



# The Economic, Social and Administrative Pharmacy (ESAP) Discipline in US Schools and Colleges of Pharmacy

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Schools and colleges of pharmacy in the United States have struggled over the past several decades with identifying a consistent title for the broad body of knowledge related to the social, economic, behavioral, and administrative aspects of pharmacy. This paper examines the educational background and professional experience of those teaching Economic, Social, Administrative Pharmacy (ESAP) content in the United States, to identify the type, frequency, and extent to which ESAP courses are taught in United State's schools and colleges of pharmacy curricula, and to investigate the perceived importance of ESAP content among ESAP faculty. The data was collected by using a 23-item questionnaire was sent via email to 225 ESAP pharmacy faculties in the United States. 96 were returned completed for a 48 percent response rate. Most respondents are not housed in a standalone ESAP department, but would like to be. Both the educational backgrounds of ESAP faculty and the content taught within the discipline vary greatly. This may be because the content within the ESAP discipline is extremely broad. In addition, the diversification in content may be a result of both the diversity of instructor's educational backgrounds and the lack of a generally approved definition for the ESAP field.

*Keywords:* Economic, Social & Administrative pharmacy, Pharmacy curriculum, Pharmacy management, Social & Behavioral pharmacy, Pharmacy Administration

*JEL:* N32, P36, I25

As educational outcomes become more important in United States curricula, programs of study in different disciplines must analyze their content and reconcile it with optimal learning outcomes needed for future success in these disciplines. One area that should be examined is, “ is the discipline’ s content so broad given an institution’ s resources that it has the potential to dilute optimal learning?” Such is the case with schools and colleges of pharmacy in the United States.

Schools and colleges of pharmacy in the United States have struggled over the past several decades with identifying a consistent title for the broad body of knowledge related to the social, economic, behavioral, and administrative aspects of pharmacy. Presently, the discipline is often referred to by several names including Economic, Social, and Administrative Pharmacy (ESAP) (Farley *et al.*, 2010), Economic, Social, and Administrative Sciences (ESAS) (APhA, 2013), pharmacy administration (Leufken *et al.*, 1993; Manasse *et al.*, 1984; Schaefer *et al.*, 1992; Schaefer *et al.*, 1992; Harding *et al.*,

2006; Harding *et al.*,1995; Ibrahim *et al.*, 1998; Hassali *et al.*, 2011; Norris 2009; Abrika *et al.*, 2012; Ryan *et al.*, 2007; Anderson, 2008), social and behavioral pharmacy (Wertheimer, 1991; Dolinsky,1990), social and administrative sciences (SAS) (AACP, 2011), and pharmaceutical socioeconomics (University of Iowa, 2013). One reason for the confusion is the broadness of the body of knowledge that falls under the general rubric of “ ESAP” (Manasse, 1984; AACP, 2011). Different authors refer to the discipline with different names. According to Smith and Knapp, pharmacy administration is referred to as “ the socioeconomic determinants of drug use” (Smith *et al.*, 1981). The authors further stated that as pharmacy evolves into a more clinical centered profession, the need for expertise in outcomes related to pharmacy services and drug efficiencies increases (Manasse *et al.*,1984). Whether the discipline is called ESAP, ESAS, Pharmacy Administration, Social Pharmacy, or another name, it refers to “ the endeavor to integrate drugs into a broader perspective and to include legal, ethical, economic, political, social and even communicative as well as psychological aspects into their evaluation in order to contribute to a safe and rational use of drugs” (Schaefer *et al.*, 1992). Since the discipline revolves around economics, social sciences, and administrative sciences as related to the practice of pharmacy, we believe the most appropriate title is Economic, Social, and Administrative Pharmacy. Therefore, for the purposes of this paper, any of the aforementioned variants of ESAP refer to the ESAP discipline. It appears that the discipline

includes at least the following: psychology, social science, marketing, management, finance, accounting, public health, and law. Given this breadth it is extremely difficult to accurately coin a term that includes these curricular areas without some confusion. For example the broad field called Business Administration is subdivided into the specific disciplines of Marketing, Management (often subdivided into Organizational Behavior and Management Information Systems), Economics, Accounting, and Finance. These programs seek and hire Ph.D. graduates from these specific disciplines to teach in their areas of specific expertise. In contrast, schools and colleges of pharmacy may hire an ESAP faculty member with a specialty in social science, management, or pharmacoeconomics. Yet, because of the breadth of the discipline, it is unlikely that ESAP faculty members will be comfortable teaching those ESAP content areas in which they have little training and/or interest.

An examination of the educational backgrounds of ESAP faculty in the United States reveals significant variance in ESAP faculty member’ s Ph.D content areas. For example, Ph.D areas of specialties include communication, public health, history, marketing, management, psychology, geography and economics. Even those faculty members who received their Ph.D degrees from pharmacy schools often have diverse variations in training (Schaefer *et al.*, 1992). Stated differently, it is almost certain that United States pharmacy faculty within the ESAP discipline are not experts in all the different content areas under the ESAP title (Schaefer *et*

*al.*, 1992). It is probable that many ESAP faculties know little about some content areas under the ESAP umbrella. For example, are those with expertise in pharmacy law comfortable teaching in accounting? Since many schools and colleges of pharmacy (in particular smaller private schools) have one or two ESAP instructors, the consequence of this is a wide and varied emphasis in the content being delivered.

A germane question one might ask is, “Why is the ESAP discipline content so broad?” The catalyst for this breadth of content can be tied to the American Council of Pharmaceutical Education (ACPE), the accrediting agency for pharmacy programs in the U.S (Ibrahim *et al.*, 1998). In 1975, ACPE included in its standards and guidelines aspects of ESAP content as necessary areas of instruction in pharmacy curricula (Ibrahim *et al.*, 1998). The standards stated that topics such as medical sociology, health care economics, and the management of pharmaceutical services was required. As a result, several United States pharmacy curricula began to add courses and content in administrative, behavioral, and the managerial aspects of pharmacy practice (Ibrahim *et al.*, 1998). In subsequent revisions of the standards, ACPE expanded the required content areas of ESAP to include such areas as communication, law, and ethical principles (Leufkens *et al.*, 1993). The rationale for this expansion has to do with the increased complexity of operating in the health care environment, including drug insurance and cost containment programs (Manasse *et al.*, 1984). According to the 2007 ACPE accreditation standards and guidelines, the

ESAP Sciences include the following topics: Health Care Delivery Systems, Economics/Pharmacoeconomics, Practice Management, Pharmacoepidemiology, Pharmacy Law and Regulatory Affairs, History of Pharmacy, Ethics, Professional Communication, and Social and Behavioral Aspects of Practice (ACPE, 2007). The breadth of the ACPE standards related to ESAP content is daunting. For example, under “Practice Management” it is expected that schools and colleges of pharmacy train students in accounting, marketing, management, infection control, managed care, and managing and improving the medication–use process, among other guidelines (ACPE, 2007). Institutional response to the ACPE standards has been the increased hiring of ESAP faculty with expertise in various areas such as the health care system, economics, accounting and finance. In addition, according to Manasse and Rucker, ESAP faculty with interest in content areas such as political science, anthropology, communications, spatial geography, computer science, history, architecture and psychology have been hired under the ESAP title at schools and colleges of pharmacy (Manasse *et al.*, 1984).

## LITERATURE REVIEW

### ESAP in USA vs. Europe vs. Developing Countries

Compared to Europe and the developing countries, schools and colleges of pharmacy in the United States have the most developed ESAP program. According to the American Association of Colleges of Pharmacy (AACCP) there are 584 full faculty members in Pharmacy Administration at 127 colleges; 40 of them offer graduate

programs in different areas of ESAP (AACP, 2011). As stated above, ESAP topic requirements are expanding based on the latest ACPE guidelines (ACPE, 2007). Similarly, several European countries incorporated aspects of social pharmacy into their curricula in the mid-1970s (Nuffield, 1986). In the United Kingdom (UK) in 1986, the Nuffield Committee advised that behavioral science should be a component of all undergraduate pharmacy curricula (Taylor *et al.*, 2003). Subsequently, the Royal Pharmaceutical Society Working Party on Social and Behavioral Science endorsed this declaration and ESAP content is consistently taught in UK pharmacy curricula. A web-based survey questionnaire pertaining to ESAP content in international schools and colleges of pharmacy was administered in 2007. There were 62 responses received representing 17 countries, including the United States. Results indicated that ESAP content had an international acceptance. However, there was significant variance in what was taught under the ESAP label, ranging from scientific to behavioral science (Ryan *et al.*, 2007; Anderson, 2008)

Pharmacy programs in developing countries such as South Asia and the Middle East place a greater emphasis on basic science fields such as pharmaceutical chemistry and technology, in contrast to clinical and ESAP content (Hassali *et al.*, 2011; Alkhateeb *et al.*, 2010). A reason for the lack of ESAP content may stem from pharmacy educators not understanding the importance and relevance of how ESAP content contributes to educating competent future pharmacists. In addition to a lack of

understanding of ESAP relevance, there appears to be a dearth of trained ESAP faculty, and little funding for ESAP research initiatives (Hassali *et al.*, 2011; Alkhateeb *et al.*, 2010)

### United States ESAP Courses

In adherence to ACPE standards, ESAP content is taught to a lesser or greater extent in all accredited schools and colleges of pharmacy in the United States. As previously discussed, because of the significant breadth of ESAP content, and because of the varied backgrounds of faculty who teach ESAP content, there is significant variance in what ESAP content is emphasized in schools and colleges of pharmacy. Course offerings targeting ESAP content may range from introductory content related to the profession of pharmacy and/or the health care system to specialized courses in marketing or pharmacoeconomics. However, there is some consistency across programs. For example, most programs include jurisprudence and varying degrees of health care economics, pharmacy management, financial accounting and planning, and social/behavioral pharmacy (Manasse *et al.*, 1984).

A review of the literature revealed very few studies have investigated the common courses taught in the ESAP field. We could find two studies that have done so, and their scope was global in nature. The first one was done by Leufkens *et al.* in 1993, to identify the global stance for including ESAP in school curricula (Leufken *et al.*, 1993). Of their responses, 78 percent stated they had a curriculum with courses in ESAP, with 60 percent of those being mandatory and the rest being offered as

electives. Most of the respondents ranked the most important reason to teach ESAP as being that they felt it better prepared students for “ their professional role” (Leufken *et al.*, 1993). The authors reported that the most common ESAP courses that are taught globally include Management (31%), Legislation and ethics (20%), Pharmacy practice (17%), Healthcare system (10%), Behavioral aspects (10%) and Epidemiology (3%) (Leufken *et al.*, 1993)

The second study surveyed 62 respondents representing schools of pharmacy from 17 countries including the US (Ryan *et al.*, 2007). They showed that the main social science disciplines that were being taught around the world under the umbrella of social pharmacy/ESAP, included “ communications skills” (60 to 70%), “ law and ethics” (50 to 70%), “ health promotion/education” (40–60%, and “ public health/health policy (40–50%). Interestingly, the pure social science disciplines, such as sociology (20–30%), psychology (20%), anthropology (0–10%) and geography (0%) were not taught to a large extent. Other disciplines, such as biostatistics, clinical epidemiology, evidence-based medicine, practicum/externship/rotation, pharmacoeconomics and healthcare economics, pharmacoepidemiology and pharmacoinformatics, were mentioned by only one respondent each (Ryan *et al.*, 2007).

Student pharmacists with a desire to pursue ESAP content in more detail may be able to take a specialized ESAP related elective while a student pharmacist (Manasse *et al.*, 1984). Alternatively, or in addition to taking a specialized elective, students may enroll in a Masters or Ph.D

program upon completion of their PharmD degree (Manasse *et al.*, 1984). According to the AACP website, there are 40 ESAP graduate programs. Eleven of them offer a Masters degree (27.5%), Eleven offer a Ph.D degree (27.5%), and eighteen offer both a Masters and a Ph.D degree (45%) (AACP, 2011). In addition, nearly a third of ESAP graduate programs offer a combined PharmD/Ph.D degree, while approximately one-fifth offer a combined PharmD/Masters degree (AACP, 2011).

The overarching goal of ESAP instruction in schools and colleges of pharmacy is to instruct students how to integrate and utilize economic, social and administrative tools to provide quality pharmacy services which will optimize patient outcomes (Hassali *et al.*, 2011). Over the past few decades, the role of the pharmacist has greatly expanded. It is no longer enough to fill the patient’ s medication and send them on their way, but now the pharmacist is responsible for counseling to increase patient understanding and also to help manage the patient’ s adherence to their medication regimen (Hepler *et al.*, 1990). Much of this has socio-behavioral and economic implications for the health care system. It is vital to understand the patient’ s socio-behavioral attributes in order to optimize the drug therapy outcomes of the patient. As vitally important, the complexities of the health care system warrant significant training in management, marketing, accounting, and finance.

It seems that schools are starting to view ESAP courses in higher esteem because of ways this type of knowledge can benefit society’ s health (Hassali *et al.*, 2011). Those who teach

ESAP content face challenges. In addition to the aforementioned challenges that come from varying levels of expertise in the different domains within the ESAP rubric, it may be difficult for many ESAP faculties to establish themselves within the curriculum and the profession (Norris, 2009). For example, one challenge to establish their role in the curriculum is getting other faculty to comprehend the importance of this type of pharmacy teaching. One study by Dolinsky suggests faculty must first educate their colleagues of the benefit of ESAP in pharmaceutical care (Dolinsky, 1990). This article stated that half of the patients taking medications do not take them appropriately as directed by their provider. A pharmacist who is educated in ESAP would be better suited to recognize this type of patient and understand how to communicate with them the importance of medication adherence and understanding (Dolinsky, 1990). Another challenge in establishing their role in the curriculum relates to students. Specifically, many students may not take ESAP content as seriously as they could. In addition, student pharmacists may fail to optimally apply the ESAP content learned from their courses to their future patients. This may contribute to missed opportunities in maximizing the drug-related outcomes of their patients.

The current investigation differs from previous ones in that previous investigations have assessed ESAP course offerings, and faculty perceptions regarding content were global in nature (Leufken *et al.*, 1993; Manasse *et al.*, 1984; Schaefer *et al.*, 1992; Harding *et al.*, 2006; Harding *et al.*, 1995; Ibrahim *et al.*, 1998; Hassali

*et al.*, 2011; Norris 2009; Abrika *et al.*, 2012; Ryan *et al.*, 2007; Anderson, 2008). In addition to being global in nature, these investigations are somewhat dated in light of updated ACPE standards and dynamic changes affecting the pharmacy profession. This is the first investigation of solely United States school and colleges of pharmacy ESAP course offerings, and faculty perceptions regarding content.

### Objectives

Because ESAP content is an integral part of United States pharmacy curricula, and because the consistency of ESAP content offerings are so varied, the major goals of this investigation are the following :To identify the educational background and professional experience of those teaching ESAP content in the United States; to identify the type, frequency, and extent to which ESAP courses are taught in United State' s schools and colleges of pharmacy curricula; and to investigate the perceived importance of ESAP content among ESAP faculty.

### METHODOLOGY

#### Sample

Population in this research was the pharmacy faculty in the United States that were recognized as members of the social and administrative sciences (SAS) section according to the American Association of Colleges of Pharmacy (AACP) (AACP, 2012). Furthermore, from that population, the research sample measure was 225 names with emails in the SAS list.

#### Data Collection

The survey was conducted between July 2010 and of September 2010. The survey was anonymous so that the investigators could not

identify how respondents responded to the questionnaire items. However, because we offered a financial incentive to complete the survey, we kept track of those who actually completed the online survey. As a token of appreciation for completing the survey and to increase the response rate, the respondent's names were entered into a drawing to win one \$100 gift certificate.

### Instruments

The first email to be sent to ESAP (titled "Social and Administrative Sciences" in the AACP database) faculty contained 23-item questionnaire and an introduction to the purpose of the survey, cover letter, and a link to access the survey. A modified Dillman approach was used to maximize the response rate whereby three reminder emails were sent to the entire sample to help encourage a high response rate (Dillman *et al.*, 2005). The survey was approved by the University Institutional Review Board (IRB). We then used the software SPSS 16 [SPSS Inc. Chicago] to analyze the data we collected.

All the questions that made up the survey were adopted from previous literature that targeted the nature and breadth of ESAP content taught (Schaefer *et al.*, 1992; Anderson, 2008). The survey consisted of three sections and all questions were closed-ended questions. The first section was composed of questions about the faculty's background and training with questions related to which department they were currently working in and what types of degrees they held. Section two asked demographic questions, and also focused on the ESAP courses available at the respondent's institution and their satisfaction

with the current ESAP classes available. In addition, respondents were asked to provide information on their perceived positives and negatives regarding ESAP content by using a 5-point Likert-type scale: 1, strongly disagree; 2, disagree; 3, neutral; 4, agree; 5, strongly agree, for each statement. The final section of questions asked institutional demographic information, including location, average class size, number of faculty and whether it was public or private. The pretesting of the survey was conducted by administering the survey to a convenient sample of five ESAP faculties whose names were excluded from the sampling frame for the main study. The faculty's responses during the pilot study were used to evaluate survey instrument.

## RESULTS

Out of the 225 SAS faculty members who received the survey, 25 were returned as "undeliverable," possibly due to incorrect email addresses or addresses that were no longer in use. So our adjusted sample size for our research was 200. From those who received the survey, 96 were completed with a response rate of 48 percent.

### Faculty Background and Training

The majority of respondents held a degree of Ph.D (90.5%), with the next highest degrees being BS Pharm (69.4%) and MS (49.4%). Only 7.3 percent of respondents held a PharmD degree. When questioned what type of university they attended if they received a Ph.D, 77.1 percent replied a pharmacy school or college, while 8 percent of those earning a Ph.D received it from a school or college of Business. The

majority of the respondents were male (62.7%), were at least 40 years old (88.3%), worked at a public institution (60.8%), and worked at an institution that delivers the Doctor of Pharmacy degree over 4 years (87.1%) (Table 1 – see Appendix-I).

Most faculty answered that they were in the ESAP/pharmacy administration department, 48.4 percent, with 25 percent in the pharmacy practice/clinical pharmacy department while very few in the basic pharmaceutical science department, 9.5 percent. The majority, 71.7 percent, reported they felt being in the ESAP/pharmacy administration department would be the best place to be to optimize their professional growth, while only 13 percent and 5.4 percent, respectively, believed being in the clinical pharmacy/pharmacy practice and basic pharmaceutical science department would achieve this (see Table 2).

Academic Department	Frequency (%)
Basic pharmaceutical Science	9 (9.5)
Clinic Pharmacy or practice	24 (25.3)
ESAP/Pharmacy Administration	46 (48.4)
Other	16 (16.8)
Which academic department would optimize your professional growth?	
Basic pharmaceutical Science	5 (5.4)
Clinic Pharmacy or practice	12 (13.0)
ESAP/Pharmacy Administration	66 (71.7)
Other	9 (9.9)

<sup>a</sup>: N varies due to item non-response

**Table 2: Current and the Preferred Academic Department for ESAP Faculty (n=98)<sup>a</sup>**

### Position of ESAP in Curriculum

As far as the ESAP courses available in their pharmacy programs, 65.7 percent reported their curriculum required 3–5 courses per academic year in this area. The most often cited number of electives taught per academic year in ESAP content was one to two courses (44.7%), with only 17.6 percent of respondents stating that three electives are offered at their institution. Regarding ESAP credit hours taught, the majority of institutions required at least 7–20 credit hours of ESAP courses (77.7%) in their curriculum. The majority of respondents stated that they teach 6 credit hours or less per year, The balance of respondents taught 7 to 10 credit hours (24.7%, and 11–15 credit hours (6.4%). One respondent stated a teaching load of greater than 15 credit hours (Table 3). When asked if they believed their school adequately covered ESAP content, 57.4 percent answered they felt it was sufficient, 42.6 percent answered that it should be more, and 0 percent thought it should be less. (Table 3 – see Appendix-II).

### Content of ESAP Courses

Respondents were asked to discuss the specific content housed in ESAP courses, as measured by contact hours of instruction. The content reported to include 25 or more contact hours were Pharmacy Law and Regulations (50% of respondents), Clinical Research Methods or Literature Evaluation (40%), Communications in Health Care (32%), and Pharmacy Management (27%). The contents that included two contact hours or less were Finance (44%), Organizational



and/or Consumer Behavior (40%), and Accounting (34%) (Table 4 – see Appendix–III).

### Challenges for the Teaching of ESAP Courses

When asked about their feelings about how prepared they felt to teach ESAP courses based on their education, the mean answer was 4.56 (anchored at 1 and 5) which showed that most answered they strongly agreed to feeling prepared. Respondents were asked if they felt more qualified to pursue an administrative position because of their business and management background. The mean response was 3.37/5.00, revealing that most were neutral regarding this. Most respondents believed pharmacy students paid more attention to basic science and pharmacy practice courses than they did to ESAP courses, with a mean answer of 4.16/5.00, meaning they agreed with the statement. Finally, the faculty surveyed felt they taught a wider range of topics in their courses than faculty members of other disciplines with a mean answer of 4.35/5.00, with most agreeing this was true. (Table 4 – see Appendix–IV)

### DISCUSSION

The findings from this study provide valuable information concerning the status of ESAP content in United States pharmacy education curricula. This study reported the perceptions of experts in the field of ESAP regarding ESAP content and its relevance in their institution's curriculum. We were also able to gain insight into the educational status of ESAP faculty who teach this content, and the differences in courses offered in pharmacy programs throughout the nation.

The first objective of this investigation was to identify the educational background and professional experience of those teaching ESAP content in United States schools and colleges of pharmacy. Our study revealed that those teaching ESAP content have diverse educational backgrounds (Refer to Table 1). Given the enormous breadth of the discipline, it is not surprising that the educational backgrounds are so diverse. The vast majority of respondents obtained a Ph.D (90.5%), with approximately 77 percent receiving them from schools and colleges of pharmacy. Much like schools of business, ESAP graduate programs of study include diverse training. For example, it is not uncommon for some graduates to be experts in economics, some in marketing and so forth. This may not be an issue in schools and colleges of pharmacy that include four or more ESAP faculty with complementary areas of expertise. It may be a concern in smaller schools and colleges of pharmacy that might employ one or two ESAP faculty. Unless these institutions bridge the expertise gap by asking adjuncts to teach some ESAP content, it might be more challenging to provide student pharmacists with the breadth of content that those institutions with more ESAP faculty provide.

Surprisingly, while approximately 70 percent of ESAP faculty held BS Pharmacy degrees, only 7.3 percent held Doctor of Pharmacy degrees. This shows that most newly graduated pharmacists do not appear to be going into the Social and Administrative fields of academia. This presents some challenges because those ESAP faculty members who are not pharmacists

may feel like outsiders in the pharmacy profession (Norris, 2009; Alkhateeb *et al.*, 2010). Similarly, those ESAP faculty members who number two or less (primarily at private institutions with no graduate pharmacy programs) may feel alienated and have difficulty seeking a valid role for ESAP at their institutions. Since most of the respondents were PhDs, it is not surprising that the majority had no type of pharmacy training such as a residency or fellowship. (Refer to Table 1) Of those that did have some type of training, a one year residency was the most popular.

The second investigation objective was to identify the type, frequency, and extent to which ESAP courses are taught in United State' s schools and colleges of pharmacy curricula. As stated previously, the domain of ESAP encompasses many disciplines in business and the social sciences. The majority of respondents stated that their institution required 20 credit hours or less of curricular space devoted to ESAP content. An examination of contact hours devoted to ESAP content shows that the majority of respondent' s stated that less than 9 contact hours is devoted to the topics of accounting, finance, social and behavioral pharmacy, public health, pharmacy marketing, organizational behavior, and epidemiology and pharmacoepidemiology. Given the findings of this study that contact hours for ESAP topics seem low, this may warrant consideration and review by the academy and revision of the requirements for pharmacy school curricular requirements. Given the diverse ESAP content being taught, our results lend support to the 1993 observation by

Schaefer, Leufkens, and Harris that the type, frequency, and extent of ESAP content being taught appears to be highly correlated to the background and expertise of the ESAP faculty member (Ryan *et al.*, 2007).

The third objective was to examine the perceived importance of ESAP content among ESAP faculty. Although the types of courses along with the frequency they are taught appear to vary greatly throughout the nation, each respondent believed that ESAP content is at least sufficient, while 42 percent felt the content should increase. Interestingly, none felt it should be reduced. These results suggest that many ESAP faculty members believe that there exists growth opportunities for the discipline as the profession evolves.

There are several implications of this investigation for schools and colleges of pharmacy in the United States. The ESAP discipline must do a better job of analyzing the tools graduates need to be successful, and make students accountable for mastering these tools. Because of the significant diversity in the backgrounds of those who teach ESAP courses, many may not feel comfortable teaching topics that might be deemed essential to the learning of pharmacy students. Therefore, students may not get this content. For example, if a discipline decides that economic cost benefit analysis is important to graduates of a program, then schools across the United States must include economic cost benefit analysis in their curriculum. Many schools and colleges of pharmacy might have only one faculty member in the ESAP discipline. If a school or college of

pharmacy hires a faculty member with a degree in history, will students receive the educational outcomes that are deemed important to the pharmacy profession? Therefore, it might be necessary to hire faculty whose expertise is in the major discipline outcomes as opposed to minor discipline outcomes.

Results of this investigation reveal those ESAP faculties face challenges. Despite the fact that they are the minority discipline in schools and colleges of pharmacy, they believe they are asked to teach a broader range of topics than their colleagues in other disciplines. In addition, they believe that student pharmacists hold basic science and pharmacy practice courses in higher regard than they do ESAP courses. It is beyond dispute that ESAP faculty members are asked to teach a very broad range of courses. If students do in fact hold basic science and pharmacy practice courses in higher esteem than they do ESAP courses there are plausible explanations for this. First, ESAP content has very little representation on the North American Pharmacist Licensure Exam (NAPLEX) (NABP, 2010). Therefore, a student pharmacist can become a pharmacist with little knowledge of ESAP content. Second, student pharmacists often pursue the Doctor of Pharmacy degree because of their love for the basic and clinical sciences. Often, those students who are interested in ESAP topics pursue graduate degrees in a business administration or public health discipline.

### CONCLUSION

The growth of ESAP has been steady since it was first introduced in the seventies (Bonnarens,

2011). As the profession transitions to a more patient-centered profession, the importance of ESAP content at schools and colleges of pharmacy in the United States will likely increase (Nwokeji *et al.*, 2005; Nwokeji *et al.*, 2007). Both the educational backgrounds of ESAP faculty and the content taught within the discipline vary greatly. This may be because the content within the ESAP discipline is extremely broad. In addition, the diversification in content may be a result of both the diversity of instructor's educational background and the lack of a generally approved definition for the ESAP field.

### LIMITATIONS AND FUTURE DIRECTIONS

The results of this study have uncovered several areas where additional research could be valuable. While the scope of this investigation was confined to U.S. schools and colleges of pharmacy, future studies can update previous international studies and extend the present investigation. In addition, an in-depth examination of student pharmacist's perceptions of the value and benefit of ESAP content may result in educational efforts to provide a greater rationale for ESAP content to student pharmacists.

This study has at least three limitations. First, as it was a self-administered email survey, there is the potential for non-response bias. Financial incentives and repeated contacts were used to try to limit non-response bias. The relatively low response rate of around 48 percent is a limitation of the study in that those who responded may be systematically different than those who did not respond on variables of interest. Moreover, not

all ESAP faculties have valid email addresses on the AACCP file is a limitation of the study in that those who have valid email addresses may be systematically different than those who have not. Regarding the non-response bias, we did an analysis to make sure that the respondent's characteristics (n = 96) are not different from the sample population (n = 200). We made a comparison between respondents and population sample and we found a slight difference between the two groups. For example, the rank of assistant professor, associate professor and professor among responders were 24.2 percent, 32.6 percent, and 41.10 percent, respectively while it was 26.2 percent, 34.2 percent, 39.4 percent, respectively among the sample population. Another example, the male faculties among responders were 62.7 percent while it was 64.8 percent among the sample population (AACCP, 2012). Second, the lists of topics and content areas used to evaluate to extent to which ESAP content is being taught at U.S. schools and colleges of pharmacy is not exhaustive. Furthermore, since we did not provide expanded definitions to the list of topics that appear in Table 4, it is possible that some respondents interpreted them differently than others. Finally, an examination of student pharmacist's perceptions of the value and benefit of ESAP content should have been explored in this study.

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## Appendix-I

<b>Descriptive Characteristics</b>	<b>Frequency (%)</b>
<b>Degree</b>	
Ph.D	86 (90.5)
Pharm. D	7 (7.3)
MS	47 (49.4)
MBA	18 (18.9)
MPH	3 (3.1)
BS Pharm	66 (69.4)
J.D	3 (3.1)
Other	11 (11.5)
<b>Pharmacy Training</b>	
Residency (one year)	10 (10.9)
Residency (two year)	0
Fellowship (one year)	3 (3.2)
Fellowship (two year)	2 (2.1)
None	76 (83.5)
<b>If have Ph. D, what college did you graduate?</b>	
Public Health	2 (2.3)
Pharmacy	67 (77.1)
Medicine	0
Business	7 (8.1)
Other	11 (12.5)
<b>Administration Duties</b>	
Full time	18 (18.9)
Part time (21-35 hrs/wk)	11 (11.6)
Part time (11-20 hrs/wk)	8 (8.4)
Part time (10 hours or less)	14 (14.7)
None	44 (46.4)
<b>Academic Rank</b>	
Instructor	0
Assistant Professor	23 (24.2)
Associate Professor	31 (32.6)
Professor	39 (41.1)
Other	2 (2.1)
<b>Age</b>	
Under 25	0
25-29	3 (3.2)
30-39	8 (8.5)
40-49	28 (29.8)
50-59	30 (31.9)
60 and above	25 (26.6)
<b>Gender</b>	
Male	59 (62.7)
Female	35 (37.3)

Cont...

<b>Years of full-time work in academia</b>	
Less than 3	9 (9.6)
3-7	17 (18.1)
8-14	24 (25.5)
15-19	15 (15.9)
20-29	15 (15.9)
30 and above	14 (15.0)
<b>Pharm D. program at your school</b>	
3-year program	6 (6.5)
4-year program	81 (87.1)
Other	6 (6.4)
<b>School or college of pharmacy where you teach?</b>	
Public	56 (60.8)
Private	36 (39.2)
<b>Number of full-time ESAP faculty</b>	
1	6 (6.5)
2	15 (16.1)
3	10 (10.8)
4	17 (18.3)
5	14 (15.1)
6	12 (12.9)
More than 6	19 (20.3)
<b>Graduate program in the ESAP</b>	
None	40 (42.6)
Master Degree Program Only	8 (8.5)
Ph. D program	46 (48.9)
<b>Class size in School of Pharmacy</b>	
Less than 50	0
50-80	19 (20.2)
81-100	18 (19.1)
101-150	30 (31.9)
151-200	11 (11.7)
More than 200	16 (17.1)

**Table 1: Descriptive Characteristics of the ESAP Faculty (n=98)<sup>a</sup>**

<sup>a</sup>: N varies due to item non-response

## Appendix-II

	Frequency (%)
<b>Number of required courses in the curriculum</b>	
One course	2 (2.2)
Two courses	10 (10.9)
Three courses	17 (18.5)
Four courses	23 (25.3)
Five courses	20 (21.9)
Six courses	9 (9.8)
More than six courses	10 (11.4)
<b>Number of elective courses in the curriculum</b>	
One course	18 (21.2)
Two courses	20 (23.5)
Three courses	15 (17.6)
Four courses	10 (11.8)
Five courses	9 (10.6)
Six courses	2 (2.4)
More than six courses	11 (12.9)
<b>Total credit hours required in the curriculum</b>	
3 or less	2 (2.1)
4-6	13 (13.8)
7-10	20 (21.3)
11-15	35 (37.2)
16-20	18 (19.2)
21-25	3 (3.2)
More than 25	3 (3.2)
<b>Number of required and elective courses credit hours you teach</b>	
3 or less	29 (30.1)
4-6	35 (37.2)
7-10	23 (24.5)
11-15	6 (6.4)
More than 15	1 (1.8)
<b>Is the amount of ESAP courses enough / sufficient at your pharmacy school?</b>	
It is sufficient	54 (57.4)
It should be less	0
It should be more	40 (42.6)

*Table 3: Required and Elective Courses in the ESAP (n=98)<sup>a</sup>*

<sup>a</sup>: N varies due to item non-response



## Appendix-III

	None	2 hrs or less	3-9 hrs	10-15 hrs	16-25 hrs	More than 25 hrs
Pharmacoeconomics	0 0%	13 15%	33 37%	12 13%	14 16%	17 19%
Accounting	19 22%	29 34%	29 34%	8 9%	1 1%	0 0%
Finance	15 18%	37 44%	24 28%	9 11%	0 0%	0 0%
Social & Behavioral Pharmacy	4 5%	16 18%	22 25%	21 24%	11 13%	14 16%
US Healthcare System & Health Insurance Policy	0 0%	10 11%	19 22%	17 19%	23 26%	19 22%
Public Health, Epidemiology & Pharmacoepidemiology	4 5%	21 24%	26 30%	13 15%	9 10%	15 17%
Ethics	0 0%	25 28%	27 30%	13 15%	8 9%	16 18%
Communications in Health Care	2 2%	12 14%	17 20%	15 18%	11 13%	27 32%
Pharmacy Management	3 3%	10 11%	19 21%	12 13%	21 24%	24 27%
Pharmaceutical Marketing	8 9%	27 31%	31 36%	12 14%	7 8%	1 1%
Organizational or Consumer behavioral	11 13%	33 40%	33 40%	3 4%	2 2%	0 0%
Clinic Research Methods or Literature Evaluation	1 1%	9 10%	9 10%	9 10%	17 20%	35 40%
Pharmacy Law & Regulations	0 0%	10 11%	10 11%	3 3%	18 20%	45 50%

**Table 4: Contents/Contact Hours of the ESAP Curriculum (n=98)<sup>a</sup>**

<sup>a</sup>: N varies due to item non-response

## Appendix-IV

Statement <sup>b</sup>	SD	D	N	A	SA	Mean	Median
a. I feel that my education has prepared me well to teach the ESAP at my current school	0 (0%)	1(1%)	4(4%)	28(30%)	61(65%)	4.56	5
b. I believe ESAP faculty members are more qualified to pursue administrator position in the pharmacy school because of their business and management education	5 (5%)	13(14%)	34(36%)	26(28%)	16(17%)	3.37	3
c. Pharmacy students pay more attention to the basic science and pharmacy practice than for our courses.	0 (0%)	7(7%)	7(7%)	44(47%)	36(38%)	4.16	4
d. ESAP faculty members teach a wider range of topics than faculty from other disciplines	2 (2%)	3 (3%)	22(23%)	26(28%)	41(44%)	4.35	4

**Table 5: Challenges for the ESAP Faculty (n=98)<sup>a</sup>**

SD strongly disagree, D disagree, N neutral, A agree, SA strongly agree

<sup>a</sup>: N varies due to item non-response

<sup>b</sup> All the items were measured by Likert scale 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree