

INVESTIGATING THE ROLE OF CLINICAL ROTATION PAYMENT IN CLINICAL
EDUCATION QUALITY AND STUDENT SELF-EFFICACY FOR PHYSICIAN
ASSISTANT EDUCATION

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ABSTRACT

As the need for Physician Assistants (PAs) increases in the United States, education programs have a responsibility to graduate competent providers to help fill the nation's healthcare workforce needs. To do this, PA programs must rely on the commitment of preceptors to train students through clinical rotation experiences. Although precepting has been historically undertaken as an act of professional stewardship, an increasing number of PA programs are paying for clinical rotations in hopes of improving recruitment of quality rotation sites.

While there is research regarding PA programs' perception of paying for clinical rotations, as well as implementation of this practice, there is little exploring how paying for rotations may impact PA student success. To respond to the lack of research on this topic, this study examined the relationship between paying for clinical rotations, student self-efficacy, and perceived clinical education quality. These outcomes were chosen

based on the theoretical work of Bandura, work motivation literature, measures of PA student success, and research pertaining to the relationship of clinical rotation payment and outcomes in medical education.

This study utilized national data from the Physician Assistant Education Association (PAEA) that represented PA students at the end of their PA education. T-tests were used to determine if there were differences between students who attended PA programs that pay for clinical rotations and their peers who attended non-paying programs, in regards to self-efficacy and perception of clinical education quality. Additionally, one-way ANOVA with post-hoc Tukey tests were used to identify any differences the school payment model may have contributed. Multiple linear regression was used to investigate the relationship of school payment status and clinical education quality on self-efficacy, after controlling for student and institutional characteristics.

The conclusions from this study suggest that paying for clinical rotations in PA education does not significantly benefit student self-efficacy or perceived clinical education quality. Additionally, clinical site payment does not have a significant predictive relationship with self-efficacy, yet perception of clinical education quality explained some gains in self-efficacy. In light of these findings, the study offers implications for PA program administrators and suggestions for future research.

APPROVAL PAGE

The faculty listed below, appointed by the Dean of the School of Education have examined a dissertation titled “Investigating the Role of Clinical Rotation Payment in Clinical Education Quality and Student Self-Efficacy for Physician Assistant Education,” presented by Laura A. Begley, candidate for the Doctorate of Education degree, and certify that in their opinion it is worthy of acceptance.

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CHAPTER 1

INTRODUCTION

Educating the Physician Assistant Workforce

Physician Assistants (PAs) are one of the fastest growing groups of professionals in the United States, projected to increase in number between 2016 and 2026 by 37% (Bureau of Labor Statistics, U.S. Department of Labor, 2017). The number of PAs are in part increasing so quickly because of PAs' ability to increase access to healthcare for millions of people (Agency for Healthcare Research and Quality, 2014; Moote, Krsek, Kleinpell, & Todd, 2011; Pedersen, Chappell, Elison, & Bunnell, 2008). One chief qualification for a practicing PA is to pass a national certification exam that requires graduation from an accredited PA education program (National Commission on Certification of Physician Assistants [NCCPA], n.d.). Thus, it is crucial that PA programs have the necessary resources to train students to national certification level to ensure these in-demand professionals can enter the workforce. Minimum curricular and resource standards for PA programs are outlined and monitored by their accrediting body, the Accreditation Review Commission on Education for the Physician Assistant, Inc. ([ARC-PA] 2016).

The ARC-PA (2016) mandates that PA program curricula provide both didactic and clinical training components to prepare students for the competencies of the PA profession (American Academy of Physician Assistants [AAPA], ARC-PA, Physician Assistant Education Association [PAEA], & NCCPA, 2012). The didactic component consists of traditional, classroom-style learning, as well as clinical simulation and skills-based training, mandated by accreditation standards to be taught by a minimum number

of program-employed faculty (ARC-PA, 2016). The clinical rotation component, which is the focus of the present study, primarily offers ‘real world’ patient experiences to students across a variety of healthcare specialty areas, but may also consist of assessments, professional development, and patient care simulation (ARC-PA, 2016; Erikson et al., 2013; C. Scott et al., 2012). Some goals of clinical rotation experiences include providing students the opportunity to apply didactic content to clinical practice, to expand their clinical skills, and to further develop an understanding of a PA's role within the healthcare team (PAEA, 2012).

PA programs rely heavily on clinically practicing PAs and physicians, or preceptors, as they are referred to in health professions education, to train students during clinical rotations (C. Scott et al., 2012). The reliance on preceptor training is of such prevalence that between 94-97% of PA programs utilize interaction with preceptors as a teaching method in PA clinical rotations. Without preceptors’ involvement in clinical training, PA programs could not provide the required clinical curriculum component, which would limit the number of admitted PA students and the expansion of the PA profession. Thus, PA programs’ ability to expand to meet the nation’s projected healthcare needs is directly related to their ability to provide clinical rotation opportunities to students and preceptors’ commitment to training PA students.

Within PA education there is increasing concern regarding the number of available clinical rotations for students (Erikson et al., 2013; Glicken & Lane, 2007; Hooker & Muchow, 2014). A decade ago, a national report on PA program expansion plans indicated that the most notable barrier to increasing enrollment was access to sufficient numbers of clinical training sites and clinical preceptors (Glicken & Lane,

2007). A 2013 multi-disciplinary study corroborates these findings, adding that 95% of PA program representatives felt moderately concerned or very concerned about the adequacy of clinical opportunities for students based on the number of clinical sites available (Erikson et al.). Most recently, a 2017 study suggested that the burgeoning development of new PA programs increases competition for clinical sites among programs in the same locale (Forister & Stilp, 2017). Clinical rotation shortage in PA education is becoming such a concern that incentives for preceptors are becoming available at both a state and national level. Some states now offer preceptors tax incentives for training students (Laff, 2016). Additionally, a bill was recently passed in the U.S. House of Representatives that offers increased Medicare payments to eligible providers that serve as preceptors (Bass, 2017).

Similar to other healthcare professions education programs, the preceptor culture in PA education is one in which the role of a preceptor has traditionally been undertaken on a volunteer capacity and PA programs have depended on relationships with health care institutions and preceptors to provide the clinical component of the curriculum (Erikson et al., 2013; Glavaz et al., 2014; Physician Assistant Education Association, 2013). Practicing PAs have often accepted the role of preceptor without compensation as a form of ‘giving back’ to the profession, as these PAs acknowledge that they were also trained by volunteer preceptors (Glavaz et al.; Gonzalez-Colaso, Moloney-Johns, & Sivahop, 2013; Hudak, Enking, Gorney, & Gonzalez-Colaso, 2014). Yet, the clinical site shortage has opened a door to payment in order to place PA students within clinical rotations in hopes of increasing recruitment of quality rotations (Erikson et al., 2013;

Glavaz et al., 2014; PAEA, 2013), despite little being known about the impact of this practice on student success.

This non-experimental, quantitative study investigated if compensation for PA clinical rotations is related to student self-efficacy and clinical education quality. The differences in self-efficacy and quality of clinical education between PA students who attend programs that pay for clinical rotations and students who attend non-paying programs were identified and analyzed to lay the groundwork for future study pertaining to clinical rotation compensation in PA education.

Statement of Problem

A key problem associated with clinical rotation payment in PA education is that programs are primarily making the decision to pay for clinical rotations based on the perceived competition for clinical sites with no understanding of the practice's benefit to PA student success. Literature pertaining to the practice of rotation compensation has focused primarily on the perception and practices of paying for clinical rotations, and potential plans to begin paying by PA programs (Erikson et al., 2013; Glavaz et al., 2014). However, the potential effects of paying for clinical rotations on PA student success have not yet been investigated, resulting in a research gap surrounding this practice. Literature from other health professions provides some understanding of the potential effects clinical rotation compensation has on PA student success, but that which is specific to PA education is limited.

Although limited, some literature is present pertaining to clinical rotation compensation in relation to medical education generally. Two studies investigated preceptor compensation effects on student perception of clinical education quality (Ashar

et al., 2007; Barone et al., 2012). The scarcity of knowledge and literature pertaining to this topic, relative to PA education, is confirmed by a PAEA policy brief pertaining to the payment of clinical sites and preceptors in PA education (2013). The brief states, "The long-term impact of providing financial compensation to clinical sites is unknown, ... Further study is needed to obtain empirical data related to the costs and benefits of paying for clinical education" (PAEA, 2013, p. 4). Currently, PA programs' decision to pay for clinical rotations is based primarily on their need to recruit and compete for clinical rotations sites, with little understanding of the potential effects of clinical rotation payment beyond enhanced recruitment.

There is limited literature pertaining to the practice of clinical rotation compensation in PA education because of the recent growth of the practice, the stigma associated with the practice, and the financial burden the practice can have on PA programs. First, the practice of paying for clinical sites in PA education is relatively new and has steadily grown in the past ten years. In the 2007-2008 academic year, only 7.9% of PA programs paid for clinical rotations in some form, compared to 35% in the 2015-2016 academic year (PAEA, 2009; 2017b). This newly emerging practice lends itself to only producing literature pertaining to the implementation and perception of compensation (Erikson et al., 2013; Glavaz et al., 2014). Second, there is stigma associated with the practice of paying for clinical rotations. Many PAs believe that serving as a preceptor should be an altruistic act (Glavaz et al., 2014; Gonzalez-Colaso, Moloney-Johns, & Sivahop, 2013; Hudak, Enking, Gorney, & Gonzalez-Colaso, 2014), thus investigating this practice and its effects on student success may not align with the professional ethics of many PAs. According to Glavez et al. (2014), 69.2% of PA

program directors indicated that paying preceptors was unacceptable and 91% said preceptors should train to ‘give back to profession’ without expecting financial compensation. Third, there is fear by PA programs that they cannot afford to pay for rotations (Glavaz et al., 2014). Most PA program directors do not have the funding to pay for clinical rotations, and further do not believe that paying increases the quality of education provided by clinical sites (Glavaz et al., 2014). Nearly 82% of program directors disagree or strongly disagree that payment for clinical sites increases the quality of the education provided by the clinical sites. Thus, researchers, especially those in PA education, may not produce literature pertaining to clinical rotation compensation if they fear that popularizing it may require them to begin paying, especially if they do not believe the practice brings value to their work. The next section further examines the burden clinical site compensation may cause to PA programs, students, and the healthcare community.

Study Significance

As previously indicated, paying for clinical rotations in PA education is a growing trend, thus it is important to understand its potential impact on student success. Literature pertaining to this topic has implications for PA programs and students, as well as the healthcare community at large.

Impact on Student Success

PA programs are required to prepare students for the competencies of the PA profession (ARC-PA, 2016; AAPA et al., 2012). Providing students with experiences that develop their self-efficacy in these areas is crucial, as their confidence in professional competencies can result in greater ability to perform successfully in difficult and/or

stressful work situations (Lent, Brown, & Hackett, 1994; Stajkovic & Luthans, 2002). Clinical rotation experiences in a variety of discipline areas serve as a platform for students to develop their self-efficacy through enactive mastery experiences, vicarious experiences, verbal persuasion, and optimal physiological states (Bandura, 1986; Goldenberg, Iwasiw, & MacMaster, 1997; Spence Laschinger, McWilliam, & Weston, 1999). The role of the preceptor, which includes the responsibilities to supervise, teach, model, and provide feedback (PAEA, 2012), serves as the primary information source for the development of student self-efficacy. Thus, the quality of the clinical experience provided to the student, including the preceptor's fulfillment of role responsibilities, may have an impact on how well self-efficacy is developed. However, to provide clinical rotations, PA programs are confined by healthcare providers' willingness to teach students. Though many providers believe precepting should be an altruistic act (e.g., Glavaz et al., 2014; Latessa, Colvin, Beaty, Steiner, & Pathman, 2013), extrinsic motivators, such as compensation, are becoming more desired and/or accepted (e.g., Germano, Schorn, Phillippi, & Schuiling, 2014; Ryan, Vanderbilt, Lewis, & Madden, 2013). In addition to serving as a preceptor recruitment practice, there is some indication that paying preceptors results in improved clinical experience quality (Ashar et al., 2007; Barone et al., 2012), and thus, perhaps self-efficacy.

Impact on Healthcare Workforce Diversity and Access to Care

PA programs incur a significant financial burden to provide payment for clinical rotations (Glavaz et al., 2014; PAEA, 2017b). Of the PA programs that currently pay for clinical sites, nearly half allocate between 16-20% of their budgets toward this cost (Glavaz et al., 2014). In the 2015-2016 fiscal year, the average amount spent on clinical

rotations was more than \$192,000 for each program (PAEA, 2017b). This increase in program spending is especially significant during a time when many higher education institutions are facing budget cuts and may not have funding to invest in new initiatives as substantial as clinical rotation compensation (Mitchell, Leachman, & Masterson, 2017; The National Association of State Budget Officers, 2017). Additionally, the impact of clinical site compensation on student tuition and fees is immense, as up to 40% of paying PA programs pass the cost of clinical rotation payments on to the students through increased tuition and/or fees (Glavaz et al., 2014). These additional educational costs are on top of an already expensive investment for students, as the average total tuition for a PA education is \$83,655 (PAEA, 2017b).

High educational costs are especially detrimental to the diversification of the healthcare workforce, as increased costs create significant entry barriers to healthcare professions for students of color¹ (Agrawal, Vlaicu, & Carrasquillo, 2005; DiBaise, Salisbury, Hertelendy, & Muma, 2015; Sullivan, 2004) and students from rural areas (Woloschuk, Lemay, & Wright, 2010). The PA profession should be particularly attentive to these matters, as students of color are already underrepresented in the health professions (Sullivan, 2004). In 2016 only 7.4% of PA graduates were students of color (PAEA, 2017b). For comparison, approximately 20% of medical school graduates in

¹ For the purposes of the present study, the term ‘students of color’ is used to describe students who identify with racial and ethnic groups that are underrepresented in healthcare professions compared to their proportion in the general United States population. ‘Students of color’ are those who self-identify with the following racial and/or ethnic groups: Black/African American, Hispanic/Latino, American Indian/Native American, Native Hawaiian, and/or Pacific Islander.

2016-2017 were students of color (AAMC, 2017). A diversified healthcare workforce has significant benefits to patient care because the aforementioned subgroups of students are more likely to practice in medically underserved areas (Institute of Medicine, 2004; Muma, Kelley, & Lies, 2010). Additionally, because a racially diverse healthcare workforce strengthens cultural competence of all providers (Sullivan, 2004), the quality of care provided throughout the entire healthcare system may be diminished if the PA workforce is less diverse. Thus, the practice of compensating for PA clinical rotations reaches far beyond a program itself. With implications as significant as these, PA programs must be able to make decisions about clinical site compensation with as much research as possible (Glavaz et al., 2014).

Impact on PA Education Administration

As a PA program administrator, I have personal interest, as well as expertise in the topic of this study. My PA program does not pay for clinical rotations, yet if we made the decision to pursue this practice, our professional ethics, work process, and budgetary constraints would all need to be considered. My program endures the same challenges PA programs nationally are facing to recruit and retain quality preceptors, yet operates with the ideological stance that precepting should be an altruistic act (as further outlined in Chapter 2). Thus, deciding to pay for clinical rotations goes against the professional ethics of our PA faculty and administration. Additionally, the implementation and administration of this practice creates additional work and process for programs. This practice would require the development of a strategic payment model, in which we would need to decide if we would pay all sites and preceptors or only some, and identification of which criteria would qualify a site and/or preceptor for payment. After initial

implementation, increased administrative work would be required to manage the on-going payment and auditing of compensation qualification. Lastly, my program, college, institution, and university system are currently operating under tighter budget models. Even day-to-day operating expenditures must be made with care, so new programming that would potentially increase our budget by 20% seems impossible. Thus, to implement a practice as significant as clinical rotation compensation for my own program I would need compelling research that supports the benefit to the program and PA profession.

This study is the first of its kind in PA education and may provide foundational literature to assist PA programs in making research-based decisions about clinical rotation compensation. Specifically, if paying for clinical rotations has a positive impact on PA student success, beyond benefiting just clinical rotation recruitment efforts, then this initiative may be worth pursuing.

Theoretical Framework

Two theoretical frameworks helped guide this study. Birnbaum's (1988) models of organizational functioning assisted in explaining why PA programs may choose to pay or not pay for clinical rotations. The work of Bandura (1986, 1997) provided understanding as to why it is important for PA students to feel efficacious in the competencies of the PA profession and how clinical rotations serve as information sources for self-efficacy development. The next section briefly examines these two frameworks.

The recent increase in the number of health professions schools that pay for clinical rotations is partly explained by external pressures from other programs (Anthony et al., 2014; Erikson et al., 2013; Glavaz et al., 2014), as well as a program's ideological

stance on the value compensation places on the role of preceptor (Anthony et al., 2014). To further explore why some programs may pay or not pay, an organizational theory lens was used in the present study. Birbaum's (1988) models of organizational functioning helped explain why institutions make certain decisions. Specifically, the collegial and bureaucratic models were considered in this study. Based on the characteristics of these two models, PA programs that do not pay for clinical rotations are best aligned with the collegial model and paying programs are best aligned with the bureaucratic model. Collegiums place strong value on teaching as service, thus PA programs that do not pay for clinical rotations best fit this model because they believe precepting should be an act of service to the profession (Glavaz et al., 2014). Alternatively, bureaucratic models value expertise-merit and the ability to link resources with objectives (Birnbaum, 1988). Paying programs best fit this model because payment places value on precepting (Anthony et al., 2014; Germano et al., 2014) and it provides programs greater opportunity to better standardize rotation experiences (PAEA, 2013). The collegium of PA education programs may have broken down due to the recent growth of new PA programs (ARC-PA, 2017; PAEA, 2014), increased competition for clinical sites, and the changes in values regarding clinical rotation compensation.

Self-efficacy, or an individual's confidence to complete a specific task, is a dynamic characteristic that enables individuals to be successful and persevere in difficult situations (Bandura, 1986, 1997). As previously mentioned, PA student self-efficacy in the PA professional competencies serves as an important measure of success. This is because stronger efficacy may result in greater performance as a PA, specifically in highly stressful situations (Lent et al., 1994; Stajkovic & Luthans, 2002). PA programs

have the opportunity to develop student self-efficacy through clinical rotations, as these experiences can offer students all four information sources of self-efficacy development, which include enactive mastery experiences, vicarious experiences, verbal persuasion, and environments for optimal physiological states (Bandura, 1986; Goldenberg et al., 1997; Spence Laschinger et al., 1999).

Purpose Statement

The purpose of this non-experimental, quantitative study was to contribute to the knowledge base by determining if there are differences in self-efficacy and quality of clinical education for PA students who attend programs that pay for clinical rotations and their peers attending non-paying programs. Additionally, it examined the potential predictive relationship of program payment status and clinical education quality to self-efficacy, after controlling for student and institutional characteristics. The theoretical work of Bandura (1986, 1997) and Birnbaum (1988), as well as work motivation literature (Lent et al., 1994; Stajkovic & Luthans, 2002), measures of PA student success (Accreditation Review Commission on Education for the Physician Assistant, Inc., 2016), and research pertaining to outcomes of clinical rotation payment in medical education (Ashar et al., 2007; Barone et al., 2012) were used to guide the variables investigated and development of research questions and hypotheses in the present study.

Research Questions

This study utilized a national data set to explore the relationship between clinical rotation compensation and PA student success. The research questions for this study included the following:

- 1) How does self-efficacy differ between students attending PA programs that pay for clinical rotations and students attending non-paying programs?
- 2) How does perception of clinical education quality differ between students attending PA programs that pay for clinical rotations and students attending non-paying programs?
- 3) How does students' perceived quality of clinical education and their program's rotation compensation status predict self-efficacy?

To answer these research questions, this study used data from two national, multi-institutional surveys, the Annual Program Survey and End of Program Student Survey, administered by PAEA (2016a, 2016b). The Annual Program Survey is a cross-sectional instrument that has been administered annually since 1984 to gather data pertaining to PA program administration, personnel, and students (PAEA, 2017d). The program survey is administered each summer to accredited PA program members (PAEA, 2017e) to collect data pertaining to the previous academic and fiscal years and is the only national instrument that seeks information about PA programs' compensation for clinical rotations. Data representing the 2015-2016 academic and fiscal years was used to identify whether students attended PA programs that pay or do not pay for clinical rotations, as well as other institutional characteristics (PAEA, 2016a). The End of Program Student Survey is administered to PA students at the end of their program to help evaluate and improve PA education programs and is the only comprehensive national survey pertaining to PA students' perceptions of their education (PAEA, 2016b). Data from this survey represents information pertaining to 2016 PA graduation candidates and provided

variables pertaining to student self-efficacy, perception of education quality, and student demographics.

To investigate the potential differences between students who attend paying and non-paying programs, specific to self-efficacy and perceived clinical education quality, t-tests and one-way ANOVA were used to answer research questions 1 and 2. Multiple linear regression was used to investigate the potential combined relationship of clinical rotation payment (research question 3), quality of clinical education, self-efficacy, and student and institutional variables.

Definition of Terms

This section provides a definition of terms used throughout the proposal. These terms were selected to provide operational context to the author's voice and to clarify definitions for readers, especially those not familiar with the PA profession and/or health professions education.

Physician Assistant

A physician assistant (PA) is a nationally certified and state licensed healthcare provider that can diagnose, treat, and prescribe medication on a healthcare team with physicians and other healthcare providers (AAPA, 2017). Professional competencies for PAs include the effective and appropriate application of medical knowledge, interpersonal and communication skills, patient care, professionalism, practice-based learning and improvement, and systems-based practice (AAPA, ARC-PA, PAEA, & NCCPA, 2012). A PA is trained at an accredited PA education program in general medicine, but may also practice in a multitude of specialty areas.

PA Education Program

A PA education program (PA program) provides a curriculum that trains students to become entry-level PAs and is accredited by the ARC-PA (2016). Nearly 96% of PA education programs offer a graduate degree, although some offer baccalaureate or associate degrees (PAEA, 2017d), and require students to have already completed a pre-medical core of undergraduate classes (ARC-PA, 2016). Per accreditation standards, all accredited PA education programs will be required to award a graduate degree to any student that matriculates after 2020 (ARC-PA, 2016). For the purpose of this proposed study, PA education programs will refer only to those that offer students a graduate degree and do not include post-graduate or pre-training PA programs.

PA Student

A PA student is an individual actively enrolled in an accredited PA education program.

Clinical Rotations

Clinical rotations are clinic-based educational experiences that allow students to gain practical experience with patients under the guidance of preceptors. The ARC-PA (2016) refers to clinical rotations as Supervised Clinical Practice Experiences (SCPEs) and mandates that PA education programs provide experiences in the following disciplines: family medicine, internal medicine, pediatrics, women's health, behavioral medicine, general surgery, and emergency medicine.

Preceptor

A preceptor is a clinically practicing healthcare provider that serves as an instructor during a clinical rotation (PAEA, 2012). Preceptor responsibilities include

being the legal provider of care for any patient seen by a student, oversight of a student learner's behavior and practice, and academic assessment of a student's performance during the clinical rotation. The roles and responsibilities of preceptors vary based on the institution and degree of participation. Some preceptors may be appointed as faculty members of the PA education program's institution. The role of the preceptor is generally taken on as an act of professional service. This role is explored further in the literature review.

Clinical Rotation Compensation

Clinical rotation compensation is any form of financial payment provided by PA education programs for clinical rotation instruction. Compensation may be provided in varying models, which include: paying preceptors only; paying the clinical site or practice group only; a hybrid of paying both preceptors and the clinical site/practice group; paying for all clinical rotations; and paying for only some rotations. For the purpose of this study, all models of payment by PA education programs are defined as clinical rotation compensation.

Study Limitations

This study had several limitations. First, this study used secondary data which limits the type of data that can be used and may restrict how the data are released to the researcher (Frankfort-Nachmias & Nachmias, 2008). Second, although the analytic sample was found to be highly representative of the population, there is a potential for a response bias, as there was only a 41% response rate. Third, the survey instrument utilized a Likert scale to gauge student perceptions (PAEA, 2016b), which may not exactly represent a person's feelings regarding what is being asked (Frankfort-Nachmias

& Nachmias, 2008). Fourth, the use of self-efficacy as a measure has limitations both generally, as well as specific to health professions education (Bandura, 1986; Clack & Head, 1999; Gude et al., 2017; Lurie et al., 2007). Fifth, student academic measures, such as GPA, were not controlled for the present study, which may have some impact on student success measures (Astin, 1991; Pascarella, 1985) and self-efficacy development (Hsieh, Sullivan, & Guerra, 2007; Pavani & Agrawal, 2015). Additionally, there are limitations specific to the data analysis associated with the use of independent t-tests to answer research questions 1 and 2. For example, t-tests are designed to be used with random samples (Gall, Gall, & Borg, 2007), which this study did not utilize. However, researchers can use this method with caution if the sample is normally distributed or representative of the population (Gall et al., 2007). In particular, as the population of the survey is highly similar to the population overall, it should provide a good estimate of group differences.

Conclusion

This study sought to address the gap in literature regarding the practice of clinical site compensation in PA education and its potential impact on student success. I examined how a student's self-efficacy and perceived quality of clinical education are affected by attending a PA program that pays or does not pay for clinical rotations. Additionally, the combined effects of a student's school compensation status and clinical education quality on self-efficacy were examined. Chapter 1 provided an overview and justification for the study. Chapter 2 further expands on the foundation of this study by examining the current literature on preceptor culture in health professions education, the practice of paying for clinical rotations, and PA success measures. Additionally, the work

of Bandura (1986, 1997) and Birbaum (1988) are explored to provide a theoretical lens to the study. Chapter 3 provides detailed descriptions of the methodology used in this study. Chapter 4 reports the findings of the analyses described in Chapter 3. Finally, Chapter 5 places the results of the present study in the context of literature, offering implications for practice, and establishes suggestions for future research.

CHAPTER 2

LITERATURE REVIEW

The practice of compensating clinical sites to train physician assistant (PA) students has grown significantly in recent years. In the 2015-2016 academic year, 35% of programs paid for clinical rotations in some form (PAEA, 2017b), an increase of nearly 28% in eight years (PAEA, 2009). A key problem associated with this practice is the decision to pay for clinical rotations is based on the perceived competition for clinical sites with no understanding of the practice's benefit to PA student success. Literature pertaining to the practice of paying for clinical sites has focused primarily on the perception and practices of paying for clinical rotations, as well as potential plans for payment by PA programs (Erikson et al., 2013; Glavaz et al., 2014), yet the outcomes associated with paying for clinical rotations on PA student success have not yet been investigated resulting in a research gap surrounding this practice.

The significance of this problem is multi-faceted and creates a domino effect for PA programs, students, and the healthcare community. Payment for clinical sites is a significant financial burden to PA programs, which results in increased tuition and fees for students (Glavaz et al., 2014), and ultimately decreases the diversity of the healthcare workforce (Agrawal et al., 2005; DiBaise et al., 2015; Sullivan, 2004; Woloschuk, Lemay, & Wright, 2010) and access to care in underserved areas (Institute of Medicine, 2004; Muma, Kelley, & Lies, 2010). Thus, the practice of compensating for PA clinical rotations reaches far beyond a program itself.

PA programs are required to prepare students for the competencies of the PA profession (ARC-PA, 2016; AAPA et al., 2012) and providing students with experiences

that develop their self-efficacy in these areas is crucial to their performance as a PA (Stajkovic & Luthans, 2002). The role of the preceptor, which includes the responsibilities to supervise, teach, model, and provide feedback (PAEA, 2012) enables clinical rotations to serve as optimal experiences for student self-efficacy development (Bandura, 1986; Goldenberg et al., 1997; Spence Laschinger et al., 1999). Thus, the quality of the clinical experience provided to the student, including the preceptor's fulfillment of role responsibilities, may have an impact on how well self-efficacy is developed. However, students can only have these experiences if healthcare providers are willing to teach. Traditionally, precepting was viewed as an altruistic act (e.g., Glavaz et al., 2014; Latessa, Colvin, Beaty, Steiner, & Pathman, 2013), but extrinsic motivators, such as compensation, are becoming more desired and/or accepted (Germano et al., 2014; Ryan et al., 2013). In addition to serving as a preceptor recruitment practice, there is some indication that paying preceptors results in improved clinical experience quality (Ashar et al., 2007; Barone et al., 2012).

The purpose of this non-experimental, quantitative study was to investigate if compensation for PA clinical rotations is related to student self-efficacy and clinical education quality. The theoretical work of Bandura (1986, 1997) and Birnbaum (1988), as well as work motivation literature (Lent et al., 1994; Stajkovic & Luthans, 2002), measures of PA student success (ARC-PA, 2016), and research pertaining to outcomes of clinical rotation payment in medical education (Ashar et al., 2007; Barone et al., 2012) frame the argument and supplement the existing literature.

This chapter is designed to provide the reader with an understanding of PA education and literature pertinent to the purpose of this study. First, information

pertaining to preceptor culture in health professions education is provided with a brief overview of their qualifications and training. The second section provides the reader with rationale as to why preceptors have traditionally not been compensated for their teaching and why many in PA education do not find compensation for rotations to be a preferable practice. Third, the emerging trend of clinical rotation compensation in PA education is examined and provides the current status of this practice. The work of Birnbaum (1988) is presented in this section to understand the rationale for this practice through an organizational theory lens. Studies pertaining to the effects of rotation compensation in medical education generally are reviewed to provide an overview and synthesis of what has been investigated in other health profession education disciplines. The fourth section provides an overview of success measures in PA education to provide context to the present study and previous studies. Lastly, the construct of self-efficacy (Bandura, 1986, 1997), how it is developed, the role of clinical rotations in efficacy development, and why it is an important measure in health professions education is presented.

Preceptor Training in PA Education

As outlined in Chapter 1, preceptors are clinically practicing healthcare providers that serve as instructors during a clinical rotation (PAEA, 2012). Minimum qualifications and responsibilities of preceptors are mandated by accreditation standards (ARC-PA, 2016), yet training and advance responsibilities may be specific to each PA program. The PAEA offers resources for programs to assist in preparing preceptors and standardizing student experiences, such as the *Preceptor Orientation Handbook* (PAEA, 2012), but no formal training is required at a national level for PA preceptors. Per accreditation standards (ARC-PA, 2016), it is an individual PA program's responsibility to assess that

students are receiving clinical education experiences that meet the standards of the program and that preceptors are providing effective evaluation of student performance. Thus, the teaching qualifications of preceptors and clinical education experiences received by students may vary by preceptor and program.

Preceptor Culture in Health Professions Education

To understand why the emerging trend of clinical rotation compensation is such a radical shift in PA education, it is important to understand the preceptor culture across multiple health professions education disciplines and illuminate why preceptors have historically been motivated to train students in a volunteer capacity. This section provides a broad overview of preceptor motivation in health professions education, highlighting similarities across disciplines. First, intrinsic motivation for precepting is reviewed.

Intrinsic Motivation for Preceptors

Intrinsic motivation moves individuals to action simply because they find genuine interest and/or enjoyment in the act (Ryan & Deci, 2000). Multiple intrinsic motivators exist for preceptors, including professional stewardship, or desire to give back and/or support their profession, as well as professional development. Intrinsic motivators of preceptors are important to understand because they are the most cited factors affecting clinicians' decisions to precept health professions students and provide context to the long-standing culture of preceptors training as volunteers (e.g., Carlson, Pilhammar, & Wann-Hansson, 2010; Latessa et al., 2013; Ryan et al., 2013; Stone et al., 2002, among others). The majority of respondents in a multi-disciplinary survey reported intrinsic reasons as an important factor in their decision to become primary care preceptors for PA, medical, pharmacy, and nursing students (Latessa et al., 2013). Specifically, 'giving

back' to their profession was the most important reason to precept students. Additionally, Carlson and colleagues' (2010) indicated that preceptors value intrinsic benefits, such as personal satisfaction, more so than material benefits. These types of intrinsic benefits include professional stewardship, professional development, and personal fulfillment.

Professional stewardship. Professional stewardship, or the commitment to one's profession and/or specialty, is a commonly cited intrinsic motivator for preceptors (Foley, Yonke, Smith, Roe, & Vance, 1996; Germano et al., 2014; Glavaz et al., 2014; Peyser, Daily, Hudak, Railey, & Bosworth, 2014; Stone et al., 2002). Many preceptors feel a responsibility to be clinical educators because they want to 'give back' to their profession in the same way their own teachers did. According to Glavaz et al. (2014), "Many PAs believe that it is inherent in the profession that its members give back through educating the next generation of PAs, and that the roots of clinical precepting are a natural outflow from the profession itself" (p. 17).

The ethical standards for various health professions serve as an impetus for healthcare providers to precept students as a form of professional stewardship (Glavaz et al., 2014). Specific to the PA profession, the American Academy of Physician Assistants' (AAPA) (2013) *Guidelines for Ethical Conduct for the Physician Assistant Profession* outlines PAs' professional responsibility to "share knowledge and information with patients, other health professionals, students and the public" (p. 11). Specific to other healthcare disciplines, both the American Medical Association's (2001) *Principles of Medical Ethics* for physicians and the American Nurses' Association (2015) *Code of Ethics for Nurses* emphasize the importance of having a commitment to professional education and precepting. These examples of predetermined professional standards for

educating the future generation of healthcare providers are important in understanding why the culture of precepting is considered an act of service to one's profession.

Professional development. Professional development for preceptors in the form of increased leadership, teaching, and/or clinical skills is also valued as an intrinsic benefit of training students (Carlson et al., 2010; Chang, Douglas, Breen-Reid, Gueorguieva, & Fleming-Carroll, 2013; Foley et al., 1996). Three-fourths of physician preceptors in Foley et al.'s (1996) study agreed or strongly agreed that professional development was a reason they became a preceptor. Additionally, a respondent in Chang et al.'s (2013) study of pediatric acute care nursing preceptors indicated that precepting provides opportunity to develop leadership skills.

Personal fulfillment. Some preceptors also choose to train students because they have a passion for teaching and enjoy students (Foley et al., 1996; Fulkerson & Wang-Cheng, 1997; Peyser et al., 2014; I. Scott & Sazegar, 2006; Stone et al., 2002). Preceptors often enjoy the interaction with students and helping the future generation learn their profession (Fulkerson & Wang-Cheng, 1997; Peyser et al., 2014). Stone and colleagues' (2002) study of physician preceptors even suggests that the role of being a teacher is interwoven with the role as a physician. Precepting is not only a part of a healthcare provider's professional responsibility and identity, but is also an enjoyable benefit of their position (Foley et al., 1996; Fulkerson & Wang-Cheng, 1997; Peyser et al., 2014; I. Scott & Sazegar, 2006; Stone et al., 2002).

As outlined in this section, intrinsic benefits of precepting support why many healthcare providers are motivated to train students in a volunteer capacity and provide rationale as to why compensation has not traditionally been provided. Yet, this does not

imply that preceptors do not also benefit from and/or expect extrinsic benefits, including financial compensation. The following section examines these extrinsic motivators of preceptors.

Extrinsic Motivation for Preceptors

Intrinsic reasons are the strongest motivators for preceptors to train students, yet preceptors also identify several extrinsic benefits of training students (e.g. Germano et al., 2014; Latessa et al., 2013; Ryan et al., 2013, among others). Extrinsic motivation moves individuals to take action when they seek to attain a specific outcome from the situation (Ryan & Deci, 2000). For the purpose of this literature review, extrinsic benefits are defined as tangible benefits that a preceptor receives for their role as a clinical teacher. The most important extrinsic benefits provide the preceptor with avenues to foster his or her professional and/or academic career (Fields, Usatine, Stearns, Toffler, & Vinson, 1998; Foley et al., 1996; Germano et al., 2014; Latessa et al., 2013; Ryan et al., 2013; Stone et al., 2002). In addition, financial compensation is also a benefit that motivates some preceptors (Germano et al., 2014; Latessa et al., 2013; M. S. Ryan et al., 2013) .

Career enhancements. Precepting can provide health care professionals with avenues to enhance their professional status, including the opportunity to participate in Continuing Medical Education (CME) activities and an increased likelihood of securing faculty appointments with the institution they are precepting for. Several studies have found that preceptors identify the opportunity to gain CME credit, which is required for the continuation of practice certification and/or licensure, as a commonly cited extrinsic benefit of training students (Foley et al., 1996; Latessa et al., 2013; M. S. Ryan et al., 2013). A faculty appointment from the education program's institution is also important

to many preceptors, as this appointment officially designates the preceptor's role within the institution, may enhance the preceptor's professional and/or academic status (Foley et al., 1996), and may be accompanied by university benefits (Ashar et al., 2007; Fields et al., 1998; Latessa et al., 2013). Such desirable university benefits include faculty development opportunities, such as teaching seminars (Foley et al., 1996; Stone et al., 2002), and access to university library resources (Latessa et al., 2013). These examples suggest why the extrinsic benefit of enhancing one's professional status may serve as an incentive to precept students.

Financial compensation. In addition to extrinsic benefits that enhance professional status, some preceptors feel that financial compensation is an important benefit of training students (Germano et al., 2014; Latessa et al., 2013; Ryan et al., 2013). Latessa et al. (2013) found that financial compensation is one of the most highly-valued incentives for physician, pharmacist, advance practice nurse, and PA preceptors. Germano et al. (2014) found that midwife preceptors feel that in addition to off-setting lost time and billable services in the clinic, receiving financial compensation implies that they are valued and are being treated fairly. Less than 1% of midwife preceptors identified lack of financial compensation as a barrier to accepting students, yet the importance of being paid to precept was the most frequently mentioned theme in the open-ended, qualitative survey question (Germano et al., 2014). While preceptors across many disciplines do not routinely expect financial compensation and its absence may not prevent some from continuing to train, payment is often welcomed and appreciated.

Financial compensation for clinical rotations may also serve as a method to increase PA programs' ability to recruit clinical sites and preceptors. Although many

preceptors will continue to precept without financial compensation (Germano et al., 2014), there are certainly current, past, and/or potential preceptors who will not train without compensation. Results from a study undertaken by Ryan and colleagues (2013) indicate that inactive preceptors showed a preference for financial compensation as opposed to active preceptors, although both groups found intrinsic motivators most important. Ryan et al.'s study sheds new light on how healthcare providers view compensation for precepting because the perceptions of both current and former preceptors were analyzed, which has not been done in other studies. Their findings suggest that financial compensation for clinical rotations may serve as a successful preceptor recruitment tool and provide rationale for why many PA programs are beginning to compensate for clinical rotations. The next section examines this practice specifically.

Clinical Rotation Compensation in Health Professions Education

The culture of health professions education has not historically supported financial compensation for preceptors (Erikson et al., 2013; Glavaz et al., 2014). Rationale for this practice is multi-faceted and varies by institution and program discipline. The majority of schools that do not pay preceptors indicate that they cannot afford to do so (Anthony et al., 2014; Erikson et al., 2013; Glavaz et al., 2014). However, Anthony et al. (2014) also found that nearly half of family medicine clerkship directors who did not pay preceptors did so simply because they did not need to in order to secure adequate quantity and quality of preceptors. Also, some programs report that their institutions have policies/regulations that prevent them from paying preceptors (Erikson et al., 2013). Other reasons for not paying include the lack of equity standards available,

the potential for bidding wars between schools, and the belief that precepting should be an altruistic act (Glavaz et al., 2014). In a study undertaken by Glavaz et al. (2014), 91% of PA program directors responded that preceptors should train to give back to the profession and should not expect financial compensation. According to a PA program director, "A future in which paying sites is the norm has the potential to change the very culture of PA education. Relationships between PA programs and clinical sites, which form the backbone of clinical education, may become based on economics rather than altruism" (Glavaz et al., 2014, p. 19). Thus, the reasons programs may not pay for clinical rotations range from constraints of the school, market demands, and ideologies about the preceptor role.

Although not yet the norm, paying preceptors is becoming more popular and is an increasingly important factor for recruiting and retaining preceptors (Anthony et al., 2014; Carlson et al., 2010; Erikson et al., 2013; Latessa et al., 2013; Ryan et al., 2013). A 2013 (Erikson et al.) multi-disciplinary study regarding clinical training sites indicated that at the time the survey was administered between 4% and 20% of PA programs, allopathic medical schools (MD schools), and advanced practice nursing programs (APN programs) were paying for community-based clinical training experiences. Osteopathic medical schools (DO schools) were an outlier in this study, reporting a much greater percentage of schools that were paying for clinical training sites (70%). DO schools may have been an outlier because they reported greater pressure to pay than did other disciplines and reported greater competition with other disciplines for clinical sites than did MD, PA, and APN programs. However, overall, this report indicates that most health professions education programs are not paying preceptors. Anthony et al. (2014) reported

similar findings regarding family medicine rotations for MD schools, in that only 23% paid their preceptors. Further, in a study of factors that influence midwives to precept, only 37.8% of respondents indicated they are financially compensated for their training of midwifery students (Germano et al., 2014). Thus, although the majority of health professions programs are not paying for clinical rotations, the practice is by no means uncommon.

Clinical Rotation Compensation in PA Education

Of specific importance to this study is the recent increase in the number of PA education programs that pay for clinical rotations. In 2009, the Annual Program Survey (PAEA) first collected data pertaining to PA programs' practice of compensating clinical rotations. At that time, only 7.9% of PA programs reported paying for clinical rotations. Fewer than 10 years later, 35% of PA education programs reported paying for clinical rotations (PAEA, 2017b). The increasing practice of clinical rotation compensation in PA education mirrors what is happening in other health professions education programs, such as medicine and nursing (Erikson et al., 2013).

Factors Leading to Increasing Clinical Rotation Payment

The norm in most health professions education programs is to not compensate for clinical rotations (Anthony et al., 2014; Erikson et al., 2013; Germano et al., 2014), but ideologies and external pressures may be shifting this practice. Both health professions schools and preceptors are changing their perception about financial compensation for preceptors and/or clinical sites (Anthony et al., 2014; Erikson et al., 2013; Germano et al., 2014; Glavaz et al., 2014; Latessa et al., 2013). Many schools that do not currently pay preceptors indicate that they would if they could (Anthony et al., 2014) or feel they will

be pressured to pay in upcoming years (Anthony et al., 2014; Erikson et al., 2013; Glavaz et al., 2014). Latessa et al. (2013) found an increased importance on financial compensation by preceptors in their 2011 survey compared to their 2005 survey, including an overall increase in what is considered a fair compensation amount for precepting. This indicates a shift in the culture that is occurring due to the importance of recruiting and maintaining quality clinical sites, competition from other programs, and changes in ideology about the preceptor role.

External pressures. Health professions programs have recently felt more pressure to compete with other schools for clinical sites (Anthony et al., 2014; Erikson et al., 2013). Between 58-93% of DO, MD, PA, and APN programs felt moderate to extremely high pressure to increase or begin using financial compensation for preceptors, especially when it pertained to recruiting new clinical sites (Erikson et al., 2013). Naturally, pressure is greater when other programs in the area are paying for rotations (Anthony et al., 2014; Glavaz et al., 2014). More than half of MD family medicine clerkships that pay preceptors are in the New England and South Atlantic regions (Anthony et al., 2014). In a survey of PA program directors, 70% reported pressure to pay if they believed other programs in their area were paying (Glavaz et al., 2014). The geographic grouping of paying programs suggests that program proximity to competing programs, especially if they pay for clinical rotations, may increase the pressure to pay in those areas. Additionally, of family medicine clerkships that reported paying preceptors, 63% indicated that their preceptors receive payment for teaching learners from other programs, whereas only 32% of non-paying programs reported the same indicating the external pressure to pay if other programs are paying (Anthony et al., 2014).

Differing ideologies. In addition to the external pressures to compensate preceptors, a philosophical difference often exists between those programs that provide financial compensation and those that do not (Anthony et al., 2014). Compensating programs believe more strongly than non-compensating programs that payment places positive value on teaching and aids in recruitment and retention of quality sites. This echoes sentiments by preceptors that believe compensation for clinical teaching makes them feel like they are not being taken advantage of (Germano et al., 2014).

Models of Organizational Functioning

To further explore why some PA programs choose to pay for clinical rotations and other do not, one must consider an organization theory lens. Birnbaum's (1988) models of organizational functioning provide a framework to understand why institutions make certain decisions, and to some extent, predict how institutions will make decisions based on their campus culture. Four models of institutional functioning are presented in Birnbaum's work: collegial, bureaucratic, political, and anarchical. Although no institution fits perfectly into any one model, nor allows for every institutional variable to be considered, the model is used as a lens for which to focus on specific aspects of an institution. Based on the characteristics of the models, PA programs that do not pay for clinical rotations best fit into the collegial model and programs that do pay best fit into the bureaucratic model. These two models, and the rationale for why the respective program types fit each, are explained next.

Collegial Model. Collegial institutions, or collegiums, are often smaller communities in which there is little hierarchical structure and all voices are heard (Birnbaum, 1988). Collegiums value teaching as service and consider the success of its

students to be an important reflection on the academic community. Collegiums often work best within a small environment (e.g. for colleges, these are often small liberal arts institutions) where close face-to-face contact is available. As collegial models grow in size, sub-collegiums may develop or the collegium model may no longer work for the culture.

In context to PA education and clinical rotation compensation, PA programs that do not pay for clinical rotations fit the collegium model primarily based on the ideology that precepting should be an act of service to the profession. This is evidenced by results of a national survey of PA program directors in which 91% of respondents indicated that preceptors should train to give back to the profession without the expectation of compensation and 69% indicated that paying for clinical rotations is not an acceptable practice (Glavaz et al., 2014). This suggests that the community of PA programs as a whole traditionally acted as a collegial model and valued precepting as an act of service to the profession; it was expected that this is how things should be done. According to Birnbaum (1988), as a group interacts and develops common values, expectations about what is to be done in specific situations are known. In the case of PA education, it was previously unheard of that programs would compensate for clinical rotations. The change in values regarding clinical rotation compensation may in part be due to the recent growth in PA education programs (ARC-PA, 2017; PAEA, 2014). Since the 2012-2013 academic year, the number of PA programs has increased by more than 32%. With increased competition for clinical sites, external pressures, and changes in the value of compensation, the collegium of PA education may have broken down and programs began moving towards a bureaucratic model.

Bureaucratic Model. Bureaucratic models value decisions that are efficient, goal-oriented, and precise (Birnbaum, 1988). “Bureaucratic structures are established to efficiently relate organizational programs to the achievement of specified goals. When behavior is standardized, the activities and processes of organizations are made more predictable, so that the organization can become more efficient and effective” (Birnbaum, 1988, p. 107). Another characteristic of bureaucratic models is the value placed on expertise-based merit (Birnbaum, 1988).

In the context of PA education and clinical rotation compensation, PA programs that pay for clinical rotations best fit the bureaucratic model primarily based on the values of expertise-based merit (Birnbaum, 1988). Health professions programs that compensate for clinical rotations indicate that financial compensation places value on the time and teaching that preceptors give to students (Anthony et al., 2014; Germano et al., 2014). Additionally, bureaucratic models consciously attempt to link resources with objectives (Birnbaum, 1988). To ensure quality patient care, PA programs face increasing pressure to provide the 'gold standard' of education to their students (PAEA, 2013). Clinical rotation compensation provides programs a greater opportunity for standardization across rotations because they can set greater accountability standards for preceptors and clinical sites, thus helping programs meet their assessment objectives to train competent graduates. With an increasing amount of PA education programs, programs may have moved to a bureaucratic model to ensure that students are receiving adequate training to meet the standards of the progression.

Compensation Effects on Outcomes in Medical Education

Literature pertaining to clinical rotation compensation has focused on the implementation and perception of the practice (Erikson et al., 2013; Glavaz et al., 2014), but has not provided evidence of potential impact of clinical rotation compensation on PA student success. Further, the availability of literature pertaining to the effects of clinical rotation compensation on outcomes in health professions education is also limited. The search for this literature review yielded two studies, both in medical education, that were specific to the topic (Ashar et al., 2007; Barone et al., 2012). Ashar et al. (2007) examined the effects of compensation on perceived quality of education and instruction. Barone et al. (2012) examined the effects of a new preceptor program structure, that included faculty compensation, on perceived quality of education and instruction, as well as student clinical subject exam scores. It is important to note, that although these studies are older, published 5-10 years ago, they are seminal to the proposed study due to the limited research available. This section provides a synthesis of these studies by outcome type and what can be drawn from the literature to influence this proposed study.

Clinical education quality. Ashar et al.'s (2007) work was the first in the literature to study the impact of clinical teacher compensation on medical education outcomes. In their post hoc quantitative study, the authors analyzed students' evaluations of a clinical assessment course during consecutive years; in the first year the preceptors were volunteers and in the second year preceptors were compensated. Multivariable regression analysis was used to identify factors independently associated with higher evaluation scores of preceptors. Analysis found that medical student preceptors who were

financially compensated received higher scores from students than those who were not compensated. Additionally, findings indicate that faculty who taught in both sections received similar scores in each year, thus suggesting that compensation doesn't necessarily affect an individual's teaching, but may create an opportunity for a larger pool of qualified faculty. Some limitations in this study include the use of subjective student evaluations scores as a data source, as well as the use of only one institution, which limited generalizability.

In Barone et al.'s (2012) quantitative study, the authors analyzed the effects of a new inpatient medical student and resident preceptor program structure on evaluation scores by students and residents. Changes to the program structure included the creation of detailed job descriptions, setting clear expectations, and providing salary support for faculty inpatient attending physicians serving in educational roles. The authors reviewed de-identified evaluations by resident and medical students at the end of each rotation, with a pre-post study design that also reviewed evaluations from the year prior to the program changes and the two years after. There were significant increases in evaluation scores of faculty from the initial year to the compensation year. In the compensation year, residents were approximately twice as likely to rate their preceptors with a superior rating in categories including didactic teaching quality, clarity of expectations, and appeal as a role model, as compared to the baseline year. Similar to the findings in Ashar et al.'s (2007) study, Barone et al. (2012) suggest that compensation does not affect the performance of preceptors who had already been teaching, but may attract more qualified preceptors. When program changes, including compensation, were announced to faculty in Barone et al.'s (2012) study, the authors noticed an increase in the number of faculty

wanting to teach and were able to select preceptors with past teaching experience and excellence. It is important to note that Barone et al.'s (2012) work is based on an enhanced preceptor program for which preceptor compensation was just one component and it is unknown if compensation was a primary influence on increased evaluation scores. Both studies (Ashar et al., 2007; Barone et al., 2012) suggest that clinical rotation compensation increases the amount of healthcare providers who are willing to serve as preceptors, thus increasing the pool of qualified preceptors, ultimately resulting in greater quality of education and teaching.

Cognitive assessment. Barone et al.'s (2012) study also analyzed the potential effects of an enhanced preceptor program on student cognitive assessment outcomes as measured by the National Board of Medical Examiners clinical subject exam scores. Student clinical subject exam scores from before and after modifying the preceptor system were reviewed and the authors found no difference in scores between the initial and compensating years. This study suggests that clinical rotation compensation may not have an effect on the cognitive assessment outcomes of students.

There is limited literature studying the effects of clinical rotation compensation and outcomes. Yet, it can be suggested that from the available research that clinical rotation compensation positively effects student perception of quality of clinical education, but has no effect student cognitive outcomes.

PA Education Success Measures

Ashar et al.'s (2007) and Barone et al.'s (2012) research used clinical education quality and cognitive assessment as measures in their studies, implying the significance of the these assessments to the success of medical students and schools. The next section

outlines which success measures, in addition to clinical education quality and cognitive outcomes, are significant in PA education. The accreditation standards for PA education programs are the minimum required guidelines for which programs must adhere to when preparing students for the professional competencies of the PA profession (ARC-PA, 2016). PA programs must provide students with an adequate amount of qualified faculty and staff, a robust didactic curriculum, and clinical experiences in a variety of disciplines and specialties, among other criteria. The standards require that learning and program outcomes be developed to prepare students for professional practice based on the mission and goals of the program, and at minimum, be assessed by the ARC-PA defined success measures. The measures required by ARC-PA accreditation standards assess quality of education and teaching, and student academic success.

To assess outcomes pertaining to quality of education and teaching, PA programs are minimally required to report and analyze the following: student evaluations of courses, clinical rotations, and faculty; program graduates' evaluation of education and program; sufficiency and effectiveness of faculty; and faculty and staff attrition (ARC-PA, 2016). To assess outcomes pertaining to student progression and academic success, PA programs are minimally required to report and analyze the following pertaining to students: failure rates; remediation; attrition; preparedness for clinical rotations; and certification exam pass rates.

Self-Efficacy

The primary objective of PA programs is to prepare students in the competencies of the PA profession, as assessed by minimum assessment measures (ARC-PA, 2016). Yet, additional variables may also serve as measures of PA student success. The present

study in part is informed by the theoretical work of Bandura (1986, 1997). Specifically, the construct of self-efficacy provides a lens for understanding why the strength of a PA student's confidence serves as an important measure of PA student success. This section provides the reader with a definition of the construct, the methods of developing self-efficacy, and an overview of literature surrounding self-efficacy, specifically focused on health professions education, higher education, and work production/motivation.

The construct of self-efficacy refers to one's belief in his or her ability to accomplish and succeed in certain tasks (Bandura, 1986). Self-efficacy is not a trait, such as self-esteem, that explains an encompassing feeling about one's overall confidence, rather self-efficacy is an individual's confidence in their ability to successfully achieve a certain task under a variety of circumstances. It is a dynamic trait that can change based on interaction with other individuals, behaviors, and contextual factors, which differs from global confidence and self-esteem, as the latter are considered static characteristics. It is vital to understand self-efficacy in relation to human behavior, as it plays a major role in how individuals pursue action, persist in difficult times, and handle stress.

According to Bandura (1997):

People's beliefs in their efficacy have diverse effects. Such beliefs influence the courses of action people choose to pursue, how much effort they put forth in given endeavors, how long they will persevere in the face of obstacles and failures, their resilience to adversity, whether their thought patterns are self-hindering or self-aiding, how much stress and depression they experience in coping with taxing environmental demands, and the level of accomplishments they realize. (p. 3)

Thus, self-efficacy enables individuals to succeed in certain tasks and persevere during difficult times making it one of the most influential aspects of self-knowledge in a person's everyday life (Bandura, 1986, 1997). As applied to PA education, a student's

self-efficacy in the competencies of the PA profession may indicate how successful he or she may be as a practicing PA.

Theoretical Approaches to Self-efficacy

To provide a broader understanding of self-efficacy and how it helps explain PA student success, it is important to understand self-efficacy's role within two theories: social cognitive theory (Bandura, 1986) and social cognitive career theory (Lent et al., 1994).

Social cognitive theory. Social cognitive theory (SCT) (Bandura, 1986) recognizes how persons, behavior, and environment mutually interact upon one another, a concept referred to as triadic reciprocity. These interactions are not always equal and may vary based on different activities. Unlike previous interaction models that imply behavior is a by-product of the person's interaction with their environment, triadic reciprocity implies that personal attributes, external environmental factors, and overt behavior affect one another bidirectionally. Self-efficacy's role within social cognitive theory provides understanding as to why an individual may have the knowledge and skills to achieve a certain act, yet does not perform optimally.

Social cognitive career theory. Lent et al.'s (1994) aim was to develop an integrated career development theory that utilized multiple theories and career models already in use. "Social cognitive career theory (SCCT) seeks to explain three interrelated aspects of career development: 1. how basic academic and career interests develop, 2. how educational and career choices are made, and 3. how academic and career success is obtained" (Lent, Hackett, & Brown, 2008, p. 1628). Derived primarily from Bandura's (1986) social cognitive theory, the authors focused on the variables of self-efficacy,

expected outcomes, and goal mechanisms and how each interrelate with other personal, contextual, and experiential/learning factors (Bandura, 1986; Lent et al., 1994; Lent, Brown, & Hackett, 2000; Lent et al., 2008).

Lent et al. (1994) specifically outline the aspects of triadic reciprocity and the social cognitive mechanisms of self-efficacy, outcome expectation, and goal representations as key components of social cognitive theory that may suggest explanations for career behavior. Three models are included in social cognitive career theory to suggest reasons for career interest, choice, and performance (Lent et al., 1994). The performance model is of particular relevance to this study.

The performance model focuses on how individuals succeed in career-related pursuits and how they persist when setbacks in their endeavors occur (Lent et al., 1994, 2008). It is suggested that individuals with higher self-efficacy and positive outcome goals are more likely to utilize their ability and be successful in challenging situations. The performance model of SCCT is also supported by self-efficacy literature pertaining to work motivation (Stajkovic & Luthans, 2002). This work outlined how social cognitive theory and self-efficacy contributes to the understanding of work motivation. The authors (Stajkovic & Luthans, 2002) indicate, “We would argue that self-efficacy has formidable predictive powers and thus carries a number of important implications for motivating human performance in today’s organizations” (p. 130).

Of significant importance to this proposed study is that highly perceived self-efficacy is valuable towards the successful completion of learned skills during stressful situations (Bandura, 1986, 1997), especially in a workplace situation (Lent et al., 1994; Stajkovic & Luthans, 2002). In a high-pressure environment such as healthcare, it is

crucial that PAs possess the self-efficacy to persist during difficult times for the sake of patient safety. This supports the use of PA students' self-efficacy in the competencies of the PA profession as a measure of PA student success. It follows that PA students with strong self-efficacy have a greater chance of successfully achieving the skills of the profession while enduring high pressure and challenging situations than those with weak self-efficacy.

Self-Efficacy Development

To provide context as to how PA student self-efficacy can be developed, the next section outlines the information and experiences that serve as sources of individual's self-efficacy development. Self-efficacy is developed through information, both external and internal, that an individual receives, experiences, weighs, and finally integrates into self-efficacy judgments (Bandura, 1997). PA clinical rotation experiences are strong sources of efficacy development, as they can provide students with all four efficacy information sources. The next sections provide an overview of the four sources of self-efficacy information: enactive mastery experience, vicarious experience, verbal persuasion, and physiological and affective states.

Enactive mastery experience. Enactive mastery experiences serve as indicators of capability and are considered the most influential source of self-efficacy development (Bandura, 1986, 1997). This source of information includes experiences in which an individual successfully executes a task or skill and is able to develop confidence in the activity. Yet, not all experiences have equivalent impact on perceptions of efficacy. Enactive mastery experiences are defined by the difficulty of the task, how much independence the individual had in completing the task and the individual's success

history in the task. Thus, to optimally develop self-efficacy through an enactive mastery experience, the individual should be able to successfully accomplish a difficult task with minimal effort and assistance. For example, PA students may develop efficacy through rotations by gaining mastery in advanced-level skills under the supervision of their preceptor.

Vicarious experience. Vicarious experiences, also known as modeling or mirror experiences, are those in which an individual observes another person successfully completing a task and alters their efficacy beliefs through the attainments of others (Bandura, 1986, 1997). This information source is most influential on individuals who have limited experience to base their confidence on (Bandura, 1986), such as PA students in clinical rotation experiences. In addition, characteristics of the ‘model’ are also influential. Vicarious experiences provide the greatest impact when the person modeling the behavior is perceived to be of similar or slightly higher ability or if the model is a superior performer worthy of modeling, such as a PA preceptor. Additionally, the most effective modeling performances demonstrate predictability in the task, thus preparing the individual to cope in future situations when threats arise.

Verbal persuasion. Verbal persuasion is characterized as expert feedback on a given task (Bandura, 1986, 1997). Feedback is an important source of efficacy development because individuals cannot rely solely on their own judgment and have confidence in other’s opinions. Verbal persuasion has the greatest effect on those who already believe they can be successful through their actions (Bandura, 1986).

Additionally, verbal persuasion is the most effective in developing efficacy when the

feedback is ongoing and provided by someone considered to be an expert in the skill being evaluated, for example, from a preceptor through the duration of a clinical rotation.

Physiological arousal. An individual's physiological state also has an impact on self-efficacy (Bandura, 1986, 1997). A state of fear and/or anxiety can perpetuate negative feelings and decrease one's percepts of efficacy. In optimal situations, a person's physiological arousal should be moderate; otherwise deployment of skills can be disrupted (Bandura, 1986). A non-threatening and supportive rotation environment may provide a PA student optimal conditions for stable physiological states and increased efficacy development.

It is important to note that the aforementioned sources of information only enhance an individual's perceived efficacy when cognitive processing allows for development to occur (Bandura, 1986). The weighing, evaluating, and processing of environmental, personal, and cognitive factors ultimately affect how efficacy judgments are developed.

Clinical Rotations as Sources of Self-Efficacy

The previous section provided an overview of how, and under what circumstances, self-efficacy can develop and made connections to how the information sources of self-efficacy development may be present in PA clinical rotation experiences. The next section provides a review of literature pertaining to clinical rotations in health professions education and demonstrates how these experiences develop student self-efficacy.

Goldenberg, Iwasiw, and MacMaster's (1997) descriptive, pre/post-test design study investigated the effects of clinical rotation experiences of both student and

preceptor self-efficacy in a nursing preceptorship program. For the purpose of this literature review, only results of the student sample will be provided. A voluntary, non-probability sample was utilized and resulted in a total sample size of n=23. Students were asked to rate their self-efficacy on 52 behaviors based on terminal objectives of the nursing education program and the Position Statement on Baccalaureate Education in Nursing. Paired t-tests were used to analyze if differences existed between self-efficacy levels before and after the clinical rotation. Student self-efficacy increased significantly in each of the behavior sub-scales following the experience. Using a lens of Bandura's theory (1986, 1997), this study suggests that clinical rotation experiences provide students with sources of self-efficacy development. The authors outlined that clinical rotations provide vicarious experiences early on in clinical rotations and gradually develop efficacy through preceptor verbal persuasion, and finally through enactive mastery experiences. Limitations in this study included a small, voluntary sample size that did not allow for control of biases and limited generalizability.

Spence Laschinger, McWilliam, and Weston's (1999) exploratory study investigated the effects of community-based family nursing and medicine rotations on students' health promotion counseling self-efficacy based on the Health Promotion Counseling Self-efficacy Scale. In this longitudinal design study with two groups, self-efficacy of nursing and medical students at a large Canadian university was compared at three points: prior to rotations, immediately following, and three months post-rotations. Results indicated that the nursing students' self-efficacy increased after exposure to the clinical experiences and correlated to their use of the skill in the clinic, while medical students' self-efficacy remained stable at all three points. The authors suggest that

medical students' self-efficacy in health promotion counseling remained stable because less efficacy information sources regarding health promotion counseling were made available to medical students than were to nursing students. According to the authors, preceptors can develop student self-efficacy by modeling expert behavior in health promotion counseling activities, providing students with the opportunity to engage in these skills, and providing timely feedback on performance.

Clinical rotations can provide all four possible sources of self-efficacy information. These include enactive mastery experiences, vicarious experiences, and verbal persuasion (Goldenberg et al., 1997; Spence Laschinger et al., 1999), as well as physiological arousal (Bandura, 1986). Thus, clinical rotations are a strong source for developing student self-efficacy according to higher education literature, as providing students with multiple forms of information sources has high potential for increasing efficacy (van Dinther, Dochy, & Segers, 2011). Yet, it is important to note that efficacy development is primarily based on the quality of information provided to the student via the clinical rotation (Goldenberg et al., 1997; Spence Laschinger et al., 1999). The strength of the efficacy development is based on the structure of the learning experience, as well as the level of supervision the student receives based on his/her skill development level (van Dinther et al., 2011).

Clinical rotations should provide certain components to students to ensure optimal self-efficacy development. Enactive mastery experiences should allow students to participate in challenging skill sets that enable them to develop a pattern of successful attempts (Goldenberg et al., 1997; Spence Laschinger et al., 1999; van Dinther et al., 2011). Rotations that only allow students to perform basic clinical skills, even if they are

successful in achieving these, will not develop efficacy. Rotations should ideally develop into providing these advanced experiences once the preceptor identifies the student's skill level and has the confidence to allow the student to attempt the skill (Goldenberg et al., 1997; Spence Laschinger et al., 1999). To ensure vicarious experience development, students should have professional admiration for the preceptor, thus providing an example that the student wants to aspire to (Bandura, 1986). In addition, the preceptor should expose the student to challenging situations that may arise during any given skill to provide a higher level of predictability to achieving success. To provide optimal verbal persuasion, preceptors should provide ongoing feedback to the student throughout the development of skill and/or rotation (Spence Laschinger et al., 1999). These recommendations for self-efficacy development in clinical rotations are supported by the literature and are additionally outlined as best practices in the *PAEA Preceptor Orientation Handbook* (PAEA, 2012).

Self-Efficacy as a Measure

Bandura (1986) indicates that self-appraisal of efficacy is reasonably accurate, but there are situations in which it can be faulty. Such situations include when individuals have insufficient experience to infer their capabilities, when personal factors interfere, and when memories of efficacy and the experiences that shaped self-appraisal are distorted. In addition, there is literature specific to health professions education that investigates the accuracy of self-appraisal compared to actual performance (Ammentorp et al., 2013; Gude et al., 2017; Opacic, 2003), as well gender differences in self-efficacy appraisal (Clack & Head, 1999; Gude et al., 2017; Lurie et al., 2007). An overview of the use of self-efficacy as a measure in health professions education is provided next.

Self-efficacy as measure of clinical performance. There are mixed findings as to whether or not self-efficacy is an accurate measure of student performance in health professions education. Opacic's (2003) study investigated the predictive relationship of PA student efficacy, expectations, and values with clinical performance. A sample of second year PA students enrolled in Pennsylvania schools in their first clinical rotation was used, with a total sample size of n=29. Self-efficacy was assessed via a student survey, while clinical performance was based on evaluation from the students' respective schools. Results indicated that self-efficacy correlated significantly with clinical performance. This study suggests that self-efficacy has value in predicting PA student clinical performance. It is noted that 95% of the variance was not explained, and thus the results should be viewed with caution.

More recently, medical students' self-efficacy of communication skills in relation to performance was studied (Ammentorp et al., 2013). Student participants (n=73) completed a communication curriculum and a clinical residency focusing on communication training. Students were then evaluated on their communication skills and asked to assess self-efficacy. Results indicated that the students rated their efficacy lower than their actual performance in 2 of 12 categories, suggesting that students do not overestimate their skills, but still weren't accurate the majority of the time. The authors suggest that self-efficacy be used as a formative tool in medical education, but not as a summative evaluation tool.

Gude et al. (2017) explored the relationship between communication self-efficacy and actual performance of Norwegian medical students prior to graduation and two years later after the completion of an internship. Students (n=62) were asked at the end of

medical school to assess communication efficacy and were also evaluated on their communication skills by a standardized patient scenario. At this time, there was close to zero correlation between self-efficacy and observed communication skills. Two years later the participants completed another standardized patient simulation and efficacy assessment. At this time, there was a negative correlation between self-efficacy and performed communication skills. The lack of positive correlations between self-efficacy and performance in this study suggests inaccuracies in using self-assessment for communication skills in medical students and young physicians.

Group differences in self-efficacy. When using self-assessment as a measure in health professions education it may be important to consider the possibility of group differences, specific to gender, race, and ethnicity. It is suggested that female medical students rate their self-efficacy lower than their actual performance in communication skills (Gude et al., 2017). Additionally, female medical students are more likely to rate themselves lower than male students in attributes associated with work habits (Lurie et al., 2007), leadership skills, and the ability to handle uncertainty of the healthcare environment (Clack & Head, 1999). Specific to health professions education, literature surrounding self-efficacy differences pertaining to race and/or ethnicity was not identified, yet it is important to note that although no literature studied these group differences, that they may still exist.

The use of self-efficacy as a measure in health professions education has support (Ammentorp et al., 2013; Bandura, 1986; Opacic, 2003), yet is not without limitations. It is important to consider the inability of some students to accurately self-assess, especially in relation to gender, racial, and/or ethnic differences in self-assessment.

Research Questions

This study sought to examine the potential relationships between the practice of paying for clinical rotations in PA education and student success. The theoretical work of Bandura (1986, 1997), as well as health professions education literature guide the research questions for this study, which included the following:

- 1) How does self-efficacy differ between students attending PA programs that pay for clinical rotations and students attending non-paying programs?
- 2) How does perception of clinical education quality differ between students attending PA programs that pay for clinical rotations and students attending non-paying programs?
- 3) How does students' perceived quality of clinical education and their program's rotation compensation status predict self-efficacy?

In the following chapter, the research questions, their respective hypotheses, and methodology of this study are discussed. The literature and theoretical frameworks described in this chapter are further discussed in relation to the development of the hypotheses and selection of study measures.

CHAPTER 3

METHODOLOGY

Statement and Significance of the Problem

The practice of compensating clinical sites and/or preceptors to train physician assistant (PA) students has grown significantly in recent years (PAEA, 2009; 2017b). A key problem associated with this practice is that the decision to pay for clinical rotations is primarily based on the perceived competition for clinical sites with no understanding of the practice's potential impact on PA student success. Literature pertaining to clinical rotation compensation has focused primarily on the perception and practices of paying, as well as potential plans for payment by PA programs (Erikson et al., 2013; Glavaz et al., 2014), yet the effects of paying for clinical rotations on PA student success have not yet been investigated resulting in a research gap surrounding this practice. The significance of this problem is multi-faceted and creates a domino effect for PA programs, students, and the healthcare community. Payment for clinical sites can result in increased tuition and fees for students (Glavaz et al., 2014), decreased diversity of the healthcare workforce (Agrawal et al., 2005; DiBaise et al., 2015), and decreased care for already medically underserved areas (Institute of Medicine, 2004; Muma et al., 2010). Thus, the practice of compensating for PA clinical rotations reaches far beyond a program itself. Yet, paying for clinical rotations may also have a positive impact on student success and if so, may be an initiative worth pursuing by programs.

The analyses for this study were designed to explore the relationship between clinical site compensation and PA student success. Data from two national, multi-institutional surveys were used; one surveyed PA programs and the other surveyed PA

students at the end of their education. Both descriptive and inferential statistical analyses were used in this study. Descriptive analyses were used to describe the population and samples. Inferential statistics were used to examine if there is a was a significant difference between the population and sample, as well as to examine if there was a difference in self-efficacy and perceived quality of clinical education between students attending PA programs that pay for clinical rotations and students attending non-paying programs. Multiple linear regression was used to explore the potential direct and combined relationships between self-efficacy and the predictor variables of clinical rotation compensation status and clinical education quality, with student and institutional demographics as covariates.

This study examined three main research questions:

- 1) How does self-efficacy differ between students attending PA programs that pay for clinical rotations and students attending non-paying programs?
- 2) How does perception of clinical education quality differ between students attending PA programs that pay for clinical rotations and students attending non-paying programs?
- 3) How does the combination of students' perceived quality of clinical education and program's rotation compensation status predict self-efficacy?

This chapter will further outline the research questions along with their respective hypotheses and rationales, describe the instrumentation and data that were used, and present the methodological approach for answering the research questions.

Research Questions and Hypotheses

The research questions for this study include the following:

Research question 1: How does self-efficacy differ between students attending PA programs that pay for clinical rotations and students attending non-paying programs?

Hypothesis 1: I hypothesized that students attending PA programs that pay for clinical rotations will have stronger self-efficacy than students attending non-paying programs.

Rationale 1: This hypothesis was informed both by the theoretical construct of self-efficacy (Bandura, 1986, 1997), as well as medical and nursing education literature (Ashar et al., 2007; Barone et al., 2012; Goldenberg et al., 1997; Spence Laschinger et al., 1999). Clinical rotations can provide all four sources of self-efficacy development; enactive mastery experiences, vicarious experiences, verbal persuasion, and environments for optimal physiological states (Bandura, 1997; Goldenberg et al., 1997; Spence Laschinger et al., 1999). Yet, self-efficacy development is primarily based on the quality of the experiences provided to students in clinical rotations (Goldenberg et al., 1997; Spence Laschinger et al., 1999; van Dinther et al., 2011). Additionally, clinical rotation compensation has been found to positively impact the quality of clinical education provided to medical students (Ashar et al., 2007; Barone et al., 2012), thus suggesting that compensated preceptors are more likely to engage students in self-efficacy developing experiences.

I used independent sample t-test to determine if there was a statistically significant difference in self-efficacy between students attending paying programs and their peers attending non-paying school. This is outlined further later in the Chapter.

Research question 2: How does perception of clinical education quality differ between students attending PA programs that pay for clinical rotations and students attending non-paying programs?

Hypothesis 2: I hypothesized that students attending PA programs that pay for clinical rotations perceive their clinical experiences as greater in quality than their peers attending non-paying programs.

Rationale 2: This hypothesis was informed by the literature conducted in medical education (Ashar et al., 2007; Barone et al., 2012) which suggests that paying for clinical rotations increases clinical education quality. Increased educational quality is presumed to occur because when compensation is offered, programs have greater opportunity to select the most qualified preceptors to train students because more healthcare providers are willing to serve as preceptors. If PA programs offer compensation for clinical rotations, they should have greater access to more qualified preceptors, thus increasing the quality of clinical education provided to students.

I used independent sample t-test to determine if there was a statistically significant difference in clinical education quality between students attending paying programs and their peers attending non-paying school. This is outlined further later in the Chapter.

Research question 3: How does the combination of students' perceived quality of clinical education and program's rotation compensation status predict self-efficacy?

Hypothesis 3: I predicted that students who have greater quality perceptions of their clinical education and attend paying programs will have stronger self-efficacy than other students.

Rationale 3: This question was exploratory in nature, as no study has previously analyzed the relationship of both clinical rotation compensation and quality of clinical education on self-efficacy. Yet, the literature suggests that rotation compensation increases clinical education quality (Ashar et al., 2007; Barone et al., 2012) and increased quality of clinical education has a positive effect on self-efficacy development (Goldenberg et al., 1997; Spence Laschinger et al., 1999; van Dinther et al., 2011). Thus, PA students who experience a high quality of clinical education and attend paying programs should have the greatest self-efficacy.

I used simultaneous multivariable regression to examine the potential relationships between self-efficacy, school payment status, and quality of clinical education, while controlling for student and institutional characteristics. This is outlined further later in the Chapter.

Data Sources and Sample

Survey Instruments

This study utilized secondary data from two national surveys designed and distributed by the Physician Assistant Education Association (PAEA), a membership organization of accredited and developing PA programs with an objective to conduct and disseminate research pertinent to the education of PA students (2017a). The survey instruments used in this study were the 2016 Program Survey (PAEA, 2016a) and the 2016 End of Program Student Survey (PAEA, 2016b). The Program Survey provided institutional data for each student respondent including the school's rotation compensation status. The End of Program Survey provided student demographic data, as well as data regarding self-efficacy and clinical education quality. A full list of variables

requested from PAEA for use in this present study is included in Appendix C. The instruments are described in further detail in the following sections.

PAEA Program Survey. The PAEA Program Survey (2016a) is a cross-sectional instrument that has been administered annually since 1984 to gather data regarding PA program administration, personnel, and students (2017e). The Program Survey is administered each summer to accredited PA program members to collect data pertaining to the previous academic and fiscal years. PAEA publishes descriptive data and trend-based analysis from the Program Survey results in an annual publication, *By the Numbers Program Report*. PAEA data cleaning procedures for annual program surveys include a review of multiple choice question responses for logistical consistency, extreme values, and possible errors that may have occurred (2017f). PA program directors are contacted for clarification on program survey responses, as necessary. This follow-up with programs, may have increased unit response and decreased response errors (Czaja & Blair, 2005).

The primary use for the Program Survey data was to match student responses with institutional demographics including their program's clinical rotation compensation status. A significant strength of using data from the Program Survey was that all member programs were required to complete the survey or risk having their PAEA membership terminated (PAEA, 2016c). As a result, the response rate for the 2016 Program Survey was 100% of accredited PA programs, though some sections did not have full response participation (PAEA, 2017b), ensuring good population validity (Gall et al., 2007). The student sample also benefited from full PA program representation, as student cases were removed if they could not be connected to a program's clinical rotation compensation

status. It was not anticipated that any student cases would need to be removed for this reason, yet four programs did not respond to the question pertaining to their compensation status, resulting in 60 cases being removed. Additionally, three cases were not linked to a de-identified program and were also removed from the sample.

Additionally, there other strengths to using data from the Program Survey, including convenience and cost-effectiveness (Frankfort-Nachmias & Nachmias, 2008). Lastly, the Program Survey is the only ongoing, national instrument that seeks information about PA programs' compensation for clinical rotations along with other pertinent program information, thus producing data that can be used for robust analysis.

Using data from the Program Survey was the best option for this proposed study, but it was not without its limitations. A limitation of utilizing this instrument was that the data were restricted to the questions asked by the PAEA. The lack of control over the survey questions being asked of participants is a common limitation to utilizing secondary data (Frankfort-Nachmias & Nachmias, 2008), but it was not significant enough to deter the use for the present study, as the size and comprehensiveness of the survey overrule this concern.

PAEA End of Program Student Survey. The PAEA End of Program Student Survey (EOPS) was first administered in 2016 to gather data pertaining to PA students' overall educational experiences, post-graduation career plans, and financing of their education (PAEA, 2016b). The instrument was administered to each PAEA member program when a cohort of students was nearing program completion (PAEA, 2017f). Descriptive data and trend-based analysis from the EOPS were presented in an annual publication, *By the Numbers: Student Report* (PAEA, 2017c). To ensure content validity

and reliability, many items in the survey were adapted from other reliable and validated instruments, including the Association of American Medical College's (AAMC) Medical School Graduation Questionnaire and Higher Education Research Institute's (HERI) College Senior Survey (PAEA, 2017c). Content validity and reliability for specific variables used in this study are outlined in the variables section.

PAEA member programs were required to send the instrument to students at the end of their program and to help increase the response rate, PAEA conducted follow-up calls to programs and offered incentives to programs that had at least 80% of its students participate. (PAEA, 2017c). A significant strength of utilizing data from the EOPS was that the distribution method ensured the potential respondents had familiarity with the individual sending the survey request and can endorse the legitimacy of the survey (Frankfort-Nachmias & Nachmias, 2008). In addition, this is the only comprehensive, national survey pertaining to PA student experiences at the end of their program. Similar to the use of data from the Program Survey, the constraints of not being able to design my own questions for students was a limitation of using data from the EOPS. Yet, the EOPS also offered data that was comprehensive enough that this instrument was the best option.

Sample

The target population of this study was PA students nearing the end of their program and the sample was defined by participation in the EOPS (PAEA, 2016b). The size and access to the population, as well as final sample size are described in the following sections.

The estimated number of PA program graduates in 2016 was 8,081 (PAEA, 2017b) and 3,289 total PA students participated in the 2016 EOPS (PAEA, 2017c). After

cases were removed, as outlined in this chapter, the analytic sample size was $n=2,375$. EOPS respondents represented 151 PA programs (82.5% of programs with 2016 graduates), whereas the analytic sample represented 141 programs (77% of programs with 2016 graduates).

Demographic information for the 2016 graduating cohort (PAEA, 2017b), total EOPS respondents (PAEA, 2017c), and analytic student sample are shown in Table 3.1. It should be noted that demographic information for the 2016 graduating cohort (population) are estimates as reported by students' respective programs and demographic information for EOPS respondents was self-reported. Additionally, PA education programs by definition in this study included only programs that award a graduate degree as its primary or highest degree; thus, students that attended the seven programs that do not award a master's degree were removed from the sample.

Table 3.1

Demographics of Analytic Sample, EOPS Respondents, and 2016 PA Graduation Cohort (Estimated)

	<u>Analytic Sample</u>	<u>EOPS Respondents</u>	<u>2016 Cohort</u>
<u>Total</u>	2,375	3,289	8,081
<u>Gender</u>			
Female	74.2%	74.3%	69.4%
Male	25.1%	25.7%	26.3%
Unknown			4.3%
<u>Race^a</u>			
American Indian or Alaskan Native	0.6%	0.7%	0.6%
Asian	6.6%	7.0%	6.5%
Black or African American	2.1%	2.5%	3.1%
Multiracial	2.4%	2.5%	1.7%
Native Hawaiian or other Pacific Islander	0.2%	0.3%	0.5%
Other	1.3%	1.4%	1.3%
White	84.1%	85.7%	72.2%
Unknown	1.3%	1.3%	14.0%
<u>Ethnicity</u>			
Hispanic	6.0%	6.5%	6.0%
Non-Hispanic	92.1%	93.5%	79.1%
Unknown	1.8%	2.0%	14.9%
<u>Age Turned in 2016</u>	M=28.28	M=28.46	
<u>Highest Education Prior to PA Professional Phase</u>			
Bachelor of Arts	15.5%	15.4%	
Bachelor of Science	69.8%	68.1%	
Other Bachelor's degree	1.3%	1.3%	
Master's degree (health of science related)	6.2%	6.4%	
Master's degree (not health or science related)	2.2%	2.1%	
Academic doctorate	0.3%	0.2%	
Professional doctoral	0.4%	0.6%	
Foreign medical graduate/unlicensed medical graduate	0.4%	0.5%	
Other	0.2%	0.2%	

Table 3.1 Continued

	<u>Analytic Sample</u>	<u>EOPS Respondents</u>	<u>2016 Cohort</u>
<u>Total</u>	2,375	3,289	8,081
<u>Primary Life Environment</u>			
Inner City	4.2%	4.3%	
Military Base(s)	1.4%	1.4%	
Overseas	1.1%	1.3%	
Rural	28.7%	28.7%	
Suburban	59.5%	57.8%	
Urban	12.6%	12.8%	
Other	0.2%	0.2%	
<u>Institution Type</u>			
Public	30.9%	32.0%	
Private, non-profit	63.0%	60.3%	
Private, for-profit	3.9%	4.4%	
Military	0.4%	0.3%	
Public/private hybrid	1.8%	2.9%	
<u>Academic Health Center Affiliation</u>			
Yes	33.1%	32.5%	
No	66.9%	67.4%	
<u>Program Rotation Payment Model</u>			
No payments to clinical sites or preceptors	54.5%	54.9%	
Yes, payment only to clinical preceptor.	2.1%	1.6%	
Yes, payment to all clinical sites and clinical preceptors	6.6%	6.1%	
Yes, payment to some clinical sites and/or clinical preceptor, but not all	36.8%	35.5%	
<u>Payment Status</u>			
No, doesn't pay	54.5%	54.9%	
Yes, pays in some form	45.5%	43.2%	

^a Race was the only variable found to be significantly different between the population and analytic sample.

The analytic sample included 2,375 students, comprised of 1,763 females (74.2%) and 595 males (25.1%). The sample was predominately White (84.1%), with the remaining students identifying as Asian (6.6%), Black or African American (2.1%), Multiracial (2.4%), American Indian or Alaskan Native (0.6%), Native Hawaiian or other Pacific Islander (0.2%), and Other (1.3%). The mean age of respondents in 2016 was 28.3 years. The highest level of education completed prior to the PA professional phase for the majority of the analytic sample was a Bachelor of Science degree (69.8%), followed by another type of bachelor's degree (16.8%), master's degree (8.4%), and doctorate or foreign medical degree (1.1%). The majority of the sample spent most of their life in a suburban environment (59.5%), followed by a rural environment (28.7%), urban environment (12.6%), inner city environment (4.2%), military base(s) (1.4%), and overseas (1.1%).

Institutional demographics for the analytic sample were also reviewed. The majority of the sample attended private, non-profit institutions (63%); with the remainder of the sample attending public institutions (30.9%); private, for-profit institutions (3.9%); public-private hybrid institutions (1.8%); and military institutions (0.4%). Additionally, 66.9% of the sample attended PA programs in which the sponsoring institution is within an Academic Health Center (AHC) (66.9%). Lastly, just more than half of the sample attended programs that do not pay for clinical rotations (54.5%). Of the students who attended paying programs, the majority attended a program that pays for some clinical sites and/or preceptors, but not all sites and/or preceptors (35.5%). Whereas, 6.1% of respondents attended programs that pay all sites and all preceptors, and only 1.6% attended programs that only pay preceptors.

Response bias. The 41% response rate for the EOPS was considered to be average, as most surveys without follow-up result in a 20-40% response rate (Frankfort-Nachmias & Nachmias, 2008). As previously mentioned, EOPS respondents represented 82.5% of programs with 2016 graduates, yet only 22 programs (11% of responding programs) achieved the minimum 80% student response rate (PAEA, 2017c). As this was the first time the EOPS was administered, lack of familiarity with the instrument may have affected responses rates. Despite the average response rate and majority of programs being represented, the sample still had a potential for a response bias. Response bias was a potential limitation because it could have resulted in significant differences between respondents and non-respondents, including demographic differences and/or extreme responses. Wave analysis or respondent/nonrespondent analysis are common methods used to determine if responses between respondents and non-respondents are different (Creswell, 2009), but as the data used in this study was from secondary sources, follow-up with respondents was not possible. Thus, to determine if there were significant demographic differences between the student population, EOPS respondents, and the analytic sample, Chi-Square and t-test analyses were conducted (see Table 3.2).

Student demographics and institutional demographics, as available, were analyzed to determine if significant differences existed between the population and EOPS respondents; population and analytic sample; and EOPS respondents and analytic sample. Specifically, gender, race, and ethnicity were analyzed via Chi-Square tests with a significance level of $p < .01$ for these three comparisons. Based on these analyses, gender and ethnicity were not significantly different between the population, EOPS respondents, and analytic sample. Race was not significantly different between the population and

EOPS respondents nor the EOPS respondents and the analytic sample, yet was significantly different between the population and analytic sample ($\chi^2=22.56, p=0.001$). Although race identification is significantly different between the population and analytic sample, the effect size was low ($\phi_c=.05$), thus indicating that student demographics among all three groups are very similar.

Additionally, other student and institutional demographics were analyzed between EOPS respondents and analytic sample only because data pertaining to the population were not available. Additional student demographics analyzed were age, highest education prior to the PA professional phase, and primary life environment. Institutional demographics analyzed were institution type, Academic Health Center affiliation, and school clinical rotation payment status. All potential differences in demographics were analyzed used Chi-Square tests (see Table 3.2) except age, which was analyzed using a t-test (see Table 3.3). Age was originally reported in year the respondent was born, but for purpose of analysis was converted into a nominal variable based on the age the respondent turned in 2016 based on their reported year of birth.

The aforementioned analyses indicated that no significant differences existed between the population and EOPS respondents. Thus, although there was still a potential for response bias, the population and sample were demographically similar and it was assumed that the two groups were comparable. Additionally, no significant differences existed between the EOPS respondents and analytic sample indicating that after removing cases based on study guidelines, the analytic sample was still comparable to the original group of EOPS respondents. Lastly, there were no significant differences between the population and analytic sample for gender or ethnicity. There was a statistically

significant difference between the two groups for race, yet the strength was very weak. Based on these analyses, it was assumed that the analytic sample and population were fairly similar, thus results from analyzing the analytic sample can be generalizable to the entire PA student population.²

Variables

This section provides an overview of the two dependent measures, as well as the independent variables used in this study.

Dependent measures. The selection of variables analyzed was informed by the theoretical work of Bandura (Bandura, 1986, 1997), work motivation literature (Lent et al., 1994; Stajkovic & Luthans, 2002), measures of PA programs success (ARC-PA, 2016), and research pertaining to outcomes of clinical rotation payment in medical education (Ashar et al., 2007; Barone et al., 2012).

Self-efficacy. Self-efficacy was measured using item 35 on the EOPS, which asked PA students, “How confident are you in your current ability to perform the

² As mentioned in Chapter 2, there is potential for gender differences in self-efficacy assessment specific to health professions education students (Clack & Head, 1999; Gude et al., 2017; Lurie et al., 2007). A t-test was run to determine if significant differences existed in self-efficacy between female (M=20.47) and male students (M=20.28) in the analytic sample. Analysis indicated that no significant differences between female and male students existed ($t=1.55, p=.061$).

Additionally, the data was examined to determine if there were differences in self-efficacy based on racial and ethnic identity at a significance level of $p<.05$. A one-way ANOVA ($F(2,27)=7, p=.078$) was run and indicated that no significant differences in self-efficacy existed between students in different racial groups. A t-test was run and determined there were significant differences in self-efficacy between non-Hispanic (M=20.34) and Hispanic students (M=19.86) ($t=2.117, p=.034$), but the magnitude of the difference was smaller than typical ($d=.17$).

following activities?”, specific to the competencies of: medical knowledge, interpersonal and communication skills, patient care, professionalism, practice-based learning and improvement, and systems-based practice (PAEA, 2016b). These specific task areas comprise the competencies of the PA profession (AAPA et al., 2012). By asking students to rate their confidence level of performing each activity, the survey item was measuring how self-efficacious PA students are at the end of their education in the competencies of their future profession.

The measure of *self-efficacy* served as a dependent variable in Research Questions 1 and 3. Respondents were asked to indicate their level of confidence in each area based on a Likert scale ranging from “very confident” to “not at all confident”. In the present study, *self-efficacy* was measured by a continuous scale based on a respondent’s overall efficacy in all competency areas. A student’s total self-efficacy was calculated by converting each task area response into a numerical score and summing all of the sub-scores into a composite variable. Creating composite variables as was done in the present study, is a very popular practice in educational research. The total self-efficacy scale ranged from 0-24. A score of 0 was the weakest self-efficacy score and 24 was the strongest self-efficacy score. See Appendix C for details about the conversion of each response. Cases that had missing data to any part of the question were removed before a total self-efficacy score was calculated and analyses were performed. Additionally, Cronbach’s Alpha was used to determine that all the items used to develop the *self-efficacy* score had a good shared covariance with one another ($\alpha=.830$), thus it was assumed that they were likely measuring the same underlying concept.

Self-efficacy is defined as an individual's belief, or confidence, about his or her abilities to mobilize motivation, cognitive resources, and courses of action needed to successfully execute a specific task within a given context (Bandura, 1986, 1997). Self-efficacy in profession-based activities has a significant impact on work performance and motivation in highly stressful situations (Lent et al., 1994; Stajkovic & Luthans, 2002), suggesting that PA students with stronger confidence levels in the competencies of the PA profession may have higher-performing PAs. Thus, it is crucial to understand how PA programs can increase student self-efficacy, and specific to this proposed study, if there is a relationship between paying for clinical rotations and student self-efficacy.

Clinical education quality. The variable clinical education quality served as the dependent variable in Research Question 2 and was based on responses to items 25 and 26 on the EOPS (PAEA, 2016b). The first item, 25, asked students, "Please rate the quality of your educational experiences for the following clinical rotation disciplines". Respondents were asked to rate the quality of different rotation disciplines based on a four-response Likert scale ranging from "Excellent" to "Poor" and included an option of "N/A" if the student did not have an experience in a discipline. The disciplines referenced in the question were: emergency medicine, extended primary or rural track, family medicine, general internal medicine, general pediatrics, general surgery, hospital medicine, obstetrics/gynecology/women's health, psychiatry/behavioral medicine, and elective(s). The second item, 26, is a four-part question that asked students to rate their experience with their rotation preceptors. Specifically, this item asked, "Were you observed by your preceptor taking the relevant portions of the patients' history?; Were you observed by your preceptor performing the relevant portions of the physical

examination?; Were you observed by your preceptor performing relevant technical procedures (e.g. suturing, phlebotomy, etc); and Were you provided mid-point feedback by your clinical preceptor?”. Respondents were asked to respond yes or no to each question for the seven rotation types mandated by accreditation standards (ARC-PA, 2016).

In this study, *clinical education quality* was measured by a composite score based on a student’s response to each discipline in both items 25 and 26. The quality score was calculated by converting each survey response to a numerical score and summing all sub-scores. See Appendix C for details about the recoding of these variables. A total *clinical education quality* score could range from 0-49. A score of 0 was the poorest quality of clinical education and a score of 49 was the highest quality of clinical education.

Although all respondents were required to have experiences in each of the disciplines, some responses include values of “N/A” in Item 25. Since it is not possible to place value on an experience that a respondent indicates he/she did not have, any case that “N/A” for even a single discipline was removed from the sample. Additionally, any case that had missing data for any parts of Item 26 were removed. The rationale for removing these respondents from the sample was that including responses with missing values would create a false quality score. Additionally, Crombach’s Alpha was used to determine that all the items used to develop the *clinical education quality* score had a good shared covariance with one another ($\alpha=.879$), thus it was assumed that they were likely measuring the same underlying concept.

Based on previously conducted studies regarding the outcomes of clinical rotation compensation (Ashar et al., 2007; Barone et al., 2012), it is suggested that paying

increases clinical education quality because compensation attracts a larger preceptor pool giving programs greater opportunity to select qualified preceptors. The aforementioned studies used student evaluations of clinical education teaching to measure the impact of clinical rotation compensation suggesting the importance of teaching and education quality. Additionally, PA program success measures include teaching, course, and clinical rotation evaluations by students (ARC-PA, 2016). Literature pertaining to this study's topic, as well as the PA program success measures, provided the rationale for using *clinical educational quality* as a measure in this study.

Independent measures. The study examined the relationship between clinical site compensation and student success. As the primary independent variable in the present study, *program payment status* was informed by the literature surrounding the practice of clinical site compensation in PA education (Erikson et al., 2013; Glavaz et al., 2014). The use of *clinical education quality* was informed by literature in health professions education (Ashar et al., 2007; Barone et al., 2012), as well as PA program success measures (ARC-PA, 2016)

Program payment status. *Program payment status* served as an independent variable in Research Questions 1, 2, and 3. This variable is based on a program's response to item 27 on the Program Survey: "Does your program pay for clinical sites?", and defined whether or not a program provided compensation for any clinical rotations via payment to a preceptor and/or a clinical site (PAEA, 2016a). For those programs that paid preceptors and/or clinical sites, three different responses were possible based on payment model of the program. Of the paying programs in the analytic sample, 82% pay some sites and/or preceptors, but not all sites and/or preceptors. *Program payment status*

was coded into a dichotomous variable indicating if a program did not pay for clinical rotations or did pay regardless of the payment model (See Appendix C). Cases that did not include a payment status variable were removed from the sample, as this variable was fundamental to the analysis of this study. This step was not initially anticipated as a 100% program response rate is required and PAEA completes follow-up with programs that have missing data (PAEA, 2016a). Yet, the program survey report indicated that not all responses had 100% completion. Per the report statistics, four programs did not complete this question, which is corroborated by the data received. Additionally, three cases in the data did not include a Program ID, so no institutional variables could be matched to these cases. This resulted in a total of 63 cases being removed because their school's payment status was not provided.

Clinical education quality. *Clinical education quality* served as an independent variable in Research Question 3. As mentioned in the Dependent Variables section, *clinical education quality* was a composite score based on a student's perception of the quality of rotations they had, as well as their experience with preceptors, items 25 and 26 on the EOPS, respectively (PAEA, 2016b).

Demographic variables. Student and institutional variables were requested to both describe the student population sample, as well as to serve as covariates in the multiple regression model to answer Research Question 3. See Appendix C for a full list of the variables requested, as well as how the variables were recoded for use in the present study.

Student and institutional characteristics were controlled for in this present study based on Social Cognitive Theory (Bandura, 1986), as well as higher education theory

surrounding student outcomes in college (Astin, 1991; Pascarella, 1985). The role of triadic reciprocity in Social Cognitive Theory implies that personal attributes, external environmental factors, and overt behavior affect one another bidirectionally and can affect one's self-efficacy (Bandura, 1986). Pascarella (1985) emphasizes that institutional variables in combination with certain personal characteristics of students may predict gains in learning and cognitive development. Additionally, Astin's (1991) Input-Environment-Outcome (I-E-O) Model suggests that researchers must consider controlling for student and institutional characteristics to ensure that any change in outcomes is not biased by the inputs students bring with them to college or the environment that students were exposed to while in school. In the present study, inputs include student age, race, ethnicity, gender, primary background environment, and highest level of education prior to the professional phase of PA school. Environmental characteristics include program type and affiliation with an academic health center (AHC).

A limitation to the demographic data used for the present study is the lack of an academic measure for students, such as GPA. Both student development theory (Astin, 1991; Pascarella, 1985) and self-efficacy literature (Hsieh et al., 2007; Pavani & Agrawal, 2015) suggest that student academic achievement may impact student outcomes and self-efficacy development. The EOPS (PAEA, 2016b) asked students to report undergraduate GPA, but it was not requested for use in the present study. PA program GPA was not available for use in the present study. Despite this limitation, the student and institutional demographics used in the present study controlled for many inputs and/or environmental factors that may have contributed to student success.

Data Analysis Procedures

The following section provides an overview of the statistical analyses used to answer the research questions of the present study. SPSS and StatsDirect statistical software were used to compute analyses.

Descriptive Statistics

Means, standard deviations, and frequencies were calculated to describe the population sample, EOPS respondents, and analytic sample, as described earlier in the chapter. These are in addition to the Chi-Square and t-test analyses conducted to compare the population and samples. Additionally, means were calculated for *self-efficacy* and *clinical education quality* to be used in the t-tests outlined below.

Research Questions 1 and 2

Research questions 1 and 2 explored the potential differences in self-efficacy (research question 1) and clinical education quality (research question 2) between students who attended programs that pay for clinical rotations and students who attended non-paying programs. To examine if there were statistically significant differences between the two groups of students, independent t-tests were used. Independent t-tests are a simple way to examine differences between two groups when the independent variable is categorical and the dependent variable is continuous (Berkman & Reise, 2012; Gall et al., 2007), as it is in these research questions. The t-tests were run with a one-tailed test of significance at a level of $p < .01$ indicating that the null hypothesis was rejected at $p = .01$ or greater. A one-tailed test of significance was selected because the hypotheses for research questions 1 and 2 are directional (Gall et al., 2007) and a significance level of $p < .01$ was selected as an acceptable level of risk making a Type I error. $P < .05$ is the standard among

educational researchers, yet a more stringent significance level was selected based on the large analytic sample size of the present study ($n = 2,375$).

Some weaknesses of using t-test analysis for research questions 1 and 2 should be noted. Typically, for a sample size greater than or equal to 30, which the sample of the present study is, a z-distribution should be used, but Gall et al. (2007) note that in practice t-tests are used for all samples sizes. Also, t-tests are designed to be used with random samples, which this study does not utilize. Yet, it is advised that researchers can use this analysis with caution. In particular, as the analytic sample in the present study is highly similar to the population overall, it should provide a good estimate of group differences.

Additionally, if the t-tests suggested there were significant differences between the two groups of students, one-way ANOVA with Tukey post-hoc tests were used. The use of one-way ANOVA accounted for any potential differences that were based on a program's specific payment model. One-way ANOVA allows a researcher to consider more than one independent variable at a time and provides additional information beyond basic tests, such as t-tests, to determine overall differences between groups (Leech, Barrett, & Morgan, 2015).

Research Question 3

Research question 3 explored the potential direct and combined relationships between *self-efficacy* and the independent variables of *payment status* and *clinical education quality*. To examine both the magnitude and statistical significance of the relationship between these variables, multiple linear regression was used.

Multiple linear regression can be used to describe the relationship between a dependent variable and two or more continuous variables (Berkman & Reise, 2012; Gall et al., 2007). Multiple linear regression is a widely used statistical method in educational research due to its versatility and the amount of information it yields about significant relationships. *Self-efficacy* served as the criterion variable and *payment status* and *clinical education quality* served as predictor variables in this model. Additionally, student demographics (age, gender, ethnicity, race, highest level of education prior to PA professional phase, and primary life environment) and institutional demographics (institution type and academic health center affiliation) served as covariates. A condition of multiple regression is that the independent variables in the model be primarily interval- or scale-level variables, yet dichotomous variables, known as dummy variables, can also be included. To ensure the independent variables in this model met the assumptions for linear regression (Leech et al., 2015), the following variables were recoded into dichotomous variables prior to running the regression model (see Appendix E): gender, ethnicity, race, highest education prior to PA professional phase, Academic Health Center affiliation, and institution type. As a rule, any variable with $n < 25$ was removed prior to recoding.

The method of simultaneous or enter multiple regression was used to select variables that yielded the best prediction of *self-efficacy*. Simultaneous multiple regression is a variation of multiple regression in which all the variables are considered at the same time and is used to determine the highest possible correlations of predictor variables and the dependent variable (Leech et al., 2015). Initial bivariate correlation statistics were run to ensure no independent variables were highly correlated to one

another. Additionally, the correlation matrix was reviewed to ensure there was not high collinearity among the predictor variables. These steps to ensured that collinearity was not an issue and that the power of the regression model was not due to correlation of the predictor variables (Berkman & Reise, 2012; Gall et al., 2007; Leech et al., 2015).

Institutional Review Board

This study was approved as non-human subjects research by the University of Missouri-Kansas City (UMKC) Institutional Review Board on January 23, 2018. Documentation of approval is included as Appendix F.

Data Request Procedures

Data from the PAEA program and student surveys was requested and approved in accordance with PAEA's data request and sharing policies (2017d) on February 1, 2018. Per the policies, as a student researcher, I worked in conjunction with a PAEA member institution faculty member serving on the dissertation committee to request data.

Limitations

Throughout this chapter, I outlined limitations in the methodology of this study. These include the restrictions of using secondary data, the lack of student GPA as a control variable, and the weaknesses associated with the use of independent t-tests. The limitations of using self-efficacy as a measure generally, as well as in health professions education, was previously outlined in Chapter 2. In addition to the limitations identified earlier, there are also limitations to using data based on a subjective rating scale, such as the Likert scale used for the variable of *self-efficacy* and *clinical education quality*. Likert scales gauge an individual's feelings based on numbers and categories, which may not

exactly represent a person's feelings regarding what is being asked (Frankfort-Nachmias & Nachmias, 2008).

Conclusion

Even with the limitations presented above, this study adds to the literature regarding clinical site compensation in PA education and its relationship to student success. By using a national dataset that is highly similar to the population of PA students, I examined how a PA program's payment for clinical rotations may impact student self-efficacy and quality of clinical education experiences. Additionally, the use of multiple linear regression allowed for examination of the predictive relationship of program compensation status and quality of clinical education on student self-efficacy.

This chapter outlined the methodology for the present study, including research questions and hypotheses, study sample, variables examined, research design, and limitations. In sum, the analyses were used to examine the relationship between clinical rotation compensation and student success in PA education. The next chapter will present results of the inferential analyses used to examine the relationship between paying for clinical rotations in PA education and student success.

CHAPTER 4

RESULTS

This chapter presents results of the analyses used to examine the relationship between paying for clinical rotations in Physician Assistant (PA) education and student success. In it I address the t-test and multivariate regression analyses used to answer my research questions. First, I explore the differences of self-efficacy and perception of clinical education quality between students who attended PA programs that pay for clinical rotations and students who attended non-paying programs, answering research questions 1 and 2. Following the examination of the first two research questions, I examine how the potential combined relationship of clinical rotation payment and perception of clinical education quality on self-efficacy with student and institutional variables acting as covariates (research question 3).

School Payment Status and Self-Efficacy

The first research question and hypothesis of this study were:

Research question 1: How does self-efficacy differ between students attending PA programs that pay for clinical rotations and students attending non-paying programs?

Hypothesis 1: I hypothesized that students attending PA programs that pay for clinical rotations have stronger self-efficacy than students attending non-paying programs.

In analysis of research question 1, I examined the differences in self-efficacy between students who attended PA programs that paid for clinical rotations and students who attended non-paying programs. As outlined in Chapter 3, *self-efficacy* was defined in this study by a composite score of a student's confidence in the six PA profession

competencies (Medical Knowledge; Interpersonal and Communication Skills; Patient Care; Professionalism; Practice-Based Learning and Improvement; and Systems-Based Practice) at the end of their PA education. A student’s self-efficacy score could range from 0-24. I first reviewed the mean scores of total self-efficacy for each group of students. Students who attended non-paying programs appeared to have similar *self-efficacy* on average (M=20.31) than students who attended paying programs (M=20.30), contrary to what I expected. To verify this observation, I used independent sample t-tests to determine if there were statistically significant differences between the groups, and in fact mean *self-efficacy* scores were not significantly different between the two groups of students ($t=.079, p=.047^{23}$) (see Table 4.1). Thus, *self-efficacy* scores for students who are in paying programs are equivalent to those in non-paying programs.

*Table 4.1
Differences in Self-Efficacy, by Program Payment Status (n=2,375)*

	Non-Paying Programs (NP) (n=1,295)	Paying Programs (P) (n=1,080)	Difference (NP-P)	P-val ^b
Self-Efficacy	Mean (SD) 20.31 (2.66)	Mean (SD) 20.30 (2.62)	.01 ^a	.047

^a $t=.079$

^b Significance was set at $p<.01$

³ As a reminder, for a finding to be significant in this study, p-values must fall below .01.

School Payment Status and Clinical Education Quality

The second research question and hypothesis of this study were:

Research question 2: How does perception of clinical education quality differ between students attending PA programs that pay for clinical rotations and students attending non-paying programs?

Hypothesis 2: I hypothesized that students attending PA programs that pay for clinical rotations perceive their clinical experiences as greater in quality than their peers attending non-paying programs.

In analysis of research question 2, I examined the differences in perceived *clinical education quality* between students who attended PA programs that pay for clinical rotations and students who attended non-paying programs. As outlined in Chapter 3, *clinical education quality* was defined in this study by a composite score of a student's perception of rotation quality, as well as their experience with preceptors in a variety of rotation disciplines. A student's clinical education quality score could range from 0-49. I first reviewed the mean scores of *clinical education quality* for each group of students. Students who attended non-paying programs initially appeared to have slightly greater *clinical education quality* (M=38.08) than students who attended paying programs (M=37.12), and independent sample t-tests supported this finding ($t=2.88$, $p=.002$) (see Table 4.2). These findings should be interpreted with caution, as the magnitude of the difference in perceived *clinical education quality* was smaller than typical ($d=.12$). I had hypothesized that students who attended paying PA programs would have significantly greater perceptions of *clinical education quality* than students who attended non-paying

programs, yet the opposite was observed. Students attending non-paying programs had a statistically significant greater perception of their clinical education quality.

*Table 4.2
Differences in Perception of Clinical Education Quality, by Program Payment Status
(n=2,375)*

	Non-Paying Programs (NP) (n=1,295)	Paying Programs (P) (n=1,080)	Difference (NP-P)	P-val ^b
Quality	Mean (SD) 38.08 (8.04)	Mean (SD) 37.12 (8.18)	.96 ^a	.002*

^a t=2.88

^b Significance set at $p < .01$.

* $p < .01$, ** $p < .001$

To identify any potential differences between non-paying and paying programs by payment model, I ran a one-way ANOVA with post-hoc Tukey test. There was a statistically significant difference in *clinical education quality* between students that attended non-paying and paying programs as determined by one-way ANOVA ($F(2,27) = 3, p < .001$). The Tukey test revealed that the different payment models accounted for about 1% of the variance in *clinical education quality* ($\eta^2_p = .008$), which is considered a small effect size, thus the findings should be interpreted with caution. Specifically, *clinical education quality* scores for students who attended programs that pay all clinical sites and all preceptors (35.25 ± 8.42) were significantly lower than those of students who attended programs that pay some sites and some preceptors, but not all sites and

preceptors (37.48 ± 8.09 , $p=.008$) and students that attended non-paying programs (38.08 ± 8.04 , $p=.000$). In other words, in this sample, programs who pay all their sites and preceptors received the lowest *clinical education quality* scores of all the different payment methods ($p<.001$), with the largest difference being between programs that do not pay any sites or preceptors ($M=38.08$) and those that pay all sites and preceptors ($M=35.25$).

Table 4.3
ANOVA Comparisons of Clinical Education Quality by Program Payment Model

Group	n	Mean	SD	Tukey's HSD Comparisons			
				1	2	3	4
1. Non-paying	1,295	38.08	8.04	-			
2. Pay some sites/preceptors	874	37.48	8.09	.329	-		
3. Pay only preceptor	49	36.63	8.19	.608	.891	-	
4. Pay all sites and preceptors	157	35.25	8.42	.000**	.008*	.722	-

* $p<.01$, ** $p<.001$

Relationship Between Payment Status, Clinical Education Quality, and Self-Efficacy

The third research question and hypothesis of this study were:

Research question 3: How does students' perceived quality of clinical education and their program's rotation compensation status predict self-efficacy?

Hypothesis 3: I predicted that students who have higher quality perceptions of their clinical education and attend paying programs will have stronger self-efficacy than other students.

In the analysis of research question 3, I used simultaneous multivariable regression to examine the potential relationships between *self-efficacy* (the dependent variable) and the predictor variables. As outlined in Chapter 3, the predictor variables consisted of *clinical education quality* and *program payment status*, as well as student and institutional demographics. As noted in Chapter 3, bivariate correlation analyses determined there were no initial collinearity issues among the independent variables (see Appendix F, thus no proposed independent variables were removed or collapsed prior to running the regression model. The presentation of results are based on a significance level of $p < .01$ due to the large sample size ($n=2,375$).

I included a total of 20 independent variables in regression equation. The final model accounted for 14% of the variance in students' *self-efficacy*. Table 4.5 presents the unstandardized and standardized regression coefficients (b and β respectively) for the variables entering the model. The regression model indicated that *clinical education quality* was the only independent variable that predicted *self-efficacy* ($\beta = 0.37, p = 0.00$) after controlling for the other variables in the model.

I hypothesized that both a student's perceived *clinical education quality*, as well as their *program payment status* would have a relationship with their *self-efficacy*. Specifically, I predicted that students who perceived their clinical education quality to be greater and who attended programs that pay for clinical rotations would have significantly greater *self-efficacy* than other students. This hypothesis was partially supported, in that a student's perceived *clinical education quality* positively predicted gains in *self-efficacy*, even after controlling for their personal characteristics. However, it

is notable that program payment status was not a significant predictor of students' *self-efficacy* in the present model.

Table 4.4
Predictors of Self-Efficacy (n=2,206)

Variable	b	SE b	β	t	p
Program Payment Status	.03	.11	.01	.248	.804
Clinical Education Quality	.12	.01	.37	18.411	.000**
Age	-.01	.01	-.03	-1.150	.250
Gender	-.11	.12	-.02	-.907	.365
Ethnicity	-.36	.23	-.03	-1.584	.113
Race- Asian	-.54	.21	-.05	-2.565	.010
Race- Black/African-American	.47	.36	.03	1.281	.200
Race- Multiracial	-.15	.36	-.01	-.414	.679
Race- Other	-.07	.48	-.00	-.153	.879
Highest Education Prior to PA Professional Phase	-.32	.19	-.04	-1.665	.096
Institution Type- Private	.23	.13	.04	1.762	.078
Life Environment- Inner City	.38	.30	.03	1.269	.204
Life Environment- Military Base	.76	.55	.03	1.399	.162
Life Environment- Overseas	.04	.53	.00	.078	.938
Life Environment- Rural	.03	.21	.06	.154	.878
Life Environment- Suburban	.21	.20	.04	1.037	.300
Life Environment- Urban	.42	.21	.05	2.018	.044
Life Environment- Other	-2.98	1.42	-.04	-2.094	.036
Program Located in AHC	.17	.12	.03	1.363	.173

* $p < .01$, ** $p < .001$

Summary of Results

In this chapter I described the relationship between clinical rotation compensation and two student success measures: *self-efficacy* and *clinical education quality*. Results show that, in this sample, there was no significant difference in self-rated *self-efficacy* between students who attended paying programs and non-paying programs. Yet, there was a significant difference in self-rated *clinical education quality* between the two groups of students. Specifically, students who attended non-paying PA programs tended

to report higher levels of perceived *clinical education quality* than students who attended paying programs. Additionally, analyses indicated that a program's specific payment model further described group differences. In this sample, students who attended programs that pay all clinical sites and preceptors had significantly lower perceptions of *clinical education quality* than did those who attended non-paying programs, as well as programs that pay only some sites and some preceptors. Lastly, when considering *clinical education quality*, *school payment status*, student demographics, and institutional characteristics, only *clinical education quality* correlated to the prediction of *self-efficacy* for this sample.

Considering the relationship between compensation for clinical rotations, self-efficacy, and clinical education quality, results indicate that paying for clinical rotations does not make a difference in PA students' overall self-efficacy. Yet, *self-efficacy* can be predicted in part by a student's perceived *clinical education quality* and students who participated in non-paying programs rated their *clinical education quality* more highly than those in other types of programs. The following chapter addresses these findings in light of their implications for research and practice, and offers a conclusion about how these findings may help support PA programs in making the decision to pay or not pay for clinical rotations.

CHAPTER 5

DISCUSSION AND CONCLUSION

This concluding chapter begins with a brief overview of the present study and the research questions examined, a review of the theoretical frameworks, and a summary of the methodological analyses. Following the overview, I provide synthesis of the study findings in light of prior research and set a context for implications for administrators in Physician Assistant (PA) education, as well as in health professions education generally. The chapter concludes with suggestions for future research.

Overview of the Study

As the need for Physician Assistants (PAs) increases in the United States (Bureau of Labor Statistics, U.S. Department of Labor, 2017), PA education programs have an even greater charge to educate and graduate competent Physician Assistants to help fill the nation's healthcare workforce needs. To accomplish this, PA programs must provide students with a curriculum that prepares them for their future profession via both didactic and clinically-based educational experiences (ARC-PA, 2016). To provide clinical rotations to students, PA programs rely heavily on the commitment of preceptors to train students (C. Scott et al., 2012), thus program's ability to meet the nation's healthcare needs is directly related to preceptors' commitment to train students. Precepting has historically been undertaken as an act of professional stewardship and financial compensation for this service has not typically occurred (Glavaz et al., 2014; Gonzalez-Colaso et al., 2013). Yet, as concerns increase regarding the availability of clinical rotations (Erikson et al., 2013; Hooker & Muchow, 2014), more and more PA programs

are paying for clinical rotations in hopes of increasing recruitment of quality rotation sites (PAEA, 2009; 2017b).

However, while there is research regarding PA *programs*' perceptions of paying for clinical rotations, as well as implementation of this practice (Erikson et al., 2013; Glavaz et al., 2014), there is little exploring how paying for rotations may impact PA student success. To respond to the lack of research on this topic, the present study examined the relationship between program payment for clinical rotations, student self-efficacy, and perceived clinical education quality. Additionally, it examined the relationship of program payment status and clinical education quality to self-efficacy, after controlling for student and institutional characteristics. These outcomes were chosen based on the theoretical work of Bandura (1986, 1997), work motivation literature (Lent et al., 1994; Stajkovic & Luthans, 2002), measures of PA programs success (ARC-PA, 2016), and research pertaining to outcomes of clinical rotation payment in medical education (Ashar et al., 2007; Barone et al., 2012).

To address this topic, the study asked three questions:

- 1) How does self-efficacy differ between students attending PA programs that pay for clinical rotations and students attending non-paying programs?
- 2) How does perception of clinical education quality differ between students attending PA programs that pay for clinical rotations and students attending non-paying programs?
- 3) How does students' perceived quality of clinical education and their program's rotation compensation status relate to self-efficacy?

Two theoretical frameworks helped guide this study. Birnbaum's (1988) models of organizational functioning assisted in explaining why PA programs may choose to pay or not pay for clinical rotations. Bandura's work (1986, 1997) provided understanding as to why it is important for PA students to feel efficacious in the competencies of the PA profession and how clinical rotations serve as information sources for self-efficacy development.

This study utilized national data that represented PA students at the end of their PA education. The majority of data, including student-level demographics were drawn from the 2016 PAEA End of Program Survey (EOPS) (2016b). Student responses were then matched with institutional-level data, such as the school's clinical rotation payment status, which were drawn from the 2016 PAEA Program Survey (2016a). The analytic sample used for analysis in this study comprised 2,375 PA students. Based on Chi-Square analyses that were conducted, the sample was considered to be highly similar demographically to that of the population of PA students that graduated in 2016, as well as to the original EOPS respondents.

For the present study, t-tests were used to determine if there were differences between students who attended PA programs that pay for clinical rotations and those who attended non-paying programs, in regards to self-efficacy and perception of clinical education quality. If significant differences between the groups of students were found using t-tests, additional one-way ANOVA with post-hoc Tukey tests were used to identify any differences the school payment model may have contributed. Additionally, I used multiple linear regression to investigate the relationship of school payment status

and clinical education quality on self-efficacy, with student and institutional characteristics serving as covariates.

Discussion of the Findings

The analyses in Chapter 4 sought to identify if differences existed in self-efficacy and clinical education quality between PA students that attend programs paying for clinical rotations and students attending non-paying programs. Additionally, I examined if the combined relationship of clinical rotation payment and quality of clinical education serve as predictors of self-efficacy. Results from the analyses emphasized that paying for clinical rotations does not significantly enhance student success. The next sections correspond to the findings for specific research questions and accompanying hypotheses.

Research Question 1

How does clinical self-efficacy differ between students attending PA programs that pay for clinical rotations and students attending non-paying programs?

Hypothesis 1. *Students attending PA programs that pay for clinical rotations have stronger self-efficacy than students attending non-paying programs. Hypothesis 1 was not supported.*

Self-efficacy development occurs through four information sources including: enactive mastery experiences, vicarious experiences, verbal persuasion, and environments for optimal physiological states (Bandura, 1986, 1997), all of which may be provided to health professions students through clinical rotations (Goldenberg et al., 1997; Spence Laschinger et al., 1999). Additionally, since the quality of information sources enhance self-efficacy development and it has been suggested that clinical rotation payment increases education quality (Ashar et al., 2007; Barone et al., 2012), I

hypothesized that PA students who attended programs that pay for clinical rotations would have greater self-efficacy than students who attended non-paying programs. To examine this, I used t-tests to compare self-efficacy scores of PA students attending paying programs and students attending non-paying programs. My hypothesis that students attending paying programs have greater self-efficacy was not supported. Analysis suggests that there are no significant differences in self-efficacy between the two groups of students. Thus, students who attend non-paying programs have the same resultant self-efficacy levels (as measured in this study) as students who attend paying programs.

Research Question 2

How does perception of clinical education quality differ between students attending PA programs that pay for clinical rotations and students attending non-paying programs?

Hypothesis 2. *Students attending PA programs that pay for clinical rotations perceive their clinical experiences as greater in quality than their peers in non-paying programs. Hypothesis 2 was not supported.*

Although the literature is limited, studies about the relationship between clinical rotation payment and quality of education in medical education have suggested that paying preceptors increases clinical education quality (Ashar et al., 2007; Barone et al., 2012). Past studies suggest that increased quality occurs because programs that pay have greater opportunity to select the most qualified preceptors, thus providing students a greater quality of education. I used t-tests to examine if there were significant differences in student perceptions of *clinical education quality* between students attending paying

and non-paying programs, in particular expecting students in paying programs to report greater quality than their peers in non-paying programs. The analysis of these data indicated that there were significant differences between the two groups of students, yet it was students attending non-paying programs who reported higher *clinical education quality*. Thus, my hypothesis was not supported. This finding was particularly interesting, as it contradicts the previous literature pertaining to payment for clinical rotations and education quality (Ashar et al., 2007; Barone et al., 2012).

In addition to the findings of the t-test, I wanted to examine this question further to ensure that any potential differences between paying and non-paying programs were not overlooked when all paying schools, dependent of paying model, were collapsed into one group. This further analysis helped identify any nuances based on a school's specific payment model. I ran a one-way ANOVA with post-hoc Tukey test, which further suggested that students attending paying programs rate the quality of their program's clinical education quality significantly lower than students who attend non-paying programs and programs that pay some sites and/or preceptors rate their programs.

Although the results of this research question did not support previous findings pertaining to clinical rotation compensation and student outcomes (Ashar et al., 2007; Barone et al., 2012), it did support findings regarding PA program directors' perceptions about paying for clinical rotations (Glavaz et al., 2014). Nearly 82% of program directors disagree or strongly disagree that payment for clinical sites increases the quality of the education provided by the clinical sites (Glavaz et al., 2014). My findings suggest that PA program directors perceptions about the practice of paying for clinical rotations may be accurate. Additionally, previous studies indicating that payment increases education

quality rationalized that this occurs because the pool of healthcare providers willing to train students becomes greater when payment is offered and programs then have the opportunity to select the most qualified preceptors (Ashar et al., 2007; Barone et al., 2012). Yet, perhaps non-paying programs already have the most qualified preceptors training students and thus offering compensation does not affect the quality of education provided to students. Likewise, perhaps paying programs struggle to get preceptors in general and do not have the opportunity to be selective when choosing preceptors.

Research Question 3

How does students' perceived quality of clinical education and their program's rotation compensation status predict self-efficacy?

Hypothesis 3. *Students who have higher quality perceptions of their clinical education and attend paying programs have stronger self-efficacy than other students.*

Hypothesis 3 was partially supported.

Research question 3 was exploratory in nature, as no other studies have previously investigated the combined relationship of clinical rotation payment and perceived clinical education quality with self-efficacy. Yet, literature surrounding self-efficacy development (Bandura, 1986, 1997; Goldenberg et al., 1997; Spence Laschinger et al., 1999; van Dinther et al., 2011) and findings from previous studies on clinical rotation compensation (Ashar et al., 2007; Barone et al., 2012) suggested that the combined effects of clinical rotation payment and higher perceived education quality may have a significantly greater impact on PA student self-efficacy. In part, the hypothesis was supported, in that clinical education quality has some predictive power on self-efficacy. Yet, a student's school payment status did not predict self-efficacy.

The findings of this research question suggest that quality of the clinical experience provided to the student, including the preceptor's fulfillment of role responsibilities, may have an impact on how well self-efficacy is developed, which is directly supported by the literature on self-efficacy development (Goldenberg et al., 1997; Spence Laschinger et al., 1999; van Dinther et al., 2011).

Summary

Given the findings summarized in the sections above, several things can be concluded about the relationships between clinical rotation payment, self-efficacy, and clinical education quality. First, in the present study the practice of paying for clinical rotations in PA education does not appear to have a beneficial impact on student self-efficacy. PA students who attend paying programs did not have significantly different confidence in the competencies of the PA profession at the end of their program than students who attend non-paying programs. Second, clinical rotation payment did not have a beneficial impact on students' perception of clinical education quality. Students who attend non-paying programs had significantly greater perceptions of the clinical education quality they experienced than students at paying programs. Additionally, when considering the specific payment model of paying schools, students from programs that pay all preceptors and sites had significantly lower perception of clinical education quality than students from non-paying programs and programs that pay some, but not all sites and/or preceptors. Lastly, clinical site payment was not found to have a significant predictive relationship with self-efficacy, yet perception of clinical education quality did explain some gains in self-efficacy. The practice of clinical rotation compensation and its impact on student success was the core focus of this study and findings indicate that this

practice in PA education does not attribute to positive gains in the student success measures of self-efficacy nor to perception of clinical education quality.

Implications

The findings from this research can be useful for administrators in PA education, as well as in health professions education generally. Specifically, these findings can assist administrators in making decisions about implementing clinical rotation payment for their program, guide them in training clinical preceptors to improve education quality, and help them consider which incentives may best motivate preceptors to train students. These implications are discussed in the following three sections.

Deciding to Pay for Clinical Rotations

PA programs, as well as health professions education programs generally, are facing increasing challenges to provide an adequate number of clinical rotations to train their students (Erikson et al., 2013). Without clinical rotation experiences it will be impossible for education programs to graduate enough providers to meet the nation's increasing healthcare needs. The present study's findings indicate that clinical rotation payment does not provide increased benefits to student outcomes, specifically self-efficacy and clinical education quality, which differs from previous findings implying that payment enhances education quality by increasing the available preceptor pool (Ashar et al., 2007; Barone et al., 2012). If PA programs find that paying for clinical rotations is the only possible means to recruit the necessary rotations, then perhaps implementing a payment model is the best answer for their program. Programs must decide if providing payment for clinical rotation experiences is worth the return on investment. However, administrators also must be cognizant of how they will fund

payment for clinical rotations, as doing so has the potential to impact the diversity of their students, the healthcare workforce, and ultimately access to healthcare.

Payment for clinical rotations in PA education creates a significant burden on programs, as more than half of programs that pay allocate between 16-20% of their budget towards this cost (Glavaz et al., 2014). In the 2015-2016 fiscal year, the average amount spent on clinical rotations was more than \$192,000 per program (PAEA, 2017b), a cost that is often offset by increasing student tuition and fees (Glavaz et al., 2014). Previous literature indicates that increased educational costs can create significant barriers to healthcare profession for students of color (Agrawal et al., 2005; DiBaise et al., 2015) and students from rural areas (Woloschuk et al., 2010). Yet, it is imperative to enhance diversity of the healthcare workforce as many healthcare providers of color and those from rural areas choose to practice in medically underserved areas (Institute of Medicine, 2004; Muma et al., 2010). Thus, if programs choose to pay for clinical rotations it is crucial that they find ways to offset the barriers that clinical rotation payment may indirectly have on certain student groups. Developing enhanced diversity initiatives and scholarship opportunities for students of color and/or students from rural areas may assist in addressing the diversity issues clinical site payment may cause.

Findings from this study indicate that payment for clinical rotations does not enhance student self-efficacy or clinical education quality. I speculate that these findings are explained in part because paying programs assume that their preceptors are providing excellent training because they are being paid. Birnbaum's (1988) Bureaucratic Model of Organizational Functioning supports this speculation, as paying schools may believe that compensation can be linked to standardization and higher quality education

for their students. Yet, the findings from this study suggest that all programs should ensure students are receiving the best education possible with or without paying for clinical rotations, which may include improved preceptor training. The next section outlines ways programs may increase clinical education quality and student self-efficacy development.

Implications for Preceptor Training

Student self-efficacy in the competencies of the PA profession were used as a success measure in the present study because PAs with greater self-efficacy have greater potential to successfully complete learned skills during stressful situations (Bandura, 1986, 1997; Lent et al., 1994; Stajkovic & Luthans, 2002), which in healthcare may be crucial for the sake of patient safety. Previous literature indicates that PA programs have the opportunity to develop student self-efficacy through clinical rotations, as these experiences can offer students all four information sources of self-efficacy development, which include enactive mastery experiences, vicarious experiences, verbal persuasion, and environments for optimal physiological states (Bandura, 1986; Goldenberg et al., 1997; Spence Laschinger et al., 1999). Importantly, the quality of the information sources provided to the student via the rotation is important to overall efficacy development (Goldenberg et al., 1997; Spence Laschinger et al., 1999; van Dinther et al., 2011). The findings of the present study are supported by the literature in that self-efficacy development can be predicted in part by clinical education quality, thus it is imperative that programs train preceptors on practices and techniques to develop self-efficacy information sources for students during clinical rotations.

A national training program for PA preceptors is not available, yet the PAEA outlines general preceptor responsibilities and best practices in the *Preceptor Orientation Handbook* (PAEA, 2012). The suggested practices support the literature that certain preceptor behaviors and rotation environments can provide opportunities to develop student self-efficacy (Bandura, 1986; Goldenberg et al., 1997; Spence Laschinger et al., 1999; van Dinther et al., 2011). As such, PA programs should utilize the basic guidelines of the PAEA (2012) to proactively train preceptors on methods to provide students with enactive mastery experiences, vicarious experiences, verbal persuasion, and optimal physiological states throughout clinical rotation experiences. Enactive mastery experiences should allow students to participate in challenging skill sets that enable them to develop a pattern of successful attempts (Physician Assistant Education Association, 2012). Rotations that only allow students to perform basic clinical skills, even if they are successful in achieving these, will not develop efficacy. Clinical rotations should ideally increasingly provide these advanced experiences once the preceptor identifies the student's skill level and has the confidence to allow the student to attempt the skill (Goldenberg et al., 1997; Spence Laschinger et al., 1999). Programs can assist preceptors in knowing the skill level of the student by providing expectations for the rotation prior to the student beginning the rotation. To ensure vicarious experience development, the preceptor should expose the student to challenging situations that may arise during any given skill to provide a higher level of predictability to achieving success (Bandura, 1986). To provide optimal verbal persuasion, preceptors should provide ongoing feedback to the student throughout the development of skill and/or rotation (Spence Laschinger et al., 1999). Programs can help facilitate this process by requiring mid-

rotation and end-of-rotation feedback from the preceptor and provide training to preceptors regarding effective feedback techniques. Lastly, to ensure rotations provide optimal physiological situations programs can work with preceptors to prepare students for the specifics of the rotation environment and ensure that staff and other providers at the rotation are aware the student is arriving and creating a supportive learning environment.

Preceptor Incentives

As previously mentioned, paying preceptors and clinical sites to provide clinical rotation experiences to PA students is becoming more popular (PAEA 2009, 2017b), yet serving as a preceptor has traditionally been a role undertaken in a volunteer capacity (Glavaz et al., 2014; Latessa et al., 2013). Although this act of professional stewardship stems from the professional ethics of the PA profession (AAPA, 2013), preceptors have both intrinsic and extrinsic motivation for training students. Throughout health professions education, intrinsic motivators, such as professional development and personal fulfillment, as well as professional stewardship are the most highly cited motivators for preceptors (Glavaz et al., 2014; Peyser et al., 2014). Extrinsic motivators, such as Continuing Medical Education (CME) activities (Latessa et al., 2013; M. S. Ryan et al., 2013), faculty appointments (Foley et al., 1996), professional development seminars (Stone et al., 2002), access to university library resources (Latessa et al., 2013), and financial compensation (Germano et al., 2014; Latessa et al., 2013; Ryan et al., 2013) also entice healthcare providers to become and remain preceptors.

It is important for PA programs to provide incentives that benefit the preceptor as well as the program. This balance is one that would ideally recruit and retain preceptors

while also providing students with the highest quality of education. The findings of the present study suggest that students who attend PA programs that pay for clinical rotations perceive their clinical education quality as lesser than students who attend non-paying programs. Thus, paying for rotations may not be leading to one of the optimal outcomes (e.g. quality of clinical education and precepting), and in fact, this finding highlights a potential pitfall: that increased competition may lead to lower quality unless incentives and training are improved. These findings, coupled with the literature surrounding preceptor motivation, suggests that programs should focus on providing non-financial incentives to preceptors, both intrinsic and extrinsic, that will continue to acknowledge preceptors' commitment, but is also cost-effective for programs.

Directions for Future Research

While this study provides new insights into the relationship between clinical rotation payment and student success, there are several limitations and delimitations that must be considered. This section will address these and provide suggestions for future research.

First, this study used secondary data which limited the type of information that could be gleaned and restricted how the data was released to me (Frankfort-Nachmias & Nachmias, 2008). Researchers have greater ability to tailor their investigations when they are able to design their own survey instruments, yet accessing a national data sample via the PAEA survey tools outweighed this limitation in the present study. Future research pertaining to clinical site compensation may be done collaboratively with a researcher and the PAEA via PAEA's Support to Advance Research (STAR) Program. Researchers selected for this annual distinction are granted the opportunity to add ten items to the

PAEA Program Survey specific to their own research. This would allow researchers to both access a national sample, as well as have the ability to ask their own questions. Future instrument items should include questions that ask paying programs more about which rotations disciplines they pay for and the rationale. Additionally, non-paying programs should be asked why they choose to not pay and identify if they have any plans to pay in the future.

A second limitation was the potential for a response bias, as there was only a 41% response rate. Although the analytic sample was found to be highly representative of the population, there were still characteristics that could not be compared between the overall PA population and study sample, such as school payment status, highest education prior to PA school, primary life environment, institution type, and ACH affiliation. Future research should consider that there are other student and institutional variables that might contribute to student success outcomes that were not included in the present study.

A third limitation is that the survey instrument utilized a Likert scale to gauge student perceptions (PAEA, 2016b), which may not exactly represent a person's feelings regarding what is being asked (Frankfort-Nachmias & Nachmias, 2008), and the use of self-efficacy as a measure has limitations both generally, as well as specific to health professions education (Bandura, 1986; Clack & Head, 1999; Gude et al., 2017; Lurie et al., 2007). Unlike the present study, future research might be done with qualitative and/or mixed methods methodology to help account for student perceptions of self-efficacy and quality of education.

A fourth limitation is that group differences may exist in the reporting of self-efficacy, specifically in health professions education (Clack & Head, 1999; Gude et al., 2017; Lurie et al., 2007). Although the present study did not find significant group differences in self-efficacy between students in different gender, racial, or ethnic groups, future research might consider group differences in their research questions.

Lastly, the magnitude of differences in perceived *clinical education quality* between students at paying and non-paying programs (Research Question 2) were small and are a limitation of the present study. Thus, the findings should be interpreted with caution. Accessing a larger sample size in future research may help uncover if significant differences in *clinical education quality* are stronger than what was found in the present study.

There were also delimitations that guided the parameters of the present study. First, when reviewing the literature regarding preceptors and precepting, I chose to only use studies pertinent to health professions education. I did not use professions outside of this field that utilize similar ‘internship’ or ‘in-training’ experiences, such as teacher education. This was done because I did not feel that the experience preceptors provide students in clinical education is represented specifically by any discipline outside of health professions. Future research might consider how these models outside of health professions education could serve as exemplars.

Secondly, I chose not to use cognitive assessments (such as national assessment scores) as student success measures in the present study. For this study, I found it most important to use a national student sample, which the EOPS provided, however there was not a mechanism to match national assessment scores for end of rotation exams,

certification prep exams, and/or the national certification exam, to EOPS responses.

Future studies should focus on using cognitive measures, as well as student self-rated perceptions, when investigating the relationship between clinical rotation payment and student success.

Although not associated with a limitation or delimitation of the present study, there are additional directions for future research pertaining to the practice of clinical rotation compensation and PA student success. First, clinical education quality in the present study was generalized across multiple rotation specialties, yet it might be beneficial to parse quality out by rotation specialty type and compare differences that way. This is especially true for programs that only pay some sites and preceptors, as they are likely paying in specialty areas that are the most challenging to secure rotations in (eg. women's health, pediatrics). Second, I think it would be beneficial to compare self-efficacy and education quality perceptions at different points in PA students' education, for the purpose of comparing if there are differences between students attending paying and non-paying programs at different point of their education. For example, future research might survey students about self-rated self-efficacy and perceived education quality just prior to starting clinical rotations, then again at the end of their program to further investigate if potential differences between paying and non-paying students is alone due to clinical rotation experience and rotation payment or if the didactic phase of the program has some predictive relationship to these success measures.

Even with the limitations and delimitations of the present study, the findings provide foundational literature pertaining to the practice of clinical rotation compensation and student success in PA education. Not only is the present study the first of its kind

specific to PA education, in that it asks students about quality and self-efficacy as related to payment status, but it utilized a national sample of PA students that was highly representative of the population, thus findings are highly generalizable. Suggestions for future research included in this section provide avenues to further expand the research done in the present study.

Conclusion

Previous research suggests that PA programs have an increasing fear that they will be unable to secure an adequate number of clinical rotations to educate their students. In hopes of securing more clinical rotation sites, there has been an increase in the amount of PA education programs that pay for clinical rotations - despite PA program directors' disagreement overall with the ideology of this practice. However, while some studies have investigated PA programs' perceptions of and plans to implement clinical rotation compensation, little research has examined how clinical rotation compensation may predict student success. This study provides essential insight into this topic.

Specifically, this study found that clinical rotation payment in PA education does not positively impact student success as defined by self-efficacy and perceived clinical education quality. However, a student's perceived quality of clinical education does partially predict self-efficacy. As such, the findings led to suggestions for how PA administrators, as well as health professions education administrators generally, can make decisions about implementing clinical rotation compensation for their program, how they might need to better train preceptors to provide experiences that enhance student self-efficacy development, and how they can incentivize preceptors without financial compensation. Additionally, suggestions for future research were provided, in

order to continue to better understand how clinical rotation compensation may affect student success.

Considering the findings of this study, PA programs must carefully consider if paying for clinical rotations provides enough value to off-set the high cost of the practice, and the potential impact on student diversity. In light of these findings, should programs decide to pursue payment for clinical rotations, they should implement initiatives that ensure increased costs due to paying does not create access barriers for students of color and students from rural backgrounds. Additionally, programs should utilize PAEA's recommendations on preceptor orientation to develop preceptors' skills in providing students with training experiences that enhance self-efficacy development and incentivize preceptors through means other than compensation, such as professional development opportunities and faculty appointments.

As a PA program administrator myself, I pursued research surrounding the payment of clinical rotations because I believed it would positively impact PA education, yet I believed my own work was relatively unaffected by the phenomenon. During the final month of my dissertation preparation however, our PA program lost rotation spots to a different PA program in our state because they pay for rotations and our program does not. This is the first time we have experienced this phenomenon since matriculating our inaugural class four years ago. Thus, the present study became especially timely and relevant to my own work.

As part of an urban-serving institution, the PA program in which I serve has goals to recruit a highly qualified and diverse student body, as well as to prepare students to practice in medically underserved areas. Additionally, we are striving to achieve these

goals under tighter budget constraints than ever before. Because of these factors it seems impossible to increase our program's operating budget by an estimated \$200,000 to pay preceptors to train our students, as it would be detrimental to our mission and to our fiscal responsibility. However, as increased competition due to paying rotation sites is now a reality for us, the findings of the present study can be used by our program to develop a philosophical stance regarding clinical rotation payment and will enhance our practice as well. My hope is that PA programs nationally will also find the present study useful as they consider the implications of clinical rotation payment on their students, as well as the healthcare community at large.

APPENDIX A

2016 PAEA PROGRAM SURVEY

12/9/2016

Qualtrics Survey Software

Introduction

PAEA 2016 Program Survey

Please read the following instructions carefully before you start the survey.

Welcome to the 2016 PAEA Program Survey! This is the most comprehensive of PAEA's surveys and provides data on which the *By the Numbers: 32nd Report on Physician Assistant Educational Programs in the United States* will be based. The collection of high-quality data about the profession remains one of PAEA's top priorities.

Directions

Please complete all sections of the survey, which cover the 2015-2016 [academic year](#) (except sections relating to financial information). The financial information is based on the 2015-2016 [fiscal year](#), as defined by each program. We have provided definitions for any text that appears in blue. To view the definition, please hold (do not click) your cursor over the word or words.

Professional Phase Coverage

Unless otherwise indicated, information requested for this survey covers the [professional phase](#) of the program, though some questions regarding [pre-professional programs](#) are included in the "General Information" section.

Response Is Required for All PAEA Member Programs

The PAEA Board of Directors has made the decision to enforce the bylaws requirement that PAEA member programs respond to the Program Survey. Programs will have ample time to respond to the survey and will receive several reminders and a final notice of non-compliance, according to procedures adopted in the PAEA Policies and Procedures Manual. Programs that fail to respond to the survey after the established grace period will have their membership revoked. As always, programs are welcome to contact PAEA Research Department staff for assistance with completing the survey.

<https://az1.qualtrics.com/ControlPanel/Ajax.php?action=GetSurveyPrintPreview>

1/39

Deadline

The deadline for completing this survey is **Wednesday, August 3, 2016**. Programs who complete both the Program Survey **and** the Curriculum Survey in their entirety by the deadline will be entered into a drawing for a complimentary registration to the 2016 Annual Education Forum in Minneapolis, MN.

Appreciation

Special thanks to the PAEA Research Council members for contributing to the oversight of this survey.

Questions or Comments

For assistance with the survey or to comment on the survey, send an email to the PAEA Research Department at research@PAEAonline.org.

Thank you for doing your part to provide timely, accurate data for the PA education profession!

Section 1. General Information**Section 1. General Information**

All information in this section refers to the 2015-2016 [academic year](#).

1. Please select the state of your program's primary location from the drop down menu.

2. Please select the name of your physician assistant (PA) program's home educational institution from the drop down menu.

3. Does your program operate any **distant campuses that are accredited through your sponsoring institution?**

- Yes
- No

3a. Does your **distant campus (or campuses) conduct a separate admissions process?**

- Yes
- No

3b. Please identify the name and geographic location of your **distant campus (or campuses). You may add up to three locations.**

Note: If you have more than three distant campuses, please contact PAEA Research Staff at research@PAEAonline.org.

State	<input type="text"/>
Program name	<input type="text"/>
State	<input type="text"/>
Program name	<input type="text"/>
State	<input type="text"/>
Program name	<input type="text"/>

4. Please enter the following information about the individual filling out the majority of this survey. This person will serve as the contact person if PAEA Research Department staff have any questions about the data.

Note: Please enter your phone number in the following format: XXX-XXX-XXXX. Include an extension number if applicable.

First name	<input type="text"/>
Last name	<input type="text"/>

Title	<input type="text"/>
E-mail address	<input type="text"/>
Phone number	<input type="text"/>
Phone extension number (if applicable)	<input type="text"/>

5. Which of the following best describes your institution?

- Public
- Private, non-profit
- Private, for-profit
- Public/private hybrid
- Military

6. Is your sponsoring institution an **academic health center (AHC)?**

- Yes
- No

7. Which of the following best describes your program's administrative housing?

Note: If the program's administrative housing is different than the given choice, please select the closest match. If there is no match, select "other" and then specify.

- College of Arts and Sciences
- College of Graduate and Professional Studies
- College/School of Medicine
- Department/School of Physician Assistants (stand alone)
- School of Allied Health/Health Professions/Health Sciences
- Science Department
- Other, please specify

8. Does your program have a **pre-professional phase?**

- Yes

No

8a. What is the length, in semesters, of the pre-professional phase of your program?

8b. Which of the following best describes your program's model?

4+2

3+2

3+3

2+3

Other, please specify

8c. Please select how your program admits students into the PA program (the main program) from the options below.

Pre-professional phase track only

Both pre-professional track and direct admit to professional phase

8d. How many students did you admit into the pre-professional phase track in 2016 (e.g., as freshmen)?

8e. How many students admitted in 2016 to the professional phase of your program were from the following categories?

Number of students

Pre-professional admission	<input type="text" value="0"/>
Direct program admission	<input type="text" value="0"/>
Total	<input type="text" value="0"/>

8f. Based on past experiences, what is the average percentage of the students admitted to a freshman class that you expect to ultimately enter the [professional phase](#) of the program?

Note: Do not include a percentage sign (%) or other non-numeric characters.

9. Please list the total length of each phase of your program in weeks. Please **do not** subtract breaks or vacation.

Didactic	<input type="text" value="0"/>
Clinical	<input type="text" value="0"/>
Total	<input type="text" value="0"/>

10. Of the total program length, approximately how many total weeks do your students get for **vacation**?

11. Please enter your total program length (professional phase only) in months, as articulated in your program's literature/website.

12. Please indicate how the **academic terms** at your institution are based.

Note: Many PA programs use a combination of types of academic terms. For example, an academic year may include two regular semesters plus a full or abbreviated summer term. The clinical phase often does not follow a typical collegiate academic calendar.

[Semesters](#)

[Trimester](#)

[Quarters](#)

Other, please specify

13. What is the total number of credits required of students for completion of the professional phase of your program?

14. Please enter the number of required weeks students must complete for each distinct specialty area of **supervised clinical practice. If these areas are integrated in other types of rotations, please leave the field blank.**

	Weeks
Behavioral and mental health care	<input type="text" value="0"/>
Emergency medicine	<input type="text" value="0"/>
Family medicine	<input type="text" value="0"/>
General surgery	<input type="text" value="0"/>
Internal medicine	<input type="text" value="0"/>
OB/GYN/women's health	<input type="text" value="0"/>
Pediatrics	<input type="text" value="0"/>
Total	<input type="text" value="0"/>

15. Does your program offer any **supervised clinical practice experiences during the **didactic phase** of the program?**

Yes

No

15a. Please enter the total number of days that your program offers **supervised clinical practice experiences during the **didactic phase** of your program. If you are unsure, please estimate.**

16. Please select the month that your program starts from the drop down menu.

17. Please select the month that your program ends from the drop down menu.

17a. For the purposes of the administration of the PAEA End of Program Survey, please enter the week number (1-4) that the following occurs.

Last day on campus

Graduation ceremony

18. What is the primary or highest credential that your program awards?

Certificate of Completion

Associate's degree

Baccalaureate degree

Master's degree

18a. Please select the name that most closely matches the master's degree that your program awards.

Master of Science (MS)

Master of Physician Assistant Studies (MPAS), Master of Science in Physician Assistant Studies (MSPAS), Master of Physician Assistant Practice (MPAP), or Master of Physician Assistant (MPA)

Master of Health Science (MHS) or Master of Science in Health Science (MSHS)

Master of Medical Science (MMS/MMSc) or Master of Science in Medicine (MSM)

Master of Public Health (MPH)

Other Master's degree, please specify

19. Does your program offer additional academic credentials?

Yes

No

19a. Please select all of the academic credentials that apply.

Certificate of Completion

Associate's degree and Master's degree

Associate's degree and optional Master's degree

Bachelor's degree/Master's degree (Accelerated Program)

Master's degree plus Master's of Public Health

Other, please specify

Section 2. Financial Information

Section 2. Financial Information

Budget and expense information refers to the fiscal year 2015-2016, or the most recently completed **fiscal year**.

Note: For all monetary values entered, DO NOT include other characters, such as dollar signs (\$), commas (,), or periods (.). For example, for the value \$50,000, enter 50000.

20. Please define your institution's **fiscal year**.

- January 1- December 31
- June 1-May 31
- July 1-June 30
- September 1-August 31
- October 1-September 30

Other, please specify

21. For your program's 2015-2016 fiscal year, please indicate from the following budgetary sources from which your program received funds. Please check all that apply.

- Budgeted funds from sponsoring institution
- Tuition and fees received directly by the program
- Federal grant/contract
- State grant/contract
- AHEC support
- Private foundation
- Industry
- Endowment

Other, please specify

22. For your program's 2015-2016 fiscal year, please enter the amount of money received from each of the following sources that are used to directly support the program's operations. All items are mutually exclusive.

Note: For all monetary values entered, DO NOT include other characters, such as dollar signs (\$), commas (,), or periods (.). For example, for the value \$50,000, enter 50000.

Amount (\$)

» Budgeted funds from sponsoring institution

Amount (\$)

» Tuition and fees
received directly by the
program

» Federal
grant/contract

» State grant/contract

» AHEC support

» Private foundation

» Industry

» Endowment

» Other, please specify

23. Please enter your total program expenses (including salaries, benefits, and operational costs) for the **fiscal year 2015-2016 (or most recently completed fiscal year) below.**

Note: For all monetary values entered, DO NOT include other characters, such as dollar signs (\$), commas (,), or periods (.). For example, for the value \$50,000, enter 50000.

Amount (\$)

Total program
expenses

24. For your program's 2015-2016 **fiscal year, please indicate which of the following expenses were incurred by your program in the 2015-2016 fiscal year.**

Faculty salaries (excluding fringe benefits)

Staff salaries (excluding fringe benefits)

Payment for didactic instruction not included in faculty salaries

Payment for supervised clinical practice (sites and/or clinical preceptors)

Faculty development (e.g., conferences, coursework, advanced degree)

Simulation activities (excluding capital and standardized patients)

Standardized patients

Laboratory supplies

Office expenses (e.g., supplies, printing)

Payment for student housing and travel to remote clinical training sites

25. For the selected expense categories, please enter the amount of money for the following for the **fiscal year 2015-2016 (or most recently completed fiscal year).**

Note:

- The amounts entered may not sum to the total program expenses provided on the previous page, as only specific categories are asked below.
- For all monetary values entered, **DO NOT** include other characters, such as dollar signs (\$), commas (,), or periods (.). For example, for the value \$50,000, enter 50000.

	Amount (\$)
» Faculty salaries (excluding fringe benefits)	<input type="text"/>
» Staff salaries (excluding fringe benefits)	<input type="text"/>
» Payment for didactic instruction not included in faculty salaries	<input type="text"/>
» Payment for supervised clinical practice (sites and/or clinical preceptors)	<input type="text"/>
» Faculty development (e.g., conferences, coursework, advanced degree)	<input type="text"/>
» Simulation activities (excluding capital and standardized patients)	<input type="text"/>
» Standardized patients	<input type="text"/>
» Laboratory supplies	<input type="text"/>
» Office expenses (e.g., supplies, printing)	<input type="text"/>
» Payment for student housing and travel to remote clinical training sites	<input type="text"/>

26. What is the institutional **fringe rate for faculty salaries?**

Note: Please report rate as a whole number. For example, a 5% fringe rate should be reported as "5".

27. Does your program pay for clinical sites?

Yes, payment only to the clinical site (e.g., clinic hospital)

Yes, payment only to clinical preceptor

Yes, payment to all clinical sites and clinical preceptors

Yes, payment to some clinical sites and/or clinical preceptors, but not all

No payments to clinical sites or preceptors

27a. What is the average cost per student per week for clinical sites paid for by your program?

Note: For all monetary values entered, DO NOT include other characters, such as dollar signs (\$), commas (,), or periods (.). For example, for the value \$50,000, enter 50000.

28. Does your program have separate resident and non-resident tuition rates?

Yes

No

28a. Please provide the estimated current total tuition that each student will incur for the entire length of the PA program, excluding fees.**Note:**

- If your program has a pre-professional programs, include ONLY the professional phase.
- For all monetary values entered, DO NOT include other characters, such as dollar signs (\$), commas (,), or periods (.). For example, for the value \$50,000, enter 50000.

Amount (\$)

Resident/In-state
tuition

Non-resident/Out-of-
state tuition

28b. Please provide the estimated current total tuition that each student will incur for the entire length of the PA program, excluding fees.

Note:

- If your program has a pre-professional programs, include **ONLY** the professional phase.
- For all monetary values entered, **DO NOT** include other characters, such as dollar signs (\$), commas (,), or periods (.). For example, for the value \$50,000, enter 50000.

Amount (\$)

Tuition

29. Please provide the estimated current total incidental costs per student in addition to those collected by the institution or program for the entire length of the PA program.

Note:

- Incidental costs are defined as additional costs to students **not** by the institution but **required** by the program, such as medical equipment, lab coats, books and supplies, BLS/ACLS not part of the curriculum, etc.
- Please **do not** include estimated costs for housing, transportation, and other living expenses.
- If you have a **pre-professional programs**, include **ONLY** the **professional phase**.
- For all monetary values entered, **DO NOT** include other characters, such as dollar signs (\$), commas (,), or periods (.). For example, for the value \$50,000, enter 50000.

Amount (\$)

Total incidental costs

30. In considering student fees collected directly by the institution or program, are you able to break down fees per student by category (e.g., laboratory fees, clinical fees, computer/IT)? Please note, student fees are separate from tuition.

Yes

No

30a. In order to obtain a detailed analysis of student fees, please provide the estimated current total required fees per student incurred throughout the entire program for the following categories. Please leave items blank if they are not required.

Note:

- Please do not include tuition.
- If your program has a pre-professional phase, include ONLY the professional phase.
- For all monetary values entered, DO NOT include other characters, such as dollar signs (\$), commas (,), or periods (.). For example, for the value \$50,000, enter 50000.

	Amount (\$)
Application and/or graduation fees	<input type="text"/>
Background check	<input type="text"/>
BLS/ACLS	<input type="text"/>
Clinical fee(s)	<input type="text"/>
Computer/IT	<input type="text"/>
Drug screening	<input type="text"/>
Liability insurance	<input type="text"/>
Laboratory fee(s)	<input type="text"/>
Parking	<input type="text"/>
Professional or association dues	<input type="text"/>

	Amount (\$)
Student health services	<input type="text"/>
Student services fee(s)	<input type="text"/>
Other, please specify <input type="text"/>	<input type="text"/>

30b. In order to obtain a detailed analysis of student fees, please provide the estimated current total required fees per student incurred throughout the entire program.

Note:

- Please do not include tuition.
- If your program has a pre-professional programs, include ONLY the professional phase.
- For all monetary values entered, DO NOT include other characters, such as dollar signs (\$), commas (,), or periods (.). For example, for the value \$50,000, enter 50000.

31. Please identify the amount of scholarship funds awarded by (or passed through) the institution or the program for the 2015-2016 fiscal year, excluding federal loans and scholarships (e.g., National Health Service Corps, Expansion of Physician Assistant Training grants).

Note:

- Do not include scholarships awarded by external agencies directly to the student (e.g., PA Foundation).
- For all monetary values entered, DO NOT include other characters, such as dollar signs (\$), commas (,), or periods (.). For example, for the value \$50,000, enter 50000.

Amount (\$)

Total scholarship funds
awarded

32 . Please estimate the percentage of the first year class admitted in the 2015-2016 academic year that received financial aid from the program or institution.

Note: If you do not know, please leave the field blank and proceed to the next page of the survey.

33. Please estimate the amount of out-of-pocket expenses the average individual student paid for housing at remote clinical sites for the entire 2015-2016 academic year.

Note:

- If your program does not have students placed at remote clinical sites, please leave the field **blank**.
- For all monetary values entered, DO NOT include other characters, such as dollar signs (\$), commas (,), or periods (.). For example, for the value \$50,000, enter 50000.

Section 3. Program Personnel

Section 3. Program Personnel

All questions in this section refer to the academic year 2015-2016.

34. Please estimate the percentage of the curriculum taught in the following manners for the didactic phase only.

Taught **directly** by your program's core faculty

%

Taught by others but actively coordinated by your program's core faculty (e.g., arranging schedules, selecting topics)	<input type="text" value="0"/> %
Taught directly by non-program personnel with minimal input from program core faculty (e.g., faculty from biology department)	<input type="text" value="0"/> %
Total	<input type="text" value="0"/> %

35. How many full-time faculty (headcount) are assigned **ONLY** to the didactic phase of the program?

36. How many full-time faculty (headcount) are assigned **ONLY** to the clinical phase of the program?

37. How many full-time faculty (headcount) are assigned to **BOTH** the clinical and didactic phases of the program? (Do not include faculty counted in questions 35 and 36)

38. How many part-time faculty are assigned to the program? Please indicate **both** a headcount and total FTE of part-time faculty.

	Headcount	FTE
Part-time faculty	<input type="text"/>	<input type="text"/>

39. How many individuals (headcount) are used by the program as guest lecturers/facilitators during the 2014-2015 academic year?

40. Did any faculty leave the program during the 2015-2016 academic year?

Yes
No

40b. If you had faculty leave the program during the 2015-2016 academic year, how many left due to:

Dismissal due to performance issues	<input type="text" value="0"/>
Dismissal due to professionalism issues	<input type="text" value="0"/>
Medical/disability/death	<input type="text" value="0"/>
Personal issues (family)	<input type="text" value="0"/>
Personal issues (job change)	<input type="text" value="0"/>
Other <input type="text"/>	<input type="text" value="0"/>
Total	<input type="text" value="0"/>

41. Did you hire new faculty or staff in the 2015-2016 academic year?

Yes
No

41a. How many faculty and staff slots did you fill that were newly created positions versus replacing a vacancy?

	New position	Replaced an existing position	Total
Faculty	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Staff	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>

41b. Please rank the following challenges for hiring new faculty, with 1 being the most significant barrier and 8 being the least significant barrier.

Note: Rankings cannot be used twice; not all items need to be selected.

	1	2	3	4	5	6	7	8
Area cost of living	<input type="radio"/>							
Candidates' lack of teaching experience	<input type="radio"/>							
Degree requirements	<input type="radio"/>							
Lack of qualified candidates	<input type="radio"/>							
Lifestyle	<input type="radio"/>							
Location	<input type="radio"/>							
Salary	<input type="radio"/>							
Other, please specify <input type="text"/>	<input type="radio"/>							

42. Please list the total FTE of approved (i.e., capacity), filled, and vacant faculty and staff for the categories below.

Note: This is total FTE, and not number of positions or a headcount of faculty and/or staff members. Please use a scale of 0-1.0 in determining individuals' FTE.

	Capacity (FTE)	Filled (FTE)	Vacant (FTE)
Faculty	<input type="text"/>	<input type="text"/>	<input type="text"/>
Staff	<input type="text"/>	<input type="text"/>	<input type="text"/>
Program Director	<input type="text"/>	<input type="text"/>	<input type="text"/>
Medical Director	<input type="text"/>	<input type="text"/>	<input type="text"/>

43. How many credit hours of each of the following describes the average full-time (.5 FTE or higher) faculty member's load per academic term?

	Credit hours
Didactic courses	<input type="text" value="0"/>
Clinical courses	<input type="text" value="0"/>
Lab	<input type="text" value="0"/>
Thesis	<input type="text" value="0"/>
Other	<input type="text" value="0"/>
Total	<input type="text" value="0"/>

44. Is there an annual faculty load requirement for teaching at your program?

Yes

No

44a. Please describe the annual faculty load requirement for teaching, as well as how it is calculated or determined.

Section 4. Enrolled Students

Section 4. Enrolled Students

All questions in this section refer to the [academic year](#) 2015-2016. Unless otherwise indicated, all questions in this section refer to [full-time](#) students in the [professional phase](#) of the program.

45. Please indicate for which of the following classes your program had enrolled students for the 2015-2016 academic year. Please check all that apply.

First year

Second year

Third year

No students enrolled

46. Was your first year capacity filled?

Yes

No

46a. Please indicate why your first year capacity was not filled. Please select all that apply.

Clinical rotation constraints

Granted deferred admission to one or more students

Insufficient number of students on waiting list

Not enough qualified applicants to fill seats

Program discretion

Students withdrew voluntarily

Other, please specify

47. What was the enrollment for your most recently admitted class (in the 2015-2016 academic year) on the first day of classes?

48. Please indicate the maximum capacity (as approved by the ARC-PA) and current enrollment of your program for the 2015-2016 academic year. If you recently graduated your third year class, please enter the enrollment prior to their graduation.

Note: If your program already graduated a third year class in the 2015-2016 academic year, please enter the third year enrollment at the time of graduation.

	Capacity	Enrollment
First Year	<input type="text" value="0"/>	<input type="text" value="0"/>
Second Year	<input type="text" value="0"/>	<input type="text" value="0"/>
Third Year	<input type="text" value="0"/>	<input type="text" value="0"/>
Total	<input type="text" value="0"/>	<input type="text" value="0"/>

49. Is your program currently **provisionally accredited?**

Yes

No

49a. What is the status of your inaugural class?

- Not yet enrolled
- Enrolled in the first year
- Enrolled in the second year
- Enrolled in the third year
- Graduated

2015-2016 Matriculating Class

The following questions refer to the 2015-2016 matriculating class (or first year class).

50. What was the enrollment by gender for your most recently admitted class on the first day of classes of the 2015-2016 academic year (including full-time and part-time students)?

	First year students
Male	<input type="text" value="0"/>
Female	<input type="text" value="0"/>
Do not know	<input type="text" value="0"/>
Total	<input type="text" value="0"/>

51. What was the enrollment by ethnicity for your most recently admitted class on the first day of classes of the 2015-2016 academic year (including full-time and part-time students)?

	First year students
Hispanic, Latino, or Spanish	<input type="text" value="0"/>
Non-Hispanic, Latino, or Spanish	<input type="text" value="0"/>
Do not know	<input type="text" value="0"/>
Total	<input type="text" value="0"/>

52. What was the enrollment by race for your most recently admitted class on the first day of classes of the 2015-2016 **academic year (including full-time and part-time students)?**

	First year students
American Indian or Alaskan Native	<input type="text" value="0"/>
Asian	<input type="text" value="0"/>
Black or African American	<input type="text" value="0"/>
Multi-racial	<input type="text" value="0"/>
Native Hawaiian or Pacific Islander	<input type="text" value="0"/>
White	<input type="text" value="0"/>
Other	<input type="text" value="0"/>
Do not know	<input type="text" value="0"/>
Total	<input type="text" value="0"/>

53. For the 2015-2016 matriculating class, please specify the average age, age of the oldest matriculant, and age of the youngest matriculant.

	Years
Average age	<input type="text"/>
Age of <u>youngest</u> matriculant	<input type="text"/>
Age of <u>oldest</u> matriculant	<input type="text"/>

54. For the 2015-2016 matriculating class, please enter the average undergraduate grade point average (GPA) for the following categories. Please use a 4.0 scale.

	Average GPA
Overall undergraduate	<input type="text"/>
Undergraduate science	<input type="text"/>

Average GPA

CASPA biology, chemistry,
physics (BCP)

Undergraduate non-science

55. Which standardized test(s) does your program require for entrance? Please select all that apply.

American College Testing (ACT)

Scholastic Aptitude Test (SAT)

Graduate Record Examinations (GRE)

Medical College Admission Test (MCAT)

Either GRE or MCAT

Other, please specify

None

55a. For the 2015-2016 matriculating class, please enter the average GRE scores for each category.

Average Score

Verbal Reasoning

Quantitative Reasoning

Analytical Writing

55b. For the 2015-2016 matriculating class, please enter the average MCAT scores for each category.

Average Score

Physical Sciences

Biological Sciences

Verbal Reasoning

56. For the 2015-2016 matriculating class, did you collect information on the average number of hours of health care experience (HCE) or work/volunteer experience?

Yes

No

56a. For the 2015-2016 matriculating class, what was the average number of hours of **health care experience** (HCE) and work/volunteer experience?

	Average hours
Patient contact experience	<input type="text"/>
Other health care experience	<input type="text"/>
Health care shadowing	<input type="text"/>
Other work experience	<input type="text"/>
Community service	<input type="text"/>

Section 5. 2016 Cohort

Section 5. 2016 Cohort

All questions in this section refer to the 2016 cohort, unless otherwise indicated.

Note: The 2016 cohort is the group of students who entered the PA program expecting to graduate in 2016. For most programs, this group started the program in 2014.

57. Did your program, or will your program, graduate a 2016 cohort?

Yes

No

58. Please provide the numbers for the 2016 cohort students at matriculation (typically, these students entered the program in 2014) for the categories below.

Note: The total should equal the total number of students who started with the 2016 cohort.

	Enrollment at matriculation for 2016 cohort
New students	<input type="text" value="0"/>
Decelerated students from previous class	<input type="text" value="0"/>
Students that delayed/deferred admission into the program from previous year	<input type="text" value="0"/>
Other	<input type="text" value="0"/>
Total	<input type="text" value="0"/>

59. Please provide the numbers for the 2016 cohort students at graduation, or expected graduation, for the categories below.

Note: The total for this question should equal the total provided in Question 58.

	Number of students
Graduated, or expect to graduate on time	<input type="text" value="0"/>
Decelerated to next cohort	<input type="text" value="0"/>
Withdrew (personal, medical, etc.)	<input type="text" value="0"/>
Dismissed from the program (professional, academic, etc.)	<input type="text" value="0"/>
Total	<input type="text" value="0"/>

60. Please provide the numbers for 2016 cohort students by gender at the time of their graduation or expected graduation on time.

	Number of graduates
Male	<input type="text" value="0"/>
Female	<input type="text" value="0"/>
Do not know	<input type="text" value="0"/>
Total	<input type="text" value="0"/>

61. Please provide the numbers for 2016 cohort students by ethnicity at the time of their graduation or expected graduation on time.

	Number of graduates
Hispanic, Latino, or Spanish in origin	<input type="text" value="0"/>
Non-Hispanic, Latino, or Spanish in origin	<input type="text" value="0"/>
Do not know	<input type="text" value="0"/>
Total	<input type="text" value="0"/>

62. Please provide the numbers for 2016 cohort students by race at the time of their graduation or expected graduation on time.

	Number of graduates
American Indian or Alaskan Native	<input type="text" value="0"/>
Asian	<input type="text" value="0"/>
Black or African American	<input type="text" value="0"/>
Multi-racial	<input type="text" value="0"/>
Native Hawaiian or Pacific Islander	<input type="text" value="0"/>
White	<input type="text" value="0"/>
Other	<input type="text" value="0"/>
Do not know	<input type="text" value="0"/>

Number of graduates

Total

63. For the 2016 cohort, enter the number of students by gender for those who disenrolled/withdrew or decelerated from the program for each of the following reasons.

	Male	Female	Do not know
Withdrew: academic dismissal	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Withdrew: non-academic dismissal (e.g., professionalism sanction)	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Withdrew: medical reason(s)	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Withdrew: personal reason(s)	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Decelerated: short term (graduated less than one year late)	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Decelerated: to next cohort	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Total	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>

64. For the 2016 cohort, enter the number of students by ethnicity for those who disenrolled/withdrew or decelerated from the program for each of the following reasons.

	Hispanic, Latino, or Spanish in origin	Non-Hispanic, Latino, or Spanish in origin	Do not know
Withdrew: academic dismissal	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Withdrew: non-academic dismissal (e.g., professionalism sanction)	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>

	Hispanic, Latino, or Spanish in origin	Non-Hispanic, Latino, or Spanish in origin	Do not know
Withdrew: medical reason(s)	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Withdrew: personal reason(s)	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Decelerated: short term (graduated less than one year late)	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Decelerated: to next cohort	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Total	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>

65. For the **2016 cohort**, enter the number of students by race for those who disenrolled/**withdrew** or decelerated from the program for each of the following reasons.

	American Indian or Alaskan Native	Asian	Black or African American	Multi-racial	Native Hawaiian or Pacific Islander	White	Other	Do not know
Withdrew: academic dismissal	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Withdrew: non-academic dismissal (e.g., professionalism sanction)	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Withdrew: medical reason(s)	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Withdrew: personal reason(s)	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Decelerated: short term (graduated less than one year late)	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Decelerated: to next cohort	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Total	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>

66. What is the approximate percentage of your 2016 cohort receiving federal financial aid?

Section 6. Support to Advance Research: Quality Improvement

Section 6. STAR Program

The PAEA Support to Advance Research (STAR) Program is an initiative developed by the PAEA Research Council and research staff that allows faculty of PAEA member programs to submit questions to include in the Annual Program Survey to obtain data for their own research. The program is modeled after the Society of Teachers in Family Medicine's CAFM Educational Research Alliance (CERA).

The next section of questions was submitted by Johnna Yealy, MPAS, PA-C of the University of Oklahoma, Oklahoma City. The de-identified data will be forwarded to the principal investigator after the program survey closes.

67. Does your program include pain management topic(s) in the curriculum?

- No, pain management is not included in the program's curriculum
- Yes, it is included as a distinct course within the curriculum
- Yes, it is included as a module in one course within the curriculum
- Yes, it is included as a module in multiple courses within the curriculum

68. Please indicate why your program does not include pain management instruction in the curriculum. Please select all that apply.

- Not mandated by ARC-PA or other accrediting body
- Insufficient time in the curriculum
- Lack of knowledge by faculty
- Not deemed to be a PA entry-level skill set
- Not considered a priority

Other, please specify

69. What is the name of the course and the number of credit hours?

Course name

Credit hours

70. Please enter the name(s) of the course(s) with the pain management module(s) and the total number of contact hours of pain management instruction students receive.

	Course Name	Contact Hours
Course 1	<input type="text"/>	<input type="text"/>
Course 2	<input type="text"/>	<input type="text"/>
Course 3	<input type="text"/>	<input type="text"/>
Course 4	<input type="text"/>	<input type="text"/>
Course 5	<input type="text"/>	<input type="text"/>

71. How adequate do you feel the instruction in pain management is within your program's curriculum?

More than adequate

Adequate

Inadequate

72. Please indicate if your program's curriculum includes the following topics from the list below. Please select all that apply.

Anatomy/physiology/pathophysiology of pain: fundamentals of pain neurobiology

History and physical examination skills: interview/communication and physical examination skills specific to pain complaints

Diagnosis and treatment of specific types of acute pain including any of the following: spine/musculoskeletal/surgical/fracture/trauma

Diagnosis and treatment of specific types of chronic pain including any of the following: spine/back/musculoskeletal/neuropathic/oncologic/degenerative joint disease pain

Clinical reasoning: using clinical guidelines specific to pain medicine including applying CDC guidelines for prescribing opioids

Pharmacotherapeutics of medications used to treat pain (e.g. opioids, COX inhibitors/NSAIDs, other narcotics)

Modalities and nonpharmacologic treatments for pain (e.g. physical therapy, massage, biofeedback)

Epidemiology, public health and multicultural aspects of pain medicine

Drug addiction and the treatment of chronic pain

Special populations: pain in older adults/pediatrics/pregnant/cognitively impaired patients

Dealing with a drug seeking patient

Regulatory/legal aspects of pain medicine: utilization of state narcotic databases/DEA certification requirements/prescriptive privileges

73. Which of the following teaching methods does your program utilize to provide pain management instruction? Please select all that apply.

Traditional lecture

Case-based lecture

Problem-based learning

Simulation-based learning

Other, please specify

74. Does your program include specific clinical experiences(s) in pain management?

No

Yes, as a required rotation

Yes, as an elective rotation

75. Does your program engage in interprofessional education in the instruction of pain management?

Yes, please briefly describe

No

Submit Survey

To comment on the survey or provide suggestions for future enhancements, please use the space below.

Thank you for completing PAEA's 2016 Annual Program Survey! We appreciate your efforts to provide timely, accurate data for the PA education profession. To submit the survey, please hit the "submit" button at the bottom of this page.

On the last page of the survey, you will have the option of downloading your responses to this year's survey by clicking on the PDF icon at the top right hand side of your internet window. To load, place your cursor in the URL line of your browser and press "enter." Additionally, you will receive an email confirmation of your submission with your responses.

If you have questions, please send an email to research@PAEAonline.org.

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APPENDIX B

2016 PAEA END OF PROGRAM STUDENT SURVEY

12/9/2016

Qualtrics Survey Software

About the Survey

About the Survey

The Physician Assistant Education Association (PAEA) End of Program Survey (EoPS) seeks information from graduating physician assistant (PA) students to help schools evaluate and improve their educational programs. The information is also used for research on PA education as well as reporting to accrediting agencies. The survey will take approximately 25 to 45 minutes to complete.

Topic areas in the EOPS include:

- General information
- Demographics Impact of PA program & curriculum (didactic and clinical)
- Interprofessional education experiences
- Institutional support services
- Assessment of PA Competencies
- Specialty choice and career plans
- Financing of education
- Negative behaviors or experiences during school

Your PA school has been informed of regulations and guidelines regarding the administration of the EoPS. By encouraging your participation, your PA program agrees to the protocol described below.

Participation is Voluntary

Participation in the EoPS is voluntary. You have the right to not answer or skip any question or set of questions. There is no penalty for not completing the survey or for discontinuing it. To help ensure participation is voluntary, PAEA will not inform PA

<https://az1.qualtrics.com/ControlPanel/Ajax.php?action=GetSurveyPrintPreview>

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schools which students have begun or completed the EoPS. If you believe you are being coerced into participation, contact the PAEA Research Department by email (research@PAEAonline.org).

Confidentiality Statement

Your agreement to participate in this survey is not considered to be permission to release your identified responses. The data collected in this survey are classified as confidential. Confidential data are data that may not be released with individual identification, except with permission. The responses you provide on this survey are retained by PAEA in a secure, confidential database to which only a small number of designated PAEA staff has access. Any comments you write about the strengths and weaknesses of your program will be provided only to your PA school verbatim. The verbatim responses will not be linked to your identity and will be shared in a separate anonymous report. In responding to these essay-type questions, you should not provide self-identifying information unless it is your intention that your identity be known.

Your responses to questions about negative behaviors or experiences during PA school might include sensitive information. Because of this, they will be released to PA schools only in a form aggregated to the PA school or campus level. PA schools receive EoPS data in reports that aggregate responses at the national and program levels. For Institutional Review Board (IRB) approved research, PAEA might provide PA schools and other PA researchers a file of de-identified individual responses, excluding open text responses. In such files, your EoPS data may be linked with information in other databases, but only in formats without identification.

In order to accurately track response rates, we are asking each student to provide their email address, along with their program's name and state. This information will only be used for identifying duplicate responses and calculating response rates, as well as to contact winners of the incentive prize drawings. Once this survey closes and duplicate responses are resolved, email addresses will be completely removed from the database.

Individuals receiving such files will be required to agree to and sign PAEA's Confidentiality, Academic Integrity, and Non-Disclosure Agreement, which outlines how the data may be used and for how long. The PAEA reviews reports and data files prior to

their disbursement. PAEA reduces the probability of connecting responses to specific individuals by not providing information where the small number of respondents in a specific category would allow individuals to be easily identified. This data collection activity has been reviewed according to PAEA policies and procedures and its Institutional Review Board.

This data collection is considered to be minimal risk. PAEA has taken extensive measures to ensure the security of the data and the confidentiality of the responses. Nevertheless, if individually identified data were made public, it could prove embarrassing or damaging to your reputation. By participating, you will be contributing to improving PA education.

If you have any questions about your rights as a participant, contact the PAEA Research Department by email (research@PAEAonline.org). If you have any technical questions about the EOPS, contact India Waller, Administrative Associate, Policy & Research, (iwaller@PAEAonline.org or 703-667-4344).

I have read and understood this statement.

I have read and understood this confidentiality statement and agree to participate. By continuing with this survey, I grant permission to share my responses in the confidential manner described above.

I have read and understood this confidentiality statement and do not agree to participate.

Please enter your email address below. Please note, this information will be used only to identify duplicate responses in the data and to contact recipients from the incentive prize drawing.

About Your Program

About Your Program

This section collects information about your program, enrollment, and preferred practice location.

1. Please confirm your graduation month.

2. Please select the name of your PA program.

3. Please select the state in which your PA program is located.

Note: If you attended PA school at your program's satellite campus, please indicate the state in which the satellite campus is located.

4. Please enter the five or nine-digit zip code for the place you consider to be home (where you spent the majority of your life before college).

5. What state is your primary choice for practicing after finishing PA school?

6. Which of the following environments is your primary choice for practicing after finishing PA school?

Federal or state prison system

Inner city

Medically underserved area (MUA)

Military base(s)

Overseas

Rural

Suburban

Urban

Other, please specify

7. Did you first enroll into your PA program as a graduate student or an undergraduate student (e.g., participated in a pre-PA program prior to the graduate phase of the PA program)?

Graduate

Undergraduate

Other, please specify

8. Did you attend any other PA program(s) before the one you are expected to graduate from?

Yes

No

9. Did you experience any interruptions longer than one week while enrolled in your current PA program (not including vacations or scheduled breaks; e.g., leave of absence)?

Yes

No

9a. Which of the following best characterizes the reason for your interruption in your PA education?

Decelerated to the next class

Decelerated, but remained in the same class

Medical leave of absence

Personal leave of absence

Other, please specify

9b. How long, in months, was your temporary absence from your PA program?

About You

About You

This section collects information on your demographics, family life, and educational background.

10. Please select the month in which you were born.

11. Please enter the year you were born.

12. Please indicate your gender identification.

Male

Female

Transgender

I prefer not to answer

13. Are you Hispanic, Latino, or Spanish in origin?

Yes

No

I prefer not to answer

14. What is your race?

American Indian or Alaskan Native

Asian

Black or African American

Multi-racial

Native-Hawaiian or Pacific Islander

White or Caucasian

Other, please specify

I prefer not to answer

15. Which of the following best describes your civil status?

Note: If you are engaged, please select "single."

Married

Single (never legally married)

Domestic partnership or civil union

Separated, but still legally married

Divorced

Widowed

Other, please specify

I prefer not to answer

16. Other than yourself, how many legal dependents do you have?

17. Please indicate the highest level of education that you completed prior to entering the professional phase of your current PA program.

High school diploma

- Some college but no degree
- Associate's degree
- Bachelor of Arts
- Bachelor of Science
- Other Bachelor's degree (e.g., business, BFA)
- Master's degree (health or science related; e.g., MPH)
- Master's degree (not health or science related; e.g., MBA)
- Academic doctorate (e.g., PhD, EdD)
- Professional doctorate (e.g., MD, JD)
- Foreign medical graduate/unlicensed medical graduate
- Other, please specify

**18. In which of the following environments did you spend a majority of your life?
Please select all that apply.**

- Inner city
- Military base(s)
- Overseas
- Rural
- Suburban
- Urban
- Other, please specify
- I prefer not to answer

Impact of PA Program

Impact of PA Program

This section collects information about your experiences in and satisfaction with your PA program curricula, as well as your perceived preparedness for clinical work.

19. Please indicate your level of agreement or disagreement with the following statements.

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
Overall, I am satisfied with the quality of my PA education	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If I could revisit my career again, I would attend school to become a PA	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

20. Based upon your experiences in PA school, please indicate your level of agreement or disagreement with the following statements.

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
I would recommend the <u>PA career</u> to others	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would recommend my <u>PA program</u> to others	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

21. PA school was:

Less challenging than I expected
 What I expected
 More challenging than I expected

22. In what ways, if any, were you impacted by your PA education?

	More	About the same	Less
Politically liberal attitude	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Politically conservative attitude	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	More	About the same	Less
Accepting of others' views (i.e., open-minded)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Accepting of cultural, ethnic, and sexual orientation diversity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Compassionate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Curious	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cynical	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Humble	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Self-reflective	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sociable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

PA Program Curriculum

Didactic Curriculum

This section collects information about your experiences in, satisfaction with, and preparedness for clinical rotations of your program's curriculum, specific to the didactic (classroom) phase of your program.

23. How well did your study of the following courses/topics prepare you for clinical rotations?

Note: Some course names may be different from the ones used at your program. Please find the one that most closely matches. If you did not have a course/module that resembles one presented below, please select "N/A"

	Excellent	Good	Fair	Poor	N/A
Anatomy	<input type="radio"/>				
Biochemistry	<input type="radio"/>				
Biostatistics/Epidemiology	<input type="radio"/>				
Clinical <u>experiences</u> during the didactic portion of the curriculum	<input type="radio"/>				

	Excellent	Good	Fair	Poor	N/A
Clinical <u>medicine</u> (includes Surgery/emergency medicine/Peds/OB/GYN/Behavioral Health)	<input type="radio"/>				
Clinical/technical skills	<input type="radio"/>				
Ethics/Bioethics	<input type="radio"/>				
Genetics	<input type="radio"/>				
Interpretation of literature/evidence-based medicine/research	<input type="radio"/>				
Lab interpretation/diagnosis	<input type="radio"/>				
Microbiology	<input type="radio"/>				
Neuroscience	<input type="radio"/>				
Patient communication skills/history taking	<input type="radio"/>				
Pathology/Pathophysiology	<input type="radio"/>				
Pharmacology	<input type="radio"/>				
Physical examinations/patient assessment	<input type="radio"/>				
Physiology	<input type="radio"/>				
Service learning	<input type="radio"/>				

24. Do you believe that your instruction in the following areas was adequate, appropriate, or excessive?

	Inadequate	Appropriate	Excessive
Culturally appropriate care for diverse populations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Diagnosis of disease	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Disease prevention/health maintenance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Management of disease	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Oral health	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Palliative/End of life care	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Inadequate	Appropriate	Excessive
Public health	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Role of community health and social service agencies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Women's health	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Social determinants of health	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Clinical Curriculum

This section collects information about your experiences in and satisfaction with your supervised clinical rotations, as well as your level of preparedness for clinical practice.

25. Please rate the quality of your educational experiences for the following clinical rotation disciplines.

Note: If you did not have a clinical experience in one of the following disciplines, please select "N/A."

	Excellent	Good	Fair	Poor	N/A
Emergency medicine	<input type="radio"/>				
Extended primary care or rural track	<input type="radio"/>				
Family medicine	<input type="radio"/>				
General internal medicine	<input type="radio"/>				
General pediatrics	<input type="radio"/>				
General surgery	<input type="radio"/>				
Hospital medicine	<input type="radio"/>				
Obstetrics/gynecology/women's health	<input type="radio"/>				
Psychiatry/behavioral medicine	<input type="radio"/>				
Elective(s)	<input type="radio"/>				

26. Please respond to the questions below regarding your supervised clinical rotations.

	Were you observed by your preceptor taking the relevant portions of the <u>patients' history</u> ?		Were you observed by your preceptor performing the relevant portions of the <u>physical examination</u> ?		Were you observed by your preceptor performing relevant <u>technical procedures</u> (e.g., suturing, phlebotomy, etc.)		Were you provided <u>mid-point feedback</u> by your clinical preceptor?	
	Yes	No	Yes	No	Yes	No	Yes	No
Emergency medicine	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Family medicine	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
General surgery	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Internal medicine	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Obstetrics/gynecology/women's health	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pediatrics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Psychiatry/behavioral medicine	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

General Comments on PA Curriculum

This section collects information about your general impressions of your program's curriculum and methods of instruction.

27. Please comment on what you perceive to be the strengths of your program's didactic (classroom/lab) curriculum.

28. Please comment on what you perceive to be the weaknesses of your program's didactic (classroom/lab) curriculum.

29. Please comment on what you perceive to be the strengths of your program's clinical curriculum.

30. Please comment on what you perceive to be the weaknesses of your program's clinical curriculum.

31. Based on your experiences, please comment on the strengths and weaknesses of teaching methodologies (e.g., simulation labs, OSCE's, standardized patients) used in the didactic and clinical curricula.

Interprofessional Education Activities

This section collects information about your experiences in and satisfaction with interprofessional education.

32. Have you participated in any required curricular activities where you had the opportunity to learn about and with students from different health professions?

Yes

No

Unsure

32a. With which other health professions students have you had the opportunity to participate or interact with in educational activities? Please select all that apply.

Allopathic Medicine (MD)

Dentistry

Nursing

Occupational Therapy

Osteopathic Medicine (DO)

Pharmacy

Physical Therapy

Psychology

Public Health

Social Work

Veterinary Medicine

Other, please specify

32b. What was the nature of the learning experience(s) with other health professions students? Please select all that apply.

Active engagement with patients (e.g., inpatient or ambulatory based team rotation, longitudinal clinics, practice-based clerkships)

Clinical simulations

Community projects or service learning activities

Lecture only, basic science

Lecture only, clinical subject (e.g., universal precautions, informed consent, advanced cardiac life support, population health)

Patient-centered case problems (classroom or student setting)

Team skills training

Other, please specify

32c. Please indicate your level of agreement with the following statement:

"The learning experience(s) with other health professions students helped me gain a better understanding of the roles of other professions in the care of patients."

Strongly agree
 Agree
 Neither agree nor disagree
 Disagree
 Strongly disagree

Institutional Support Services and PA Competencies

Institutional Support Services

This section collects information about the services and resources available at your program.

33. In considering accessibility and responsiveness, please respond by indicating your level of satisfaction with the following student support services.

Note: Please use "N/A" only if your school does not have or you have never accessed the listed service. Some terms may differ at your program or institution.

	Very satisfied	Satisfied	Neither satisfied nor dissatisfied	Dissatisfied	Very dissatisfied	N/A
Admissions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Business office	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Campus security	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Counseling/mental health center	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Faculty advising	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Financial aid	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Health center	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Institutional computing (technology)/help desk	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Very satisfied	Satisfied	Neither satisfied nor dissatisfied	Dissatisfied	Very dissatisfied	N/A
Library/learning resource center	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Registrar	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Student success center/ADA office	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Student activities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

34. Please comment on the general accessibility and responsiveness of the student support services at your college or university.

PA Competencies

The questions in this section are being asked to help PAEA better understand graduate candidates' perceptions of their preparedness based on the competencies for the PA profession.

35. How confident are you in your current ability to perform the following activities?

	Very confident	Confident	Neutral	Not very confident	Not at all confident
Medical Knowledge Includes synthesis of pathophysiology, patient presentation, differential diagnosis, patient management, surgical principles, health promotion, and disease prevention	<input type="radio"/>				

	Very confident	Confident	Neutral	Not very confident	Not at all confident
<p><u>Interpersonal & Communication Skills</u> Encompasses verbal, nonverbal, written, and electronic exchange of information to patients, peers, and others</p>	<input type="radio"/>				
<p><u>Patient Care</u> Includes patient and setting specific assessment, evaluation, and management</p>	<input type="radio"/>				
<p><u>Professionalism</u> The expression of positive values and ideals as care is delivered and prioritizing patients' needs over one's own; includes ethical practice and cultural sensitivity</p>	<input type="radio"/>				
<p><u>Practice-Based Learning & Improvement</u> Includes processes and practices through which PAs engage in critical analysis of their own practice experience, medical literature, and other resources to improve</p>	<input type="radio"/>				
<p><u>Systems-Based Practice</u> Awareness and responsiveness to the larger system of health care to provide patient care that balances quality and cost</p>	<input type="radio"/>				

Specialty and Career Plans

Specialty and Career Plans

This section collects information about your employment status, job search, and practice preferences.

36. What is your PA employment status?

I have not yet started my job search

I plan to apply for a PA residency

I have submitted job applications but have not yet received an invitation to interview

I have had at least one interview or invitation to interview but have not yet received a job offer

I have received at least one job offer but have not accepted a position

I have accepted a job offer

36a. Which of the following best describes the practice discipline where you accepted an offer?

Family/General medicine

General internal medicine

General pediatrics

Geriatrics

Obstetrics/Gynecology/Women's health

General surgery

Orthopedics

Cardiovascular/Cardiothoracic

Neurology

Plastic surgery

Other surgical subspecialties, please specify

Emergency medicine (not urgent care)

Urgent care

Cardiology

Oncology

Other internal medicine subspecialty, please specify

- Critical care
- Hospitalist
- Dermatology
- Pediatric subspecialties
- Occupational medicine
- Psychiatry/Behavioral medicine
- Correctional medicine

36b. Was the practice discipline where you accepted a job offer your first choice?

- Yes
- No

36c. Which of the following PA residencies do you plan to apply for? Please select all that apply.

- Emergency medicine
- General surgery
- Hospitalist
- Orthopedics

Other, please specify

37. Please rate the desirability of the following specialties for your future practice.

	Very desirable	Desirable	Neither desirable nor undesirable	Undesirable	Very undesirable
Family/General medicine	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
General internal medicine	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
General pediatrics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Geriatrics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Obstetrics/Gynecology/Women's health	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
General surgery	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Very desirable	Desirable	Neither desirable nor undesirable	Undesirable	Very undesirable
Orthopedics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cardiovascular/cardiothoracic	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Neurology	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Plastic surgery	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other surgical subspecialties, please specify	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="text"/>					
Emergency medicine (not urgent care)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Urgent care	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cardiology	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Oncology	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other internal medicine subspecialties, please specify	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="text"/>					
Critical care	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Hospitalist	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Correctional medicine	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dermatology	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Occupational medicine	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pediatric subspecialties	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Psychiatry/Behavioral medicine	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

38. Please rate the desirability of the following practice environments.

	Very desirable	Desirable	Neither desirable nor undesirable	Undesirable	Very undesirable
Federal/State prison system	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Inner city	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Medically underserved area (MUA)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Military base(s)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Overseas	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Very desirable	Desirable	Neither desirable nor undesirable	Undesirable	Very undesirable
Rural	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Suburban	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Urban	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Veterans Administration	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other, please specify <input type="text"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

39. Please rate the desirability of the following practice settings.

	Very desirable	Desirable	Neither desirable nor undesirable	Undesirable	Very undesirable
Accountable care organization (ACO)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Community health center (CHC)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Group private practice	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Health maintenance organization (HMO)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Solo private practice	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

40. How influential are the following factors or experiences in helping you choose your specialty choice for a PA job?

	Strong influence	Moderate influence	Minor influence	No influence
Advising/mentoring from a <u>preceptor</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Advising/mentoring from a <u>faculty member</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Availability of jobs in the specialty	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Desire to fill a social need	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Family expectations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Strong influence	Moderate influence	Minor influence	No influence
Fit with personality, interests, and skills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Income potential	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Level of educational debt	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My future family plans	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Experience in clinical rotations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Previous health care training or experience	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Role model/mentor/adviser influence	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Previous work/volunteer experience	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Scope of practice within specialty	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Specialty interest group sponsored panels and presentations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Financing of Education

Financing of Education

All of the information you share in the survey, including financial data, is confidential and will not be released to your school with your identification.

The information you provide will help the PA community and PAEA better understand the costs of education and the impact of the rising levels of student indebtedness.

If you cannot remember the actual figures for some of the questions, please enter your best estimates.

41. Did you receive any scholarships, stipends, or grants (not loans) for PA school?

Yes

No

41a. Please enter the total dollar amount of all scholarships, stipends, and/or grants that you received for the professional phase of the program.

Note: Please do not include loans or any scholarships, stipends, and/or grants that you received for your undergraduate education if you participated in a pre-professional PA program (e.g. 4+2 or 3+2)

42. Do you still owe \$1,000 or more on outstanding pre-PA (undergraduate) educational loans?

Yes

No

42a. Please enter the dollar amount that you owe on your outstanding pre-PA educational loans (excluding interest).

43. Do you owe \$1,000 or more on PA educational loans?

Yes

No

43a. Please enter the dollar amount that you owe on your PA educational loans (excluding interest).

44. Do you owe \$500 or more on non-educational loans (credit cards, consumer debt, car loans, etc.)?

Note: Please do not include home mortgage loans.

Yes

No

44a. Please enter the dollar amount that you owe on non-educational loans (credit cards, consumer debt, car loans, etc.).

Note: Please do not include home mortgage loans.

45. Do you plan to enter into a federal or state loan forgiveness program?

Yes

No

Unsure

45a. Please select the type of loan forgiveness program in which you plan to participate. Please select all that apply.

Armed Services

Department of Education's Public Service Loan Forgiveness (PSLF)

Indian Health Service Corps

National Health Service Corps

State loan forgiveness program

Uniformed Service (e.g., Center for Disease Control, Department of Health and Human Services)

Other, please specify

46. Regarding supplemental loans for financing your PA education (in addition to Federal Stafford Loans), did you need to secure any additional loans? Please select all that apply.

I did not secure any additional loans

Credit cards

Direct PLUS Loan

Parent PLUS Loan

Other, please specify

Behaviors Witnessed or Experienced During PA School

Behaviors Witnessed or Experienced During PA School

Your responses to the following questions about behaviors or experiences during PA school might be sensitive. Because of this, they will only be released to schools in aggregated form after being reviewed by PAEA staff to reduce the probability that you could be identified by your responses.

PAEA recognizes that some students may be uncomfortable responding to the following questions. However, if the survey indicates that student mistreatment or harassment is being experienced at the national level, we will use this information to plan workshops and other educational experiences to help faculty and staff address any problems. Unfortunately, PAEA does not have a mechanism to follow up on any issues of mistreatment or harassment that has not already been reported. If you have personally experienced or have observed others experiencing mistreatment or harassment, you are encouraged to report the incident(s) to the proper authorities at your school.

If you would prefer to skip this section, please indicate below.

I am comfortable proceeding to questions on behaviors and experiences during PA school

For personal reasons, I would prefer to skip this section

47. Does your program have policies regarding the mistreatment of PA students?

Yes

No

Unsure

48. For each of the following behaviors, please indicate the frequency that you personally experienced that behavior during PA school.

	Never	Once	Occasionally	Frequently
Been publicly embarrassed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Been publicly humiliated	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Been threatened with physical harm	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Been physically harmed (e.g., hit, slapped, kicked)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Been <u>required</u> to perform personal services (e.g., shopping, babysitting)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Been subjected to unwanted sexual advances	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Been asked to exchange sexual favors for grades or other rewards	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Been denied opportunities for training or rewards based on <u>my gender</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Been subjected to offensive remarks/names <u>based on my gender</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Received lower evaluations or grades solely because of <u>my gender</u> rather than performance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Never	Once	Occasionally	Frequently
Been denied opportunities for training or rewards based on <u>my race or ethnicity</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Been subjected to offensive remarks/names <u>based on my race or ethnicity</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Received lower evaluations or grades solely because of <u>my race or ethnicity</u> rather than performance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Been denied opportunities for training or rewards based on <u>my sexual orientation</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Been subjected to offensive remarks/names regarding <u>my sexual orientation</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Received lower evaluations or grades solely because of <u>my sexual orientation</u> rather than performance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Been denied opportunities for training or rewards based on <u>my gender identification</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Been subjected to offensive remarks/names regarding <u>my gender identification</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Received lower evaluations or grades solely because of <u>my gender identification</u> rather than performance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Never	Once	Occasionally	Frequently
Been denied opportunities for training or rewards based on <u>my religion</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Been subjected to offensive remarks/names regarding <u>my religion</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Received lower evaluations or grades solely because of <u>my religion</u> rather than performance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

48a. Please indicate the individual(s) who performed the described behavior(s). Please select all that apply.

- Patients
- Preceptors
- Program faculty
- Program staff
- Other health professionals
- Other PA students
- Other health professional students

49. For each of the following behaviors, please indicate the frequency that you witnessed other students experience that behavior during PA school.

	Never	Once	Occasionally	Frequently
Been publicly embarrassed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Been publicly humiliated	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Been threatened with physical harm	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Been physically harmed (e.g., hit, slapped, kicked)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Never	Once	Occasionally	Frequently
Been <u>required</u> to perform personal services (e.g., shopping, babysitting)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Been subjected to unwanted sexual advances	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Been asked to exchange sexual favors for grades or other rewards	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Been denied opportunities for training or rewards based on <u>their gender</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Been subjected to offensive remarks/names <u>based on their gender</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Received lower evaluations or grades solely because of <u>their gender</u> rather than performance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Been denied opportunities for training or rewards based on <u>their race or ethnicity</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Been subjected to offensive remarks/names <u>based on their race or ethnicity</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Received lower evaluations or grades solely because of <u>their race or ethnicity</u> rather than performance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Been denied opportunities for training or rewards based on <u>their sexual orientation</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Never	Once	Occasionally	Frequently
Been subjected to offensive remarks/names regarding <u>their sexual orientation</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Received lower evaluations or grades solely because of <u>their sexual orientation</u> rather than performance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Been denied opportunities for training or rewards based on <u>their gender identification</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Been subjected to offensive remarks/names regarding <u>their gender identification</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Received lower evaluations or grades solely because of <u>their gender identification</u> rather than performance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Been denied opportunities for training or rewards based on <u>their religion</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Been subjected to offensive remarks/names regarding <u>their religion</u>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Received lower evaluations or grades solely because of <u>their religion</u> rather than performance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

49a. Please indicate the individual(s) who performed the described behavior(s). Please select all that apply.

Patients

- Preceptors
- Program faculty
- Program staff
- Other health professionals
- Other PA students
- Other health professional students
- I do not know

50. For any incident(s) that you were subject to, did you report the incident(s) to a designated person or any other official empowered to handle such complaints?

- Yes
- No

50a. What is the most important reason(s) that you chose not to report the incident(s)? Please select all that apply.

- Did not know what to do
- Fear of reprisal
- Handled incident(s) by myself
- I did not think anything would be done about it
- Incident(s) did not seem important enough to report

Other, please specify

51. For any incident(s) that you witnessed, did you report the incident(s) to a designated person or any other official empowered to handle such complaints?

- Yes
- No

51a. What is the most important reason(s) that you chose not to report the incident(s)? Please select all that apply.

- Did not know what to do

Fear of reprisal

Handled incident(s) by myself

I did not think anything would be done about it

Incident(s) did not seem important enough to report

Student(s) subjected to the incident(s) asked me not to report it

Other, please specify

End of Survey

Please provide any feedback about this survey, including suggestions for additional items or about the administration process.

Thank you for your participation, and best wishes on the next steps in your PA career. Congratulations on graduating!

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APPENDIX C

VARIABLES REQUESTED AND INITIAL RECODING VALUES

Survey Items/Variable Name	Answer Options	Initial Recoded Values
End of Program Student Survey		
11. Please enter the year you were born.		Coded to age turned in 2016
12. Please indicate your gender identification.	1-Male 2-Female 3-Transgender 4-I prefer not to answer	
13. Are you Hispanic, Latino, or Spanish in origin?	1-Yes 2-No 3-I prefer not to answer	
14. What is your race?	1-American Indian or Alaskan Native 2-Asian 3-Black or African American 4-Multi-racial 5-Native Hawaiian or Pacific Islander 6-White or Caucasian 7-Other, please specify 8-I prefer not to answer	
17. Please indicate the highest level of education that you completed prior to entering the professional phase of your current PA program.	1-High school diploma 2-Some college, but no degree 3-Associate's degree 4-Bachelor of Arts 5-Bachelor of Science 6-Other Bachelor's (e.g., business, BFA) 7-Master's degree (health or science related (e.g., MPH) 8-Master's degree (not health or science related; (e.g., MBA) 9-Academic doctorate (e.g., PhD, EdD) 10-Professional doctorate (e.g., MD, JD)	

	11-Foreign medical graduate/unlicensed medical graduate 12-Other, please specify	
18. Environments spent majority of life- Inner City	0-No 1-Yes	
18. Environments spent majority of life- Military bases	0-No 1-Yes	
18. Environments spent majority of life- Overseas	0-No 1-Yes	
18. Environments spent majority of life- Rural	0-No 1-Yes	
18. Environments spent majority of life- Suburban	0-No 1-Yes	
18. Environments spent majority of life- Urban	0-No 1-Yes	
18. Environments spent majority of life- I prefer not to answer	0-No 1-Yes	
18. Environments spent majority of life- Other, please specify	0-No 1-Yes	
25. Quality of educational experiences for clinical rotation- Emergency medicine*	4-Excellent 3-Good 2-Fair 1-Poor N/A	3 2 1 0 Case removed
25. Quality of educational experiences for clinical rotation- Family medicine*	4-Excellent 3-Good 2-Fair 1-Poor N/A	3 2 1 0 Case removed
25. Quality of educational experiences for clinical rotation- General internal medicine*	4-Excellent 3-Good 2-Fair 1-Poor N/A	3 2 1 0 Case removed
25. Quality of educational experiences for clinical rotation- General pediatrics*	4-Excellent 3-Good 2-Fair 1-Poor N/A	3 2 1 0 Case removed

25. Quality of educational experiences for clinical rotation- General surgery*	4-Excellent 3-Good 2-Fair 1-Poor N/A	3 2 1 0 Case removed
25. Quality of educational experiences for clinical rotation- Obstetrics/gynecology/women's health*	4-Excellent 3-Good 2-Fair 1-Poor N/A	3 2 1 0 Case removed
25. Quality of educational experiences for clinical rotation-Psychiatry/behavioral medicine*	4-Excellent 3-Good 2-Fair 1-Poor N/A	3 2 1 0 Case removed
26. Observed by preceptors taking patient history- Emergency medicine*	1-Yes 2-No	1 0
26. Observed by preceptors taking patient history- Family medicine*	1-Yes 2-No	1 0
26. Observed by preceptors taking patient history- General surgery*	1-Yes 2-No	1 0
26. Observed by preceptors taking patient history- Internal medicine*	1-Yes 2-No	1 0
26. Observed by preceptors taking patient history- Obstetrics/gynecology/women's health*	1-Yes 2-No	1 0
26. Observed by preceptors taking patient history- Pediatrics*	1-Yes 2-No	1 0
26. Observed by preceptors taking patient history- Psychiatry/behavioral medicine*	1-Yes 2-No	1 0
26. Were you observed by your preceptor performing the relevant portions of the physical examination? Emergency medicine*	1-Yes 2-No	1 0
26. Were you observed by your preceptor performing the relevant portions of the physical examination? Family medicine*	1-Yes 2-No	1 0
26. Were you observed by your preceptor performing the relevant portions of the physical examination? General surgery*	1-Yes 2-No	1 0

26. Were you observed by your preceptor performing the relevant portions of the physical examination? Internal medicine*	1-Yes 2-No	1 0
26. Were you observed by your preceptor performing the relevant portions of the physical examination? Obstetrics/gynecology/women's health*	1-Yes 2-No	1 0
26. Were you observed by your preceptor performing the relevant portions of the physical examination? Pediatrics*	1-Yes 2-No	1 0
26. Were you observed by your preceptor performing the relevant portions of the physical examination? Psychiatry/behavioral medicine*	1-Yes 2-No	1 0
26. Were you observed by your preceptor performing relevant technical procedures (e.g., suturing, phlebotomy, etc.)? Emergency medicine*	1-Yes 2-No	1 0
26. Were you observed by your preceptor performing relevant technical procedures (e.g., suturing, phlebotomy, etc.)? Family medicine*	1-Yes 2-No	1 0
26. Were you observed by your preceptor performing relevant technical procedures (e.g., suturing, phlebotomy, etc.)? General surgery*	1-Yes 2-No	1 0
26. Were you observed by your preceptor performing relevant technical procedures (e.g., suturing, phlebotomy, etc.)? Internal medicine*	1-Yes 2-No	1 0
26. Were you observed by your preceptor performing relevant technical procedures (e.g., suturing, phlebotomy, etc.)? Obstetrics/gynecology/women's health*	1-Yes 2-No	1 0
26. Were you observed by your preceptor performing relevant technical procedures (e.g., suturing, phlebotomy, etc.)? Pediatrics*	1-Yes 2-No	1 0
26. Were you observed by your preceptor performing relevant technical procedures (e.g., suturing, phlebotomy, etc.)? Psychiatry/behavioral medicine*	1-Yes 2-No	1 0

26. Were you provided mid-point feedback by your clinical preceptor? Emergency medicine*	1-Yes 2-No	1 0
26. Were you provided mid-point feedback by your clinical preceptor? Family medicine*	1-Yes 2-No	1 0
26. Were you provided mid-point feedback by your clinical preceptor? General surgery*	1-Yes 2-No	1 0
26. Were you provided mid-point feedback by your clinical preceptor? Internal medicine*	1-Yes 2-No	1 0
26. Were you provided mid-point feedback by your clinical preceptor? Obstetrics/gynecology/women's health*	1-Yes 2-No	1 0
26. Were you provided mid-point feedback by your clinical preceptor? Pediatrics*	1-Yes 2-No	1 0
26. Were you provided mid-point feedback by your clinical preceptor? Psychiatry/behavioral medicine*	1-Yes 2-No	1 0
35. Confidence in ability- Medical Knowledge**	5-Very confident 4-Confident 3-Neutral 2-Not very confident 1-Not at all confident	4 3 2 1 0
35. Confidence in ability- Interpersonal & Communication Skills**	5-Very confident 4-Confident 3-Neutral 2-Not very confident 1-Not at all confident	4 3 2 1 0
35. Confidence in ability- Patient Care**	5-Very confident 4-Confident 3-Neutral 2-Not very confident 1-Not at all confident	4 3 2 1 0
35. Confidence in ability- Professionalism**	5-Very confident 4-Confident 3-Neutral 2-Not very confident 1-Not at all confident	4 3 2 1 0
35. Confidence in ability- Practice-Based Learning & Improvement**	5-Very confident 4-Confident	4 3

	3-Neutral 2-Not very confident 1-Not at all confident	2 1 0
35. Confidence in ability- Systems-Based Practice**	5-Very confident 4-Confident 3-Neutral 2-Not very confident 1-Not at all confident	4 3 2 1 0
Program Survey		
5. Which of the following best describes your institution?	1-Public 2-Private, non-profit 3-Private, for-profit 4-Public/private hybrid 5-Military	
6. Is your sponsoring institution an academic health center (AHC)?	1-Yes 2-No	
18. What is the primary or highest credential that your program awards?	1-Certificate of Completion 2-Associate's degree 3-Baccalaureate degree 4-Master's degree	
27. Does your program pay for clinical sites?	1-Yes, payment only to the clinical site (e.g. clinic hospital) 2-Yes, payment only to clinical preceptor 3-Yes, payment to all clinical sites and clinical preceptors 4-No payments to clinical sites or preceptors	1 1 1 0

*Scores for each respondent summed to create total clinical education quality score. ($\alpha=.879$)

**Scores for each respondent summed to create total self-efficacy score. ($\alpha=.830$)

APPENDIX D

DEMOGRAPHIC DIFFERENCES BETWEEN POPULATION, EOPS
RESPONDENTS, AND ANALYTIC SAMPLE

	<u>Population and EOPS Respondents</u>	<u>Population and Analytic Sample</u>	<u>EOPS Respondents and Analytic Sample</u>
<u>Gender</u>	$p=0.05$ $\chi^2=3.7$	$p=0.03$ $\chi^2=4.61$	$p=0.71$ $\chi^2=0.14$
<u>Race</u>	$p=0.01$ $\chi^2=16.32$	$p=0.001^*$ $\chi^2=22.56$	$p=0.94$ $\chi^2=1.80$
<u>Ethnicity</u>	$p=0.38$ $\chi^2=0.78$	$p=0.15$ $\chi^2=2.04$	$p=0.56$ $\chi^2=0.34$
<u>Age</u>			$p=0.22$ $t=1.23$
<u>Education</u>			$p=0.98$ $\chi^2=1.87$
<u>Environment</u>			$p=0.98$ $\chi^2=1.12$
<u>Institution</u>			$p=0.04$ $\chi^2=9.94$
<u>AHC</u>			$p=0.67$ $\chi^2=0.18$
<u>Payment Model</u>			$p=0.48$ $\chi^2=2.49$
<u>Payment Yes/No</u>			$p=0.29$ $\chi^2=1.12$

*All differences significant at $p<0.01$

APPENDIX E

VARIABLES RECODED FOR MULTIPLE REGRESSION ANALYSES

Survey Items/Variable Name	Answer Options	Recoded Values For Multiple Regression
EOPS		
12. Please indicate your gender identification.	1-Male 2-Female 3-Transgender 4-I prefer not to answer	0 1 System Missing System Missing
13. Are you Hispanic, Latino, or Spanish in origin?	1-Yes 2-No 3-I prefer not to answer	1 0 System Missing
14. What is your race? ^{ab}		
Asian ^a	1-American Indian or Alaskan Native 2-Asian 3-Black or African American 4-Multi-racial 5-Native Hawaiian or Pacific Islander 6-White or Caucasian 7-Other, please specify 8-I prefer not to answer	System Missing 1 0 0 System Missing 0 0 System Missing
Black or African American ^a	1-American Indian or Alaskan Native 2-Asian 3-Black or African American 4-Multi-racial 5-Native Hawaiian or Pacific Islander 6-White or Caucasian 7-Other, please specify 8-I prefer not to answer	System Missing 0 1 0 System Missing 0 0 System Missing
Multi-racial ^a	1-American Indian or Alaskan Native 2-Asian 3-Black or African American 4-Multi-racial 5-Native Hawaiian or Pacific Islander 6-White or Caucasian 7-Other, please specify 8-I prefer not to answer	System Missing 0 0 1 System Missing 0 0 System Missing
White or Caucasian	1-American Indian or Alaskan Native 2-Asian 3-Black or African American 4-Multi-racial	System Missing 0 0 0

	5-Native Hawaiian or Pacific Islander 6-White or Caucasian 7-Other, please specify 8-I prefer not to answer	System Missing 1 0 System Missing
Other	1-American Indian or Alaskan Native 2-Asian 3-Black or African American 4-Multi-racial 5-Native Hawaiian or Pacific Islander 6-White or Caucasian 7-Other, please specify 8-I prefer not to answer	System Missing 0 0 0 System Missing 0 1 System Missing
17. Please indicate the highest level of education that you completed prior to entering the professional phase of your current PA program.	1-High school diploma 2-Some college, but no degree 3-Associate's degree 4-Bachelor of Arts 5-Bachelor of Science 6-Other Bachelor's (e.g., business, BFA) 7-Master's degree (health or science related (e.g., MPH) 8-Master's degree (not health or science related; (e.g., MBA) 9-Academic doctorate (e.g., PhD, EdD) 10-Professional doctorate (e.g., MD, JD) 11-Foreign medical graduate/unlicensed medical graduate 12- Other, please specify	1 1 System Missing 1 1 1 0 0 0 0 0 0 System Missing
Program Survey		
5. Which of the following best describes your institution?	1-Public 2-Private, non-profit 3-Private, for-profit 4-Public/private hybrid 5-Military	0 1 1 System Missing System Missing
6. Is your sponsoring institution an academic health center (AHC)?	1-Yes 2-No	1-Yes 0-No

^a Race variable recoded into seven different dichotomous variables for use in regression model.

^b Variables with n<25 were removed before recoding.

APPENDIX F

REGRESSION MODEL VARIABLES: BIVARIATE CORRELATIONS

Bivariate Correlations Among Independent Variables in Regression Model (n=2,206)

Variables	1	2	3	4	5	6	7	8	9	10
1. Program Payment Status	-									
2. Clinical Education Quality	-.06*	-								
3. Age	-.04	.02	-							
4. Gender	-.00	-.04	-.24**	-						
5. Ethnicity	-.03	-.03	.05	-.01	-					
6. Race- Asian	-.03	-.01	.05	-.02	-.06*	-				
7. Race- Black/A.A.	-.05	.01	.08**	-.00	-.04	-.40	-			
8. Race- Multiracial	-.01	-.01	.06*	.01	.20**	-.04	-.02	-		
9. Race- White	.05	.00	-.10**	.02	-.08**	-.72**	-.39**	-.40**	-	
10. Race- Other	-.01	.01	-.02	-.04	.16**	-.03	-.02	-.02	-.30**	-
11. Highest Education	-.00	.01	-.37**	.03	-.05	-.05	-.05	-.04	.09**	-.02
12. Environment- Inner City	-.05	-.00	.12**	.00	.09**	.16**	.10**	.02	-.20**	.08**
13. Environment- Military Base	.02	-.04	.16**	-.05	-.00	-.03	-.01	.05	.01	-.01
14. Environment- Overseas	-.03	.05	.11**	-.02	-.00	.10**	.05	-.02	-.09**	-.01
15. Environment- Rural	-.02	.01	-.02	-.05	-.05	-.12**	-.01	-.04	.11**	-.01
16. Environment- Suburban	.07**	-.03	-.11**	.05	-.01	-.01	-.03	.02	.02	-.03
17. Environment- Urban	-.05	.03	.13**	-.02	.05	.12**	-.02	-.01	-.08**	-.00
18. Environment- Other	-.01	-.02	.02	.02	-.01	-.01	-.01	-.01	.01	-.00
19. Institution Type- Private	.37**	.01	-.12**	.00	-.07**	.01	-.06*	-.02	.04	-.05
20. Program Located in AHC	.16**	.03	-.03	-.04	-.01	-.03	-.09**	.04	.06*	-.03

* $p < .01$, ** $p < .001$

Appendix F Continued

Variables	11	12	13	14	15	16	17	18	19	20
11. Highest Education	-									
12. Environment- Inner City	-.10**	-								
13. Environment- Military Base	-.02	-.02	-							
14. Environment- Overseas	-.06*	.10**	.13**	-						
15. Environment- Rural	.04	-.11**	-.00	-.05	-					
16. Environment- Suburban	.05	-.17**	-.03	-.06*	-.68**	-				
17. Environment- Urban	-.10**	.00	-.01	.06*	-.18**	-.30**	-			
18. Environment- Other	.01	-.01	-.00	-.00	.06*	-.02	.10**	-		
19. Institution Type- Private	.02	-.08**	-.00	-.05	-.09**	.17**	-.08**	-.00	-	
20. Program Located in AHC	.03*	-.02	.04	.01	-.00	.04	-.07*	-.00	.40**	-

* $p < .01$, ** $p < .001$

APPENDIX G

INSTITUTIONAL REVIEW BOARD APPROVAL

eProtocol - UMKC - Dashboard

<https://umkc.keyusa.net/userLogin>



eProtocol

Engley (UMKC)

2.5.62.13 | [Change Password](#) | [Sign Out](#) | [Help](#)

eProtocol > Investigator > Home

Create Protocol Clone Protocol Delete Protocol

IRB

Protocols (In Preparation / Submitted)

NEW
Currently there are no New protocols.

AMENDMENT
Currently there are no Amendment protocols.

CONTINUING REVIEW
Currently there are no Continuing Review protocols.

REPORT
Currently there are no Report forms.

ADVERSE EVENT REPORT FORM
Currently there are no Adverse Event forms.

PROTOCOL VIOLATION FORM
Currently there are no Violation forms.

FINAL REPORT
Currently there are no Final Report forms.

Approved Protocols
Currently there are no Approved Protocols.

Non Active Protocols

Protocol ID	Form Name	Principal Investigator	Title	Approval Date	Last Approval Date	Status/Comments	Form Type
15-011	Unified IRB Form	Tiffini Riggens-Pfeil	The Value of Paying for Clinical Rotations in Physician A...		01/23/2015	NOTHIRESEARCH	

REFERENCES

- Accreditation Review Commission on Education for the Physician Assistant, Inc. (2016). Accreditation standards for physician assistant education; Fourth ed. Retrieved from <http://www.arc-pa.org/wp-content/uploads/2016/10/Standards-4th-Ed-March-2016.pdf>
- Accreditation Review Commission on Education for the Physician Assistant, Inc. (2017). Accredited Programs. Retrieved April 21, 2017, from <http://www.arc-pa.org/accreditation/accredited-programs/>
- Agency for Healthcare Research and Quality. (2014). Primary Care Workforce Facts and Stats No. 3 [Text]. Retrieved June 7, 2017, from <https://www.ahrq.gov/research/findings/factsheets/primary/pcwork3/index.html>
- Agrawal, J. R., Vlaicu, S., & Carrasquillo, O. (2005). Progress and pitfalls in underrepresented minority recruitment: Perspectives from the medical schools. *Journal of the National Medical Association, 97*(9), 1226–1231.
- American Academy of Physician Assistants. (2013). Guidelines for ethical conduct for the physician assistant profession. Retrieved from <https://www.aapa.org/workarea/downloadasset.aspx?id=815>
- American Academy of Physician Assistants. (2017). What is a PA? Retrieved June 8, 2017, from <https://www.aapa.org/what-is-a-pa/>
- American Academy of Physician Assistants, Accreditation Review Commission on Education for the Physician Assistant, Inc., Physician Assistant Education Association, & National Commission on Certification of Physician Assistants.

- (2012). Competencies for the physician assistant profession. Retrieved from <http://www.nccpa.net/uploads/docs/pacompetencies.pdf>
- American Medical Association. (2001). Principles of medical ethics. Retrieved from <http://www.ama-assn.org/ama/pub/physician-resources/medical-ethics/code-medical-ethics/principles-medical-ethics.page>
- American Nurses Association. (2015). Code of ethics for nurses with interpretive statements. Retrieved from <http://nursingworld.org/DocumentVault/Ethics-1/Code-of-Ethics-for-Nurses.html>
- Ammentorp, J., Thomsen, J. L., Jarbol, D. E., Holst, R., Ovrehus, A. L. H., & Kofoed, P.-E. (2013). Comparison of the medical students' perceived self-efficacy and the evaluation of the observers and patients. *BMC Medical Education, 13*, 1–6. <https://doi.org/10.1186/1472-6920-13-49>
- Anthony, D., Jerpbak, C. M., Margo, K. L., Power, D. V., Slatt, L. M., & Tarn, D. M. (2014). Do we pay our community preceptors? Results from a CERA clerkship directors' survey. *Family Medicine, 46*(3), 167–173.
- Ashar, B., Levine, R., Magaziner, J., Shochet, R., & Wright, S. (2007). An association between paying physician-teachers for their teaching efforts and an improved educational experience for learners. *Journal of General Internal Medicine, 22*(10), 1393–1397. <https://doi.org/10.1007/s11606-007-0285-2>
- Association of American Medical Colleges. (2017). *Table B-4: Total U.S. Medical School Graduates by Race/Ethnicity and Sex, 2012-2013 through 2016-2017*. Retrieved from <https://www.aamc.org/data/facts/enrollmentgraduate/>

- Astin, A. W. (1991). *Assessment for excellence: The philosophy and practice of assessment and evaluation in higher education*. New York: MacMillan.
- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice-Hall.
- Bandura, A. (1997). *Self-Efficacy: The exercise of control*. New York, NY: Freeman.
- Barone, M. A., Dudas, R. A., Stewart, R. W., McMillan, J. A., Dover, G. J., & Serwint, J. R. (2012). Improving teaching on an inpatient pediatrics service: A retrospective analysis of a program change. *BMC Medical Education, 12*, 1–8.
<https://doi.org/10.1186/1472-6920-12-92>
- Bass, K. Physician Assistant Education Public Health Initiatives Act of 2017, Pub. L. No. H.R. 1605 (2017). Retrieved from <https://www.congress.gov/bill/115th-congress/house-bill/1605/text>
- Berkman, E. T., & Reise, S. P. (2012). *A conceptual guide to statistics using SPSS*. Los Angeles, CA: Sage Publications.
- Birnbaum, R. (1988). *How colleges work: The cybernetics of academic organization and leadership*. San Francisco: Jossey-Bass.
- Bureau of Labor Statistics, U.S. Department of Labor. (2017). Physician assistants. In *Occupational Outlook Handbook*. Retrieved from <https://www.bls.gov/ooh/healthcare/physician-assistants.htm#tab-6>
- Carlson, E., Pilhammar, E., & Wann-Hansson, C. (2010). Time to precept: Supportive and limiting conditions for precepting nurses. *Journal of Advanced Nursing, 66*(2), 432–441. <https://doi.org/10.1111/j.1365-2648.2009.05174.x>

- Chang, A., Douglas, M., Breen-Reid, K., Gueorguieva, V., & Fleming-Carroll, B. (2013). Preceptors' perceptions of their role in a pediatric acute care setting. *The Journal of Continuing Education in Nursing, 44*(5), 211–217.
<http://dx.doi.org.proxy.library.umkc.edu/10.3928/00220124-20130315-81>
- Clack, G. B., & Head, J. O. (1999). Gender differences in medical graduates' assessment of their personal attributes. *Medical Education, 33*(2), 101–105.
<https://doi.org/10.1046/j.1365-2923.1999.00268.x>
- Creswell, J. W. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches* (3rd ed.). Los Angeles, CA: Sage Publications.
- DiBaise, M., Salisbury, H., Hertelendy, A., & Muma, R. D. (2015). Strategies and perceived barriers to recruitment of underrepresented minority students in physician assistant programs. *Journal of Physician Assistant Education, 26*(1), 19–27. <https://doi.org/10.1097/JPA.0000000000000005>
- Erikson, C., Hamann, R., Levitan, T., Pankow, S., Stanley, J., & Whatley, M. (2013). *Recruiting and maintaining U.S. clinical training sites: Joint report of the 2013 Multi-Discipline Clerkship/Clinical Training Site Survey*. Retrieved from <http://paeaonline.org/wp-content/uploads/2015/10/Recruiting-and-Maintaining-U.S.-Clinical-Training-Sites.pdf>
- Fields, S. A., Usatine, R., Stearns, J. A., Toffler, W. L., & Vinson, D. C. (1998). The use and compensation of community preceptors in U.S. medical schools. *Academic Medicine, 73*(1), 95–97.
- Foley, R., Yonke, A., Smith, J., Roe, B., & Vance, J. (1996). Recruiting and retaining volunteer community preceptors. *Academic Medicine, 71*(5), 460–463.

- Forister, J. G., & Stilp, C. (2017). A spatial analysis of physician assistant programs. *The Journal of Physician Assistant Education, 28*(2), 64–71.
<https://doi.org/10.1097/JPA.0000000000000120>
- Frankfort-Nachmias, C., & Nachmias, D. (2008). *Research methods in the social sciences* (7th ed.). New York, NY: Worth.
- Fulkerson, P. K., & Wang-Cheng, R. (1997). Community-based faculty: Motivation and rewards. *Family Medicine, 29*(2), 105–107.
- Gall, M. D., Gall, J. P., & Borg, W. R. (2007). *Educational research: An introduction* (8th ed.). Boston: Pearson Education, Inc.
- Germano, E., Schorn, M. N., Phillippi, J. C., & Schuiling, K. (2014). Factors that influence midwives to serve as preceptors: An American College of Nurse-Midwives survey. *Journal of Midwifery & Women's Health, 59*(2), 167–175.
<https://doi.org/10.1111/jmwh.12175>
- Glavaz, G. A., Alexander, J. L., Curtis, D., & Eskes, C. (2014). Physician assistant program directors' attitudes, practices, and plans regarding financial compensation to clinical sites. *The Journal of Physician Assistant Education, 25*(4), 12–20.
- Glicken, A., & Lane, S. (2007). Results of the PAEA 2006 Survey of PA Program Expansion Plans. *The Journal of Physician Assistant Education, 18*(1), 48–53.
- Goldenberg, D., Iwasiw, C., & MacMaster, E. (1997). Self-efficacy of senior baccalaureate nursing students and preceptors. *Nurse Education Today, 17*(4), 303–310. [https://doi.org/10.1016/S0260-6917\(97\)80061-5](https://doi.org/10.1016/S0260-6917(97)80061-5)

- Gonzalez-Colaso, R., Moloney-Johns, A., & Sivahop, J. (2013). To teach or not to teach: 2011 national survey of physician assistants and preceptor experiences. *The Journal of Physician Assistant Education, 24*(2), 12–19.
- Gude, T., Finset, A., Anvik, T., Bærheim, A., Fasmer, O. B., Grimstad, H., & Vaglum, P. (2017). Do medical students and young physicians assess reliably their self-efficacy regarding communication skills? A prospective study from end of medical school until end of internship. *BMC Medical Education, 17*, 1–7.
<https://doi.org/10.1186/s12909-017-0943-y>
- Hooker, R. S., & Muchow, A. N. (2014). Supply of physician assistants: 2013-2016. *Journal of the American Academy of Physician Assistants, 27*(3), 39–45.
<https://doi.org/10.1097/01.JAA.0000443969.69352.4a>
- Hsieh, P., Sullivan, J. R., & Guerra, N. S. (2007). A closer look at college students: Self-efficacy and goal orientation. *Journal of Advanced Academics, 18*(3), 454–476.
- Hudak, N. H., Enking, P. J., Gorney, C., & Gonzalez-Colaso, R. (2014). Tales from the trenches: Physician assistants' perspectives about precepting students. *The Journal of Physician Assistant Education, 25*(1), 12–19.
- Institute of Medicine. (2004). *In the Nation's Compelling Interest: Ensuring Diversity in the Health-Care Workforce*. Washington, DC: The National Academies Press.
<https://doi.org/10.17226/10885>
- Laff, M. (2016, June 14). Tax incentives aim to attract primary care preceptors. Retrieved November 24, 2017, from <http://www.aafp.org/news/education-professional-development/20160614preceptorcredits.html>

- Latessa, R., Colvin, G., Beaty, N., Steiner, B. D., & Pathman, D. E. (2013). Satisfaction, motivation, and future of community preceptors: What are the current trends? *Academic Medicine, 88*(8), 1164–1170.
<https://doi.org/10.1097/ACM.0b013e31829a3689>
- Leech, N. L., Barrett, K. C., & Morgan, G. A. (2015). *IBM SPSS for intermediate statistics: Use and interpretation* (5th ed.). New York: Routledge.
- Lent, R. W., Brown, S. D., & Hackett, G. (1994). Toward a unified social cognitive theory of career/academic interest, choice, and performance. *Journal of Vocational Behavior, 45*, 79–122.
- Lent, R. W., Brown, S. D., & Hackett, G. (2000). Contextual supports and barriers to career choice: A social cognitive analysis. *Journal of Counseling Psychology, 47*(1), 36–49.
- Lent, R. W., Hackett, G., & Brown, S. D. (2008). Social cognitive career theory. In *Encyclopedia of counseling*. Thousand Oaks: Sage Publications. Retrieved from <http://dx.doi.org.proxy.library.umkc.edu/10.4135/9781412963978>
- Lurie, S. J., Meldrum, S., Nofziger, A. C., III, L. F. S., Mooney, C. J., & Epstein, R. M. (2007). Changes in self-perceived abilities among male and female medical students after the first year of clinical training. *Medical Teacher, 29*(9–10), 921–926. <https://doi.org/10.1080/01421590701753559>
- Mitchell, M., Leachman, M., & Masterson, K. (2017). *A lost decade in higher education funding* (pp. 1–29). Washington, DC: Center on Budget and Policy Priorities.
Retrieved from

- https://www.cbpp.org/sites/default/files/atoms/files/2017_higher_ed_8-22-17_final.pdf
- Moote, M., Krsek, C., Kleinpell, R., & Todd, B. (2011). Physician Assistant and Nurse Practitioner Utilization in Academic Medical Centers. *American Journal of Medical Quality, 26*(6), 452–460. <https://doi.org/10.1177/1062860611402984>
- Muma, R. D., Kelley, J., & Lies, S. (2010). Relationships of demographic background and practice setting among practicing physician assistants in the United States. *The Journal of Physician Assistant Education, 21*(2), 15.
- National Commission on Certification of Physician Assistants. (n.d.). PANCE policies, procedures and authorization. Retrieved from <http://www.nccpa.net/Upload/PDFs/PANCE%20policies,%20procedures%20and%20authorization.pdf>
- Opacic, D. A. (2003). The relationship between self-efficacy and student physician assistant clinical performance. *Journal of Allied Health, 32*(3), 158–166.
- Pascarella, E. T. (1985). College environmental influences on learning and cognitive development: A critical review and synthesis. In *Higher education: Handbook of theory and research* (Vol. 1). New York: Agathon Press.
- Pavani, S., & Agrawal, G. (2015). A study of self-efficacy and academic achievement among college students. *Online Journal of Multidisciplinary Research, 1*(1), 28–32.
- Pedersen, D. M., Chappell, B., Elison, G., & Bunnell, R. (2008). The productivity of PAs, APRNs, and physicians in Utah. *Journal of the American Academy of Physician Assistants, 21*(1), 42–47.

Peysers, B., Daily, K. A., Hudak, N. M., Railey, K., & Bosworth, H. B. (2014). Enlisting New Teachers in Clinical Environments (ENTICE); Novel ways to engage clinicians. *Advances in Medical Education and Practice*, 5, 359–367.

<https://doi.org/10.2147/AMEP.S69063>

Physician Assistant Education Association. (2009). Twenty-fourth annual report on physician assistant education programs in the United States 2007-2008. Retrieved from <http://paeaonline.org/wp-content/uploads/2016/10/26th-Annual-Report-final.pdf>

Physician Assistant Education Association. (2012). *Preceptor orientation handbook: Tips, tools, and guidance for physician assistant preceptors*. Retrieved from <http://paeaonline.org/publications/preceptor-handbook/>

Physician Assistant Education Association. (2013). Issue brief: Payment of clinical sites and preceptors in PA education. Retrieved from <http://paeaonline.org/wp-content/uploads/2015/09/PaymentClinicalSites-PreceptorsPAEducation.pdf>

Physician Assistant Education Association. (2014). Physician assistant educational programs in the United States: Twenty-ninth report, 2012-2013. Retrieved from <http://paeaonline.org/wp-content/uploads/2016/10/29th-Annual-Report.pdf>

Physician Assistant Education Association. (2016a). 2016 Annual Program Survey. Retrieved from <http://paeaonline.org/research/survey-instruments/>

Physician Assistant Education Association. (2016b). 2016 End of Program Study Survey. Retrieved from <http://paeaonline.org/research/survey-instruments/>

Physician Assistant Education Association. (2016c). Bylaws of the Physician Assistant Education Association. Retrieved from http://paeaonline.org/wp-content/uploads/2017/02/PAEA-Bylaws_FINAL-10.26.16.pdf

Physician Assistant Education Association. (2017a). About PAEA Research Initiatives. Retrieved April 23, 2017, from <http://paeaonline.org/research/research-initiatives/>

Physician Assistant Education Association. (2017b). *By the numbers: program report 32: Data from the 2016 program survey*. Washington, DC: PAEA. Retrieved from <http://paeaonline.org/research/program-report/>

Physician Assistant Education Association. (2017c). *By the numbers: Student report 1*. Washington, DC: PAEA. Retrieved from <http://paeaonline.org/research/student-survey-report/>

Physician Assistant Education Association. (2017d). PAEA Data Request and Sharing Policies. Retrieved April 29, 2017, from <http://paeaonline.org/research/paea-data-request/>

Physician Assistant Education Association. (2017e). Physician Assistant Education Association, *By the Numbers: Program Report 31*. <https://doi.org/10.17538/PS31.2016>

Physician Assistant Education Association. (2017f). Program Survey and Reports. Retrieved April 23, 2017, from <http://paeaonline.org/research/program-report/>

Physician Assistant Education Association. (2017g). Research Department 2017 Surveys and Grants Calendar. Retrieved from <http://paeaonline.org/wp-content/uploads/2017/01/2017-PAEA-Research-Department-Calendar.pdf>

- Ryan, M. S., Vanderbilt, A. A., Lewis, T. W., & Madden, M. A. (2013). Benefits and barriers among volunteer teaching faculty: Comparison between those who precept and those who do not in the core pediatrics clerkship. *Medical Education Online, 18*, 1–7. <https://doi.org/10.3402/meo.v18i0.20733>
- Ryan, R. M., & Deci, E. L. (2000). Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary Educational Psychology, 25*, 54–67. <https://doi.org/10.1006/ceps.1999.1020>
- Scott, C., Bouchard, G., Brock, D., Davison, M., Dehn, R., Hegmann, T., ... Niebuhr, B. (2012). *Physician Assistant Education Association 2010 curriculum survey report*.
- Scott, I., & Sazegar, P. (2006). Why community physicians teach students (or not): barriers and opportunities for preceptor recruitment. *Medical Teacher, 28*(6), 563–565. <https://doi.org/10.1080/01421590600627375>
- Spence Laschinger, H. K., McWilliam, C. L., & Weston, W. (1999). The effects of family nursing and family medicine clinical rotations on nursing and medical students' self-efficacy for health promotion counseling. *Journal of Nursing Education, 38*(8), 347–356.
- Stajkovic, A., & Luthans, F. (2002). Social cognitive theory and self-efficacy: Implications for motivation theory and practice. In *Motivation and work behavior* (7th ed., pp. 126–140). McGraw-Hill. Retrieved from https://www.researchgate.net/publication/258995495_Social_cognitive_theory_and_self-efficacy_Implications_for_motivation_theory_and_practice

- Stone, S., Ellers, B., Holmes, D., Orgren, R., Qualters, D., & Thompson, J. (2002). Identifying oneself as a teacher: The perceptions of preceptors. *Medical Education*, 36(2), 180–185. <https://doi.org/10.1046/j.1365-2923.2002.01064.x>
- Sullivan, L. W. (2004). *Missing persons: Minorities in the health professions, a report of the Sullivan Commission on Diversity in the Healthcare Workforce*. Retrieved from <http://health-equity.lib.umd.edu/40/>
- The National Association of State Budget Officers. (2017). *Summary: Spring 2017 fiscal survey of states* (pp. 1–8). Washington, DC. Retrieved from <https://higherlogicdownload.s3.amazonaws.com/NASBO/9d2d2db1-c943-4f1b-b750-0fca152d64c2/UploadedImages/Issue%20Briefs%20/2017%20Summary%20of%20Spring%20Fiscal%20Survey%20of%20States.pdf>
- van Dinther, M., Dochy, F., & Segers, M. (2011). Factors affecting students' self-efficacy in higher education. *Educational Research Review*, 6(2), 95–108. <https://doi.org/10.1016/j.edurev.2010.10.003>
- Woloschuk, W., Lemay, J., & Wright, B. (2010). What is the financial state of medical students from rural backgrounds during tuition fee deregulation? *Canadian Journal of Rural Medicine*, 15(4), 156–160.

VITA

Laura A. Begley was born on July 13, 1982, in St. Louis, Missouri. She is the only child of Roy and Patricia Begley. Laura attended McCluer Senior High School in Florissant, Missouri and graduated in May 2000. Upon completion of her secondary education, she attended Lindenwood University in St. Charles, Missouri. She graduated with a Bachelor of Arts in Nonprofit Administration and Marketing in May 2004. While working on her graduate degree at Lindenwood University, Laura served as the Assistant Director of Student Activities. She graduated with a Master of Arts in Nonprofit Administration in December 2005 and a Master of Business Administration in May 2006.

Laura has spent her professional career working in higher education and nonprofit organizations. She is currently the Allied Health Program Coordinator at the University of Missouri-Kansas City (UMKC) School of Medicine. During her time at UMKC she has contributed to the development and accreditation of the physician assistant (PA) program, as well as to the continuing accreditation and fruition of an anesthesiologist assistant (AA) program.

In her personal time, Laura is committing to serving her community through the work of the Waldo-Brookside Rotary Club. She is proud to be a charter member, as well as an acting executive board member of the club.