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A Qualitative Analysis of Students' Perceptions of Pursuing Pharmacy as a Potential Vocation

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We present the findings from a phenomenological, qualitative research study that explored the personal constructs of an inaugural class, entering a newly-established direct-entry, preferred admission, pre-pharmacy program at a private, selective, Midwestern university with an enrollment of 3000. The focus of the study was to appraise students' perceptions regarding their rationale for pursuing a future career in pharmacy. The sample consisted of 36 students (26 females, 10 males). Data was collected via in-depth interviews of each student who had enrolled in the first year of the program. Overall, students demonstrated their belief that they would be a good fit for the pharmacy field and looked forward to enjoying their future profession. Participants also expressed having a penchant for science and healthcare, and having previously interacted with pharmacists and the pharmacy field prior to entering college. Benefits such as salary, job security, and prestige were of secondary importance to students, but they played a role nonetheless, and encouragement from parents and other respected individuals also was significant. Keywords: Phenomenological, Qualitative, Pharmacy Students, First Year Outcomes

In 2000, the U.S. Health Resources and Services Administration published a now famous survey, *The Pharmacist Workforce: A Study of the Supply and Demand for Pharmacists*, evidencing the demand for pharmacists had out-paced the growth in supply. Estimates set the shortfall of pharmacists to be as much as 157,000 by the year 2020 (D. A. Knapp, 2002). Since then, substantial growth has occurred in pharmacy education, including the increase of admissions in established programs as well as the addition of new schools and colleges of pharmacy (Accreditation Council for Pharmacy Education, 2011). It is important for the profession to maintain a robust supply of pharmacy applicants. At the same time, however, the supply must also contain applicants of sufficient academic quality to meet the demands of rigorous programs. Adequate models of pharmacy enrollment management are salient for the steady growth and overall quality assurance of the profession's future. In this vein, recruitment of potential pharmacy students has become increasingly important. Consequently, we employed qualitative methodology to the present study, since it often is most germane with exploratory research. It also was most appropriate since we were most interested in "why" and "how" research questions (i.e., why did pharmacy students select a newly-established program at this institution and how did they come to this decision?), as opposed to "what" or "how many" type research questions.

Previous surveys of pharmacy students found that role model practitioners as significant influences (Chisolm & Pritchard, 1995). In another study 63.9% of students knew a pharmacist who influenced them towards pharmacy (Anderson, Sheffield, Massey-Hill, & Cobb, 2008). Other significant influences include family members, high school and college teachers, instructor, advisors, or counselors, and other health care professionals. However, 53.5% of students in this sample indicated that their first choice for a career was something

other than pharmacy. No characterizations were given of those students for whom pharmacy was the first, or perhaps, only choice. These data are also limited due to the survey respondents being in professional programs. Also, these students were older with the majority being between the ages of 21-25 years of age. Little is known about students' perceptions or motivations during more formative teenage years, prior to entering professional programs.

Here we present the findings from a phenomenological, qualitative study in which we explored the personal constructs of an inaugural pre-pharmacy class that matriculated in a newly-established, preferred admission, pre-pharmacy program. The focus of the study was to appraise students' perceptions regarding their rationale for pursuing a future career. As a phenomenological research study, we explored these percepts with students, engaging them in the interview process, seeking to understand how they came to make the respective decisions that they did—at the time of selecting an institution and pre-pharmacy program to attend. We gave particular attention to the potential components that loaded-into or influenced their decision-making processes.

Method

Participants

Participants for the present study came from a private, comprehensive, Midwest university with a student body of approximately 3,000. The 36 students comprised the inaugural class of pre-pharmacy majors to a program that was newly-initiated and had not yet received professional accreditation. Consequently, in the qualitative research tradition, we used criterion sampling (Mason, 2002) as the basis for the present study. Since homogeneity of sample generally results in best and unambiguous themes in qualitative approaches to research (Firmin, 2006), we directed our data collection on one university campus sample.

Saturation (Bowen, 2008) was achieved from the sample of these students. Within a qualitative paradigm, this means that adding new individuals to the data set failed to contribute new, meaningful information related to potential themes. Creswell (2007) indicates that a sample size of about 25 or so individuals, all who share the same experience under investigation, often produces saturation in qualitative research studies. In sum, guided by experts such as Guest, Bunce, and Johnson (2006) and Neuman (2006), we believe the sample size in the present study was adequate for the intended design and purpose.

The ages of the participants ranged from 18-21 years old. One participant self-identified as Caucasian and another other as African-American; each of the remaining participants self-identified as being Caucasian. The overall minority population on the campus from where the data was obtained was 6%, so the sample was generally reflective the student-body at large. Typical of 95% of the student body at this university, all the individuals in the sample were residential, dormitory students. Ten of the participants were male and, naturally, pseudonyms are used in the present article in order to protect the subjects' identities.

Procedure

Among the various types of qualitative research, the present study the phenomenological tradition (Cresswell, 2008). With that aim, we endeavored to enter the worlds of the participants and understand them (in relation to the constructs we investigated) the best we humanly could, reporting their notions from students' own perspectives. We engaged the participants in semi-structured interviews (Seidman, 2006). This method allowed participants to direct the interviews in paths that explained, from their own perspectives, the

thought processes, feelings, and sentiments that led them to make the enrollment decision in this particular program. Narrative, personal descriptions, and amplifications were encouraged. The constructs of people and reinforcing influences, prestige, alternatives, money & job security, and risks were particularly explored. The semi-structured nature of the interviews provided rich, or thick-descriptions (Gibbs, 2007) provided by the students. Encouraging the participants at times to lead the interviewers where the participants were most insightful (regarding the overall research aim) proved to be particularly useful.

All interviews were tape recorded and later transcribed for analysis. Coding the data began with an open protocol, following an inductive method (Maxwell, 2005). As such, there were not any intended constructs for which we purposed to find. Rather, transcripts were analyzed inductively, reading and reviewing them repeatedly for reoccurring words, phrases, and ideas. We employed a constant-comparison protocol (Silverman, 2006) during the coding process whereby each new transcript was compared with those of previous ones, examining them for overlapping percepts related by the participants. Some codes that, at the outset, we thought were productive, eventually were abandoned, since they were not representative of most participants in the study (Bereska, 2003). In other instances, we combined or integrated the codes into broad categories, since they overlapped in meaning, keeping the analysis process manageable. Consistent with Gay, Mills, and Airasian (2009), data analysis often involved asking key questions, conducting organizational review, visually displaying the findings, and concept mapping. The findings shared in this article are representative of most participants in the study.

The overall aim was to generate an article that achieved high standards for rigor with respect to qualitative research methodology (Cope, 2004; De Wet & Erasmus, 2005). As such, internal validity for the study was strengthened in a number of key ways whereby we built-into the research design and implemented validity checks into the protocol. One was strategic meetings among the study's authors in order to discuss design, potential codes, analysis, and potential themes. Naturally, quality research results can be generated from a sole researcher's perspective. Nonetheless, experts advocate that collaboration, including discussion, debate, examination of potential biases, considering alternative explanations, and like—by multiple researchers working on a project—tend to generate more reliable findings than when findings represent the viewpoint of a sole investigator (Silverman & Marvasti, 2008).

Internal validity also was enhanced via generating a data audit (Daytner, 2006). This is a qualitative research process in which the authors comprise a document, mapping how the reported results in a study are grounded in transcript data, displaying adequate validity of the findings. Benefits of utilizing a data audit in a qualitative research project include (a) reducing the likelihood of fraud, (b) showing concretely how the student's findings represent the consensus of the participants, and (c) providing an apt starting point for future researchers as they use the results to further their research in this area.

Member checking (Merriam, 2002) was another protocol that helped to enhance the present study's internal validity. This involves relating the study's results to the research participants. The process helps to ensure that the study's findings adequately represent the substance of what the participants actually communicated communicate during their respective interviews. The feedback from the study's subjects consistently supported the four findings reported in the present article.

The use of low inference descriptors (Johnson, 1997) was an additional means of enhancing the study's internal validity. In qualitative protocol, this means we provide in the article accounts of the participants, using their own words, as much as realistically feasible, rather than paraphrasing or otherwise interpreting ideas into other language. This enables the reader to capture both the tone and tenor of what the participants shared in their interviews. We cite numerous examples of student quotations, in this regard, throughout the article in order

to help the reader see the connections between the conclusions we drew and the actual words of the study's participants.

And finally, internal validity was enhanced in our study by utilizing the expertise of an independent researcher (Flick, 2006). This is a qualitative research method whereby an expert who was not involved in the data collection or analysis reviews the transcripts and procedure used in a study. Studies that possess adequate internal validity can be appraised by other experts, tracing the reported results back to the data on which they were grounded. Natural associations were apparent, without forcing conclusions or imposing the data collector's own biases into the findings. The researcher's input was useful and helped to ensure that our reported conclusions are accurate reflections of the participant's true sentiments as expressed in the transcripts.

Some Ethical and Confidentiality Considerations

The study was approved by the Cedarville University Institutional Review Board and all participants gave informed consent prior to enrollment. The interviewers for this study had no organic-relationship to the pre-pharmacy program. That is, although they were students or faculty at the same institution, the interviewers were not in the same department, did not teach the pre-pharmacy students, or otherwise have meaningful connections with them. Consequently, the participants could express themselves freely, without concern for their status in the program. Informed consent was provided by each participant, they could withdraw at any point in the interview without consequence, and students were made of aware of the nature of the study and research design prior to beginning the respective interviews. Pseudonyms are used in the present article in order to protect the subjects' identities.

Results

Participants in our study were influenced by a variety of cognitions, experiences, and people as they decided to pursue pharmacy. Overall, students demonstrated their belief that they would be a good fit for the pharmacy field and looked forward to enjoying their future profession. Participants also shared that they possessed a penchant for science and healthcare, and having previously interacted with pharmacists and the pharmacy field prior to entering college. Benefits such as salary, job security, and prestige were of secondary importance to students, but they played a role nonetheless, and encouragement from parents and other respected individuals also was significant. Overall, these factors contributed to students' perceptions that they would fit in the field of pharmacy.

Personal "Fit"

Perhaps the most significant and widespread phenomenon was that students reported themselves as being able to envision themselves as future pharmacists. Students described the ideal pharmacist as possessing qualities such as being "knowledgeable" and "caring" and "motivated." They believe that these characteristics will bode well for success in their future careers. But they not only described themselves in terms of possessing the personal qualities of a good pharmacist. "I like interacting with patients," said Susan, who had never before worked in a medical setting where interacting with patients would have been involved. Hannah added: "I enjoy how things work together and the way we can influence our bodies to do certain things; it's fascinating." John spoke futuristically, as if he was already prepared to practice in the health science field:

> You need to be reliable, accountable, honest with people. If something isn't going to work you need to be able to tell the people it won't work. And you need to have the guts to tell a doctor if something is not going to work out for a patient. You have to be able to think on your feet to be able to know what else you can do to fix it. And you have to have a passion for your job because pharmacy isn't just one of those jobs where you can just get up and go to work and say, "Here's your pills for the day."

Students' belief that they would enjoy pharmacy surfaced repeatedly throughout their interviews. When asked about money and job security, many students responded similarly to Kevin, who said: "I want to be happy when I have a job." Janice added: "I wanted to do pharmacy because it seemed interesting and what I wanted to do" when asked about the importance of salary. Although salary and security are related, they are also independent constructs. Generally, students indicated that strong needs for security were not the super-ordinal objective when selecting this major. For example, in regards to job security, Jessie simply stated: "I picked it because I liked it, not because of the recession." Naturally, prestige is also related to salary and security but, it also is an independent construct. It was a factor in students' overall decision making, but not a significant, driving force. To illustrate, Sandy responded, in regards to prestige: "I think it's nice to have the title but I don't think title really matters if you can do something you like and be able to live with what you are." For all the students we interviewed, they did not vacillate among multiple options, they were relatively sure of their choice at the time of matriculation. Many students echoed Kathy's sentiments in their interviews when she stated: "Pharmacy was always my first choice."

Most students related a combination of three factors that significantly contributed to their respective decisions for selecting a pharmacy major: knowing herself, knowing the career, and knowing the need. These sentiments were echoed throughout the study, as students, while in high school, seemed to take ownership of their interest in pharmacy and embedded it into their life and future. They matched their own strengths with those of what they believed a good pharmacist to; believing themselves to possess goodness-of-fit. Students reported having enough previous interaction with the field to understand what the pharmacy profession entailed and to believe that, eventually, they would be proficient in it. This was a powerful phenomenon, and one that permeated the students' interviews.

In sum, students wholeheartedly conveyed a belief that they would enjoy being a pharmacist. At the end of the interview, each student was given the opportunity to identify one factor that they thought was the most significant motivator in their decision to go into pharmacy. The most common response was simply "enjoyment of the job," in the words of Marsha; or "The fact that I confidently feel I will be satisfied in the job once I get done," as Candice stated. Some students might enjoy "the prestige and everything that goes with it" (James) and others, like Will, said: "Probably dealing with chemistry every day because I really like it." One student (Connie) pointed to a career assessment test as the most influencing factor because it pointed out that her strengths align with the field of pharmacy. Among the replies, however, was the common theme that students believed they knew themselves, they knew pharmacy, and they knew that they would fit together well.

Affinity for Science and Health Care

Many students' initial interest in pharmacy was sparked by its basis in science. Most of students described themselves as "scientifically-minded" or said they enjoy math and science.

Tonya, for example, related:

> I want to do pharmacy because I have always loved math and then once I took (chemistry) I really loved it. That was the first subject in high school that I really wanted to go home and do my homework because I wanted to figure out how the problems would work.

She also describes her teacher's further involvement: "My chemistry teacher was a college professor who taught a class and graded higher. So he always pushes everything medical and people who are in his chemistry classes he always pushes to go into the medical field." For Linda, this was a successful combination: "I finally went and talked to him about it. He wants everyone to be a doctor but he was content with my pharmacy decision. He told me I would be good at it after I brought it up as an option, and I knew him pretty well."

Consistently, students emphasized that they enjoyed chemistry and biology. The draw to studying these subjects and working in a career where this knowledge is prized was said to be more persuasive than money, job security, influencing people, or prestige. Often when asked questions regarding those topics, students cited their love for science or math as the so-called "real reason" they were attracted to pharmacy. Wayne stated forthrightly: "I chose pharmacy because I like science and math." None of the students admitted to disliking or struggling in math or science prior to entering college.

Students also demonstrated an attraction to health care and helping people. This construct often arose spontaneously during the interviews. Participants readily and openly shared the draw that people-helping had on their choice of the pharmacy major. When students talked about why they believed pharmacy was a good fit for them, often they blurted: "I like working with people." As such, they communicated a seemingly deep desire to help others in concrete ways and viewed pharmacy as being a potentially relevant way to do so. "It's a tangible way to help people," said Kim, "You can help them with their lives and get to know people and see them on a day-to-day basis." Consistently, the students in our sample discussed how the prospect of making personal connections with future patients was a cogent factor when selecting a pharmacy major. Overall, they portrayed having a service ethic that undergirded their enjoyment of academic science. These elements converged and resulted in the decision for a potential pharmacy career.

When asked regarding what other careers they had considered, chemistry, engineering, and nursing were the most popular responses. Most students ultimately decided that chemistry was "too broad" and said, "I didn't really know what I would do with it in the end" (Emily). Others acknowledged that education and research were valid avenues in the field of chemistry, but believed that their strengths did not align with those professions. Engineering often was also appealing, due to the math and science base, but students felt that they wanted to work with people and to help them tangibly. Many of the students who decided against nursing cited their disdain for blood and extremely hands-on care as deciding factors. Expected job security and prestige were also mentioned as factors in favor of pharmacy, as opposed to other professions.

Interaction with the Field

Nearly every student had prior interaction with the field of pharmacy before deciding to pursue it as a career. All except three participants reported that they had personally interacted with a pharmacist (or closely-related health care professional) about their decision to pursue

pharmacy. Two-thirds of the inaugural students also participated in some form of job shadow, internship, or part-time job in a pharmacy setting prior to entering college. The amount of time spent interacting varied from student to student, ranging from brief conversations to living in the same household as a practicing pharmacist. However, even short interactions were memorable enough for students to recall details from their experiences. As an illustration, Nancy related the following about her job shadow:

> I think I learned more than I was expecting. I just thought of pharmacists as just giving out drugs. I think I learned that it's more than just giving out drugs but it's talking to people and insurances and explaining to people how to use medication and following up. There are just so many steps. So it was very informative.

Most took initiative in order to ensure their salient questions were answered. In so doing, they also obtained a more holistic picture of the life of a pharmacist. Likely, this process contributed to the relative assuredness that participants in our study possessed concerning their choice of major. Robert's account is similar to many others:

> I went to the local pharmacist back home and I talked to pharmacists and asked how they liked their job and if it was stressful at all and the only thing I heard from them was that they love their job and it was stressful but it was worth it. They strongly encouraged it but only if it was something you love. Don't do it for the money because it's definitely not worth it for the money but if it's something that you have a desire to do then they loved it and they said to do it.

The pharmacy professionals with whom our participants engaged, prior to selecting a pharmacy major, in nearly all cases were said to be welcoming, helpful, and expressed an upbeat attitude toward their field. Students, in turn, reacted positively toward their experiences: "I was kind of thinking about (pharmacy) before (my job shadow) but they kind of pushed me to go into pharmacy a little bit more," said Pam. Mark added: "They definitely encouraged me in terms of the character and being very serious about what they did and were very outgoing and showed a lot of the characteristics that I want to develop." Layne added the personal touch, provided by the pharmacist who influenced her: "I spoke with a pharmacist and asked her questions about her job and schooling and that helped me a lot to make my decision to pursue pharmacy."

External Benefits

While external benefits, such as money and prestige, were not identified as the focal points of students' decisions to enter pharmacy school, potential rewards were nonetheless highly attractive to most of our participants. Students referred to the benefits as "a nice bonus" (Andy) or a "perk" (Tom). Many students spoke in terms of future anticipated life expenses, such as supporting a family and paying off school debt, and were relieved to know they potentially would be working in a well-paying profession. While a few students looked forward to enjoying a comfortable salary, none of the participants reported desiring to enter the profession strictly for potential monetary benefit. Cindy summarized the sentiments of most of her cohorts: "Salary is important but first and foremost it was the fact that I was drawn to the job itself. But the salary was a nice bonus definitely." Likewise, while students agreed that it will be attractive to someday hold the title of "doctor," this was not a primary influence upon their decision making process.

Although job security may also be described as an external benefit, we found that it served a much more significant role in students' decision to pursue pharmacy. Particularly in view of the significant recession in America during the time of data collection, many students were motivated to enter a career field that would help to ensure employment following graduation. "That played into (my decision), a lot, especially since it's hard to find a job nowadays and there's a shortage of pharmacists," said Gina. Similarly, Judy recalled her interaction with a pharmacist: "One (pharmacist) I remember had just moved to our church from Ohio and she had gotten a job, I think, two days after she had moved. So that was like, wow." When asked about job security, Nick provided a reply similar to many of the students we interviewed, when addressing the matter of job security: "That was a huge thing, especially in the economy with everyone losing jobs. It's a good field where I know it's going to be around forever." Some students quantified the importance of job security, saying that it comprised 50% or more of their decision, and one student said it was his number one reason for entering the field.

We note that salary and job security was stated to be more prominent in the minds of male participants than females in our sample. As such, students showed somewhat of an egalitarian disposition toward career selection in this regard. That is, males often described themselves in terms of desiring "provider" roles in the home, and looked forward to marriage and family life. Women, on the other hand, spoke more often of the flexibility of the profession, as they looked forward to their "nurturing" role in the family. The potential ability in the future to work part-time at relatively convenient hours was said to be highly attractive to the females in our study as they anticipated future responsibilities as mothers.

Students discovered the extrinsic benefits of the pharmacy profession through a variety of venues. Some came across information while conducting internet searches, some heard it directly from a pharmacist, and still others found out when they came to campus in order to interview for the program. There were several students who allegedly were completely unaware of these benefits until after they had already decided to become a pharmacist.

Other Influencing People

Parents, teachers, guidance counselors, relatives, and friends all played a role in shaping students' decisions to attend pharmacy school. The degree of influence varied significantly from student to student, but most expressed sentiments that they made their "own decision." Some participants had people in their lives, who knew them well, and directly stated; "You should do pharmacy. You would be good at it." Others simply had the support of parents, regardless of what major they chose in school. Overall, the encouragement of respected persons was a positive influencer, while none of the students experienced discouragement from those close to them.

Several students had a science or math teacher in high school who encouraged them in their path toward pharmacy. Some teachers suggested a career in health care either in class or personally to the student. "My chemistry teacher told me I should either go into nursing or pharmacy because he thought I would be good at it," illustrated Shawn. Jennifer added a dynamic frequently mentioned by students—the role of key social support:

> My chemistry teacher…always pushes everything medical and people who are in his chemistry classes he always pushes to go into the medical field so I finally went and talked to him about it. He wants everyone to be a doctor but he was content with my pharmacy decision. He told me I would be good at it after I brought it up as an option and I knew him pretty well.

Parental support was very high in almost all cases; never did students indicate nonsupport. Shawn illustrated the sentiments of most student interviews in this regard: "They encouraged me to do it but they just said it was my decision so whatever I would do they would encourage me." Other parents took a much more direct approach: "My mom was a really big advocate of it. Senior year I decided I didn't want to do it because it was just what my mom wanted me to do. But I had to go through a period of time where I didn't want to be a pharmacist to get to the point where it became my choice" (Bethany). A few students claimed their parents had no influence: "Not at all. My parents didn't go to school. They didn't influence me at all." Naturally, parental input is a consideration by most students for the selection of any college major, particularly when parents help to fund the education. In the case of pharmacy majors, particularly, overall they described having made their own—independent—decisions, but with parental support. Sometimes the support was more explicit than with others but, generally, students expressed a level of perceived security, knowing that their choice of a pharmacy major had the backing of their parents and most significant others in their lives at the time they made the vocational decision.

The students we interviewed showed that they already possessed an informed knowledge base regarding their field of interest. Prepharmacy majors were able to extensively discuss the general role of what a pharmacist does and the type of individuals whom they believe will make good pharmacists. To some degree, they had been able to envision themselves in a future pharmacy role. They had also already mentally played-out scenarios of interacting with patients and physicians. Consequently, it appears that prep-work done by high school guidance counselors, college recruiters, previous mentors, and printed material was relatively effective in contributing positively toward this aim. Students in our sample entered the degree program with a relatively healthy-level of background information in order to make an informed decision regarding a career choice for a pharmacy vocation.

Students in our sample described themselves as individuals who generally did not struggle with math or science. Self-efficacy, of course, does not equal competency. We did not check the incoming ACT or SAT scores for these students in order to appraise their standardized testing aptitude. Naturally, successful pharmacy students should both possess the innate talent for science and math—in addition to the confidence. Overall, our results were encouraging that at least students portrayed themselves with the assurance that they possessed the requisite academic skill sets for success in a rigorous doctoral program. As pharmacy schools recruit future prospects, locating individuals who have the perceived science and math expertise seems foundational for successful retention of the respective incoming classes.

Incoming pre-pharmacy majors might be conceptualized as "niche students." They speak of possessing abilities in the sciences that seemingly would enable them to pursuit a number of potential vocations. For example, chemistry, math, pre-med, or even chemical engineering are notable possibilities. However, these students spoke of wanting a niche that is somewhat unique to the pharmacy profession. These were not individuals who portrayed themselves as the being stereotypical "geeks." They like science, but do not speak of it as, say, some engineering students might. There is a service orientation component that accompanied the students' desire for studying science. Above all, this may be one of the study's most salient findings. That is, these students were not completely science oriented—nor all people oriented; it was the blend that seemingly provided the "niche" for these students to pursue pharmacy as a career.

Discussion

Our current findings are consistent with previous studies indicating the importance of

family members, pharmacist role models, and work and volunteer experience as positive influences on pharmacy students' perception of the profession (Anderson et al., 2008; Chisolm & Pritchard, 1995). However, the current study is unique due to the population being pre-pharmacy students only a few months removed from high school, where previous data included more mature students who had completed their pre-pharmacy programs and were enrolled in professional programs. There are no extant data we are aware of characterizing students' perceptions of pharmacy during these early, formative years. Given the importance of role models and work/volunteer experiences to this population, programs that bring potential students into contact with pharmacists and the profession, such as occupational camps, may increase the interest in the profession. There are now several such pharmacy camps being held around the country. Further research should be conducted in order to apprise the number of students who participate in such occupational camps who go on to study and practice that occupation. Another potential future correlational study might find that students tend to matriculate at the university that hosted a camp where they attended, while still in high school. Similarly to earlier data, we found little influence of "career fair" events among these students (Anderson et al., 2008).

Of particular significance, we found that salary and job security were less influential with female students than with their male counterparts. This is consistent with data that suggests that females who enter the profession are more likely to work part-time and that flexibility in work scheduling is an important influence on career path (Knapp & Cultice, 2007; Savage, Beall, & Woolley, 2009). All of the students we interviewed were single at the time of data collection. Naturally, we do not know how these perceptions among women potentially might change over time. Longitudinal research with a cohort would help elucidate this important factor.

Limitations and Future Research

All good research identifies the limitations of a study and reports them (Price & Murnan, 2004). In the present study most of the research participants were Caucasians, which influences some of the study' external validity. To some degree, generalizability is a cogent consideration for all qualitative research studies (Wiersma & Jurs, 2009). In the present context, it is unknown to what degree the reported results aptly reflect the sentiments of minority students seeking potential admission to pre-pharmacy programs. Consequently, future research researchers should replicate our findings using different samples of different minority groups.

As we stated earlier, the present data was collected at a private, selective, comprehensive university in the Midwest. Future researchers should replicate this study in additional educational milieu, such as large universities. Additionally, additional research is needed to appraise students' experiences who attend institutions located throughout other regions of the U.S. This will best enable a more comprehensive picture of student perceptions to emerge.

The nature of the qualitative paradigm involves exploring a construct with smaller sample sizes in an inductive, exploratory fashion (Marshall & Rossman, 2006). The next step is for quantitative researchers to use the reported results in moving research designs toward larger sample sizes. Survey research, in particular, can help add breadth to the present study's findings. Qualitative research generally emphasizes more in-depth understanding, while only quantitative can add the breadth (Creswell, 2008). Based on the present findings, quantitative researchers now have foundational research on which to build a more global understanding of pre-pharmacy student's percepts and academic conceptions.

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