



Risk Attitudes and Characteristics of Student Pharmacists Across Cohorts

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Introduction

Pharmacists are uniquely positioned to help manage the increased demand for healthcare services and are one of the most accessible of all healthcare professionals. The majority of Americans live within a few miles of a community pharmacy and many of these pharmacy locations offer extended evening and weekend hours during which a pharmacist can always be accessed. In addition, recent changes in pharmacy-focused legislation allow pharmacists to expand the services offered to patients and further advances are currently pending. While pharmacists now have the opportunity to perform these expanded roles, widespread adoption of these services into practice has been limited. The pharmacy profession’s struggle to change is not a new phenomenon; in fact, the profession’s need to adapt to the changing healthcare landscape is an oft-mentioned topic in the literature. The deans of seven Big Ten colleges of pharmacy wrote an article questioning if pharmacy education is producing students who shall foster change within the profession, or individuals given to resisting change within the profession. The question posed by the deans of these colleges of pharmacy looks at the impact of pharmacy education on students and does not consider how the personalities of admitted students may impact their own ability to innovate and to accept change within their practice. The research reported here attempts to assess the personality characteristics of pre-pharmacy students and current student pharmacists to determine how these characteristics may impact the culture of pharmacy.

Objectives

To assess whether: 1) pre-pharmacy students and student pharmacists have different attitudes towards change and risk compared to population norms, 2) pre-pharmacy and student pharmacists’ attitudes towards change and risk differ by year in the program, and 3) pre-pharmacy students and student pharmacists’ attitudes towards change and risk differ by career intention.

Methods

This was a cross-sectional survey of pre-pharmacy students and current student pharmacists at seven institutions in the Midwest. Demographic information and six validated scales known to assess attitudes and personality characteristics known to reflect attitudes towards change/risk were collected.

Summary of Scale Determinates

Scale	Number of Items	Potential Range	Outcomes
Reaction-to-Change Inventory	1 (30 options)	-100 – 100	Perceptions and reactions towards organizational or professional change
Risk Taking Index	12	12 – 60	Perception of own risk taking
BFI Openness Subscale	10	0 – 100	Openness to new experiences
BFI Conscientiousness Subscale	9	0 – 100	Likelihood will follow norms and rules
Change Scale	9	9 – 45	Attitude towards change in the workplace
Instrumental Risk Subscale	3	3 – 15	Willingness to take a risk to achieve and important goal
Stimulating Risk Subscale	4	4 – 20	Willingness to take risks for excitement

Results

One thousand seventy three students completed the survey (37.2 percent response rate). Student age was measured as a continuous variable. To ease reporting, this variable was collapsed into four categories containing a similar percentage of respondents – less than or equal to 20 years of age, 21 or 22 years of age, 23 or 24 years of age, and greater than or equal to 25 years of age. The mean age of students was 23.65 (SD=4.9). The majority of the sample was female, did not hold a previous degree, and currently intended to pursue either hospital or community pharmacy practice.

For objective one, compared to scale population norms, respondents had more positive attitudes towards change in general, but more negative attitudes towards workplace change and risk in general. Students favored instrumental risk decisions more than stimulating risk, were less open to new experiences, and more conscientious.

Population Norms versus Complete Sample by Scale

Scale	N	Sample Mean ± SD	P-Value	Net Impact on Pharmacy Differences
Reaction-to-Change Inventory	969	24.12 ± 25.31	0.000	More open to change
Risk Taking Index	929	24.83 ± 6.31	0.000	Less likely to take risks
BFI Openness Subscale	921	62.20 ± 13.17	0.000	Less open to new experience
BFI Conscientiousness Subscale	920	76.75 ± 12.94	0.000	More conscientious
Change Scale	907	26.97 ± 3.61	0.000	Less open to change in the workplace
Instrumental Risk Subscale	902	11.48 ± 1.90	0.000	More open to taking instrumental risk
Stimulating Risk Subscale	903	10.58 ± 3.17	0.000	Less open to taking stimulating risks

For objective two, comparison between years for the full sample found only two scale scores to be significantly different between years – the risk taking index (p=0.001) and change scale (p=0.002). The mean risk taking index score of pre-pharmacy students was significantly different from second and third professional year students (both professional years more open to taking risk than pre-pharmacy students). The mean change scale score for pre-pharmacy students was significantly different from second professional year students (pre-pharmacy students were more open to change in their workplace) and that the mean score for first professional year students was significantly different than second professional year students (first professional year students were more open to change in their workplace).

For objective three, comparisons between career intentions found significant differences between groups for the risk taking index, BFI openness sub-scale, BFI conscientiousness sub-scale, change scale, and stimulating risk (p<0.05). The mean BFI openness sub-scale scores for individuals choosing residency, fellowship, or graduate (RFG) trained non-pharmacy practice (e.g. working in an area unrelated to pharmacy) were higher than individuals choosing RFG hospital practice, RFG community practice, non-RFG hospital practice, and non- RFG community practice. The mean scale scores for individuals choosing community practice were lower than individuals choosing industry practice while the mean change scale scores for individuals choosing industry practice were lower than individuals choosing RFG community practice, non-RFG hospital practice, and non-RFG community practice.

Discussion

Innovations often derive from the minds of creative individuals and occur in professions and organizations that foster creativity and generate an environment where these individuals can be successful. While there are a number of constraints to creativity within the profession and its member organizations, pharmacy education is evolving in an attempt to place more emphasis on fostering students’ ability to innovate and exposing students to innovative practice sites and models. The Accreditation Council for Pharmacy Education (ACPE) has promulgated new standards and guidelines for accreditation of colleges and schools of pharmacy. Within these standards, innovation is included under standard 4 – personal and professional development. This standard includes four key elements, two of which – self-awareness and innovation/ entrepreneurship – are clearly related to change and innovation. The first key element, self-awareness, can be summarized as students’ understanding of their characteristics that may limit personal and professional growth or their ability to impact the profession. The second key element, innovation and entrepreneurship, specifically states that “the graduate must be able to engage in innovative activities by using creative thinking to envision better ways of accomplishing professional goals.” These key elements represent a conscious effort to engender an educational environment promoting individualism and creativity. While an educational environment fostering innovation and creativity within pharmacy is important, it cannot be known if a supportive educational environment or types of students drawn to the profession is of greater importance – the ongoing debate of nature versus nurture in a new and broader context. The results of this study help elucidate the attitude towards risk of potential and current student pharmacists, assist in understanding the openness to new experiences of these individuals, and provide insight into their personality characteristics, all of which can help provide a clearer picture of how the educational environment may impact innovation in the profession. Negative attitudes towards change and risk can make it difficult to create an environment where innovation is easily cultivated and adopted. Understanding how individual personality characteristics and pharmacy culture impact the profession can help guide the profession in designing new programs to better meet the stability needs of pharmacists while stimulating evolution of new pharmacy models.

Conclusion

The primary purpose of this study was to evaluate the personality traits, risk attitudes, and change characteristics of pre-pharmacy students and current student pharmacists and how they compare to a non-pharmacy population. Results of this study indicate that pre-pharmacy students and current student pharmacists are different than a non-pharmacy population. These students are more open to change in their everyday lives, less open to taking risks, more conscientious, less open to new experiences, less open to change in their workplace, and while less likely to take risks in general, and are more likely to take instrumental risks than stimulating risks. Overall, this profile would be congruent with a population that is not currently comfortable with change in their professional environment. Knowing this, the profession can tailor the educational environment to encourage these individuals to experience and become more comfortable with professional change and risk and perhaps move to select individuals more open to change.

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