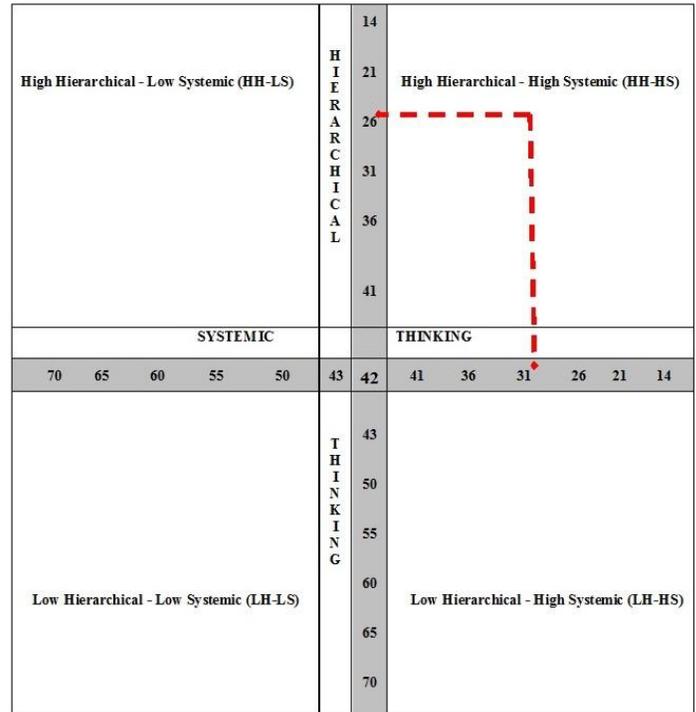


Fig. 1: Leadership attitudes and beliefs of pharmacy undergraduates. Y-axis: hierarchal thinking, (scores ranging from top to bottom = lower to higher scores). X-axis: systemic thinking, (scores ranging from right to left = lower to higher scores). Note: Lower scores in hierarchal and systemic thinking are associated with stronger beliefs in each area (Scores range from 14 to 70).

The reported leadership attitudes and beliefs among respondents are presented in Figure 1. The mean scores (standard deviation) for reported hierarchal 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 hierarchal-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

Table 2: Pharmacy students' responses to Leadership Attitudes and Beliefs Scale.

Items	SA*	A*	N*	D*	SD*
	N (%)	N (%)	N (%)	N (%)	N (%)
Hierarchical thinking scale					
1. A leader must control the group or organization.	81 (23.5)	166 (48.1)	62 (18.0)	30 (8.7)	6 (1.7)
2. A leader must maintain tight control of the organization.	84 (24.3)	138 (40.0)	76 (22.0)	44 (12.8)	3 (0.9)
3. A leader should maintain complete authority.	13 (3.8)	120 (34.8)	99 (28.7)	64 (18.6)	19 (5.5)
4. A leader should take charge of the group.	90 (26.1)	184 (53.3)	56 (16.2)	14 (4.1)	1 (0.3)
5. The main tasks of a leader are to make and then communicate decisions.	105 (30.4)	183 (53.0)	34 (9.9)	20 (5.8)	3 (0.9)
6. The main task of a leader is to make the important decisions for an organization.	113 (32.8)	149 (43.2)	56 (16.2)	21 (6.1)	6 (1.7)
7. Positional leaders deserve credit for the success of an organization	61 (17.7)	145 (42.0)	101 (29.3)	30 (8.7)	8 (2.3)
8. The responsibility for taking risks lies with the leaders of an organization.	47 (13.6)	152 (44.1)	95 (27.5)	47 (13.6)	4 (1.2)
9. It is important that a single leader emerge in a group.	85 (24.6)	119 (34.5)	100 (29.0)	33 (9.6)	8 (2.3)
10. Members should be completely loyal to the designated leaders of an organization.	87 (25.2)	164 (47.5)	69 (20.0)	23 (6.7)	2 (0.6)
11. The most important members of an organization are its leaders.	57 (16.5)	92 (26.7)	94 (27.2)	74 (21.4)	28 (8.1)
12. When an organization is in danger of failure, new leaders are needed to fix its problems.	40 (11.6)	77 (22.3)	118 (34.2)	86 (24.9)	24 (7.0)
13. Leaders are responsible for the security of organization members.	86 (24.9)	163 (47.2)	71 (20.6)	22 (6.4)	3 (0.9)
14. An organization should try to remain as stable as possible.	169 (49.0)	136 (39.4)	31 (9.0)	7 (2.0)	2 (0.6)
Systemic thinking scale					
15. An effective organization develops its human resources.	119 (34.5)	173 (50.1)	45 (13.0)	4 (1.2)	4 (1.2)
16. Leadership activities should foster discussions about the future.	99 (28.7)	190 (55.1)	51 (14.8)	3 (0.9)	2 (0.6)
17. Effective leadership seeks out resources needed to adapt to a changing world.	114 (33.0)	178 (51.6)	45 (13.0)	6 (1.7)	2 (0.6)
18. Individuals need to take initiative to help their organization accomplish its goals.	210 (60.9)	124 (35.9)	7 (2.0)	2 (0.6)	2 (0.6)
19. Leadership should encourage innovation.	145 (42.0)	173 (50.1)	21 (6.1)	4 (1.2)	2 (0.6)
20. Organizational actions should improve life for future generations.	124 (35.9)	176 (51.0)	41 (11.9)	2 (0.6)	2 (0.6)
21. Everyone in an organization needs to be responsible for accomplishing organizational goals.	238 (69.0)	96 (27.8)	7 (2.0)	2 (0.6)	2 (0.6)
22. Leadership processes involve the participation of all organization members.	182 (52.8)	132 (38.3)	24 (7.0)	6 (1.7)	1 (0.3)
23. Anticipating the future is one of the most important roles of leadership processes.	70 (20.3)	194 (56.2)	64 (18.6)	11 (3.2)	6 (1.7)
24. Good leadership requires that ethical issues have high priority.	106 (30.7)	170 (49.3)	58 (16.8)	10 (2.9)	1 (0.3)
25. Successful organizations make continuous learning their highest priority.	133 (38.6)	176 (51.0)	30 (8.7)	5 (1.4)	1 (0.3)
26. Environmental preservation should be a core value of every organization.	76 (22.0)	161 (46.7)	94 (27.2)	12 (3.5)	2 (0.6)
27. Organizations must be ready to adapt to changes that occur outside the organization.	140 (40.6)	171 (49.6)	27 (7.8)	6 (1.7)	1 (0.3)
28. An organization needs flexibility in order to adapt to a rapidly changing world.	152 (44.1)	154 (44.6)	32 (9.3)	5 (1.4)	2 (0.6)

*SA=strongly agree, A=agree, N=neutral, D=disagree, SD=strongly disagree.

Table 3: Cross tabulation of study statements and demographic characteristics.

Items	P-value*				
	Age	Gender	Ethnicity	Year of study	Mode of entry
Individuals need to take initiative to help their organization accomplish its goals.	0.235	0.254	0.411	0.158	0.048
Leadership should encourage innovation.	0.485	0.322	0.745	0.150	0.155
A leader must maintain tight control of the organization.	0.366	0.248	0.002	0.441	0.988
Everyone in an organization needs to be responsible for accomplishing organizational goals.	0.352	0.089	0.351	0.532	0.424
Leadership processes involve the participation of all organization members.	0.249	0.035	0.159	0.568	0.527
A leader must control the group or organization.	0.458	0.231	0.477	0.579	0.125
A leader should maintain complete authority.	0.844	0.556	0.024	0.325	0.258
A leader should take charge of the group.	0.121	0.217	0.047	0.779	0.433
Organizational actions should improve life for future generations.	0.565	0.289	0.255	0.111	0.588
The main task of a leader is to make the important decisions for an organization.	0.988	0.326	0.187	0.144	0.214
Leadership activities should foster discussions about the future.	0.247	0.147	0.656	0.265	0.068
Effective leadership seeks out resources needed to adapt to a changing world.	0.744	0.547	0.877	0.331	0.512
The main tasks of a leader are to make and then communicate decisions.	0.655	0.365	0.851	0.745	0.296
An effective organization develops its human resources.	0.712	0.441	0.265	0.426	0.393
It is important that a single leader emerge in a group.	0.258	0.215	0.324	0.358	0.144
Members should be completely loyal to the designated leaders of an organization.	0.248	0.325	0.145	0.178	0.117
The most important members of an organization are its leaders.	0.362	0.278	0.278	0.153	0.084
Anticipating the future is one of the most important roles of leadership processes.	0.148	0.144	0.168	0.745	0.813
Good leadership requires that ethical issues have high priority.	0.455	0.745	0.255	0.752	0.557
Successful organizations make continuous learning their highest priority.	0.587	0.368	0.326	0.369	0.974
Positional leaders deserve credit for the success of an organization	0.159	0.091	0.419	0.351	0.264
The responsibility for taking risks lies with the leaders of an organization.	0.247	0.478	0.078	0.668	0.741
Environmental preservation should be a core value of every organization.	0.598	0.144	0.095	0.952	0.451
Organizations must be ready to adapt to changes that occur outside the organization.	0.500	0.547	0.287	0.699	0.588
When an organization is in danger of failure, new leaders are needed to fix its problems.	0.247	0.232	0.533	0.248	0.569
An organization needs flexibility in order to adapt to a rapidly changing world.	0.820	0.658	0.544	0.182	0.621
Leaders are responsible for the security of organization members.	0.357	0.014	0.325	0.009	0.099
An organization should try to remain as stable as possible.	0.657	0.287	0.001	0.441	0.074

* Chi square test

authority and $\phi_c=0.417$ 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 ($\phi_c=0.254$).

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 ($p=0.035$, $\phi_c=0.521$). Furthermore, female participants reported higher agreement that leaders are responsible for the security of organization members ($p=0.014$, $\phi_c=0.100$). 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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